ENCYCLOPEDIA OF LIBRARY AND INFORMATION SCIENCE

VOLUME 23

EXECUTIVE EDITORS
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ENCYCLOPEDIA OF LIBRARY AND INFORMATION SCIENCE

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POLAND, LIBRARIES AND INFORMATION CENTERS IN

Introduction

In Poland, traditions of the basic factors contributing to library development are analogous to those with a 1,000-year tradition. Among several physical European processes and phenomena which determine the level of the socioeconomic development of the community, of greatest importance are: the advancement in manufacturing technologies and the evolution of the book industry, the rising educational opportunities and their universalization, and a broadened range of scientific activities. In addition, the internal political situation of Poland and relations with foreign countries have exerted a measurable influence on the development of Polish libraries.

The history of Polish libraries, which reflects the general history of national culture, can be divided into the following periods:

1. The Middle Ages, 11th through the 15th centuries
2. The Renaissance and Reformation, 16th century to the beginning of the 17th century
3. Counter-Reformation, 17th century to the beginning of the 18th century
4. Enlightenment, the second half of the 18th century
5. The period of the partitioning of Poland, 1795–1918
6. The period of the Second Republic, 1918–1939
7. The Nazi occupation, 1939–1945
8. The Polish People's Republic, since 1945

Centers for scientific information have only recently been created. Their emergence, in 1948–1950, is closely associated with economic development and with the remodeling of organizational structures and the necessity of introducing rational control of the processes in view of the sociopolitical and cultural development of Poland.

The Middle Ages (11th–15th Centuries)

The earliest libraries were organized at the time of the establishment of Poland as a sovereign state, when the Christian faith, as Roman Catholicism, was adopted in 966.

The first collections of books were brought to Poland from Czech territory, Ireland, Italy, France, and Germany in the 10th century. These volumes comprised liturgical and church administration works, indispensable to the clergy for the

propagation of the Christian faith. Libraries only appeared later, during the succeeding century. At the turn of the 11th century, Poland was already in possession of all types of libraries characteristic of the Middle Ages: church collections, convent, court, and privately owned libraries. In the 14th century, the first library of a Polish university was begun.

LIBRARIES OF CHURCHES AND OF MONASTERIES

Church libraries (capitular, collegiate, parochial) as well as monastery libraries have played an outstanding role in the history of Polish culture. In these libraries were written, and preserved, such source materials of invaluable significance to Polish historians as: biographic notes, chroniclers' records, obituaries, annals, and chronicles. The importance of these libraries is not lessened by the limited range of their social influence, because of the then low level of education of the community, and because the Latin text of the books created a language barrier to the speakers of the Polish language.

The earliest collections of books were to be found among ecclesiastical holdings of churches maintaining seminaries for educating the clergy. The prior existence of these collections has been verified by a few manuscripts and by entries on donations and grants of use found in capitular deeds. The most ancient in Poland is thought to be the Capitular Library of Gniezno, the place where the first cathedral school was started in the 11th century. The capitular library in Kraków belongs to the same era. The oldest lists of books of this library, still in existence, date back to the 12th century. According to the inventory of the treasury, in 1101 the capitular library was in possession of only three volumes, but in 1110 it already contained 52 statute books, most of them secular. To the group of most ancient capitular libraries, whose origins date back to the 11th century, belongs the library of the Płock cathedral. The library of the Poznań cathedral has existed since the 12th century, and dating from the 13th century are libraries of Włocławek, Wrocław, and Frombork. The St. John parochial library at Toruń is also one of the most ancient church libraries. There is some information on church libraries at Wiślica, Sandomierz, Łowicz, Przemyśl, and Bąkowa Góra as well. In Silesia, the oldest church library was in Zielona Góra. The church libraries at Lubin, Złotoryja, Wrocław, and Góra Śląska date from the 15th century.

Besides churches, monasteries represented the main centers where books were collected, and where they were also prepared in the scriptoria, (i.e., rooms set apart for writing).

The Italian Benedictines were the first order of priests to set foot on Polish soil, in 1001 and 1002; they settled at Międzyrzecz Wielkopolski. On account of their missionary activities they learned to speak Polish and started teaching Poles. In the middle of the 11th century they founded an abbey at Tyniec near Kraków, and at Lubieniec Wielkopolski—a monastery.

Most operative in their activities proved to be the monks of the Holy Cross monastery on Łysa Góra. Provided with a scriptorium, in which numerous scribes made copies of manuscripts borrowed from the Kraków Academy, the monastery

soon acquired an impressive collection of books. In all likelihood, to this monastery belonged the most important linguistic monument of the Polish language, namely, fragments of the *Holy Cross Sermons* [Kazania Swiętokrzyskie] dating from the 14th century. And in this monastery fundamental source materials for the study of Poland's history were compiled: *The Ancient Holy-Cross Annals* [Rocznik Swiętokrzyski], middle of the 12th century, as well as the annals with entries made since the middle of the 13th century. The oldest part of the collection of books belonging to the benedictines on Łysa Góra was destroyed by fire in 1459.

At the end of the 12th and beginning of the 13th centuries the Cistercians developed increasing numbers of libraries. In this group, particularly outstanding are monastic libraries of Paradyż and Henryków. The former place was the site of the efficient activities of the well-known theologian called Jakub of Paradyż, while Henryków is the place of origin of the *Henryków Volume* [Księga Henrykowska] compiled in 1269, which constitutes an important source document contributing to the history of the socioeconomic system of Poland under the Piast dynasty. The *Henryków Volume* contains the first Polish sentence ever written.

Impressive collections were, moreover, found in monastic libraries of Cistercians at Ląd, Mogiła, Oliwa, Pelplin, Koprzywnica, Sulejów, Trzebnica, and Jędrzejów. In Silesia, the largest collections of books were owned by Cistercian convents at Lubiąz, Henryków, and Ruda.

In the 13th century, to the number of monastic libraries were added collections of books belonging to the Dominicans, of which the most valuable were those kept in the monasteries of Kraków, Wrocław, and Lublin. The oldest bookstock of the Kraków monastery was consumed by fire in 1850.

The most extensive libraries belonging to the Franciscans were to be found in Kraków and Toruń. The collection of school textbooks of the convent in Kraków was destroyed by fire, while the collection of Toruń later became the endowment of the local grammar school library.

A vast convent library was built up by canon regulars who had settled in Zagań in the 13th century. Completed in subsequent years, by the end of the 15th century this collection comprised about 1,000 volumes. A similar convent library was owned by the monastic order dwelling in the vicinity of the Corpus Christi church in Kraków. Convent libraries were also known to belong to the order of Lateran canons at Czerwińsk, Trzemeszno, and Płock.

An impressive library was part of the Carthusian monastery near Legnica, founded in the 15th century. This monastery was liquidated in the 16th century and part of the bookstock passed under the ownership of the local church (St. Peter and Paul).

Medieval Poland abounded in church and monastic collections of books, yet with the passage of time books were destroyed, or else were handed over to secular libraries, both scientific and municipal. Not many of those volumes have survived until the present, and those extant mostly belong to collections of capitular libraries in Gniezno and Kraków, to convent libraries in Tyniec and Mogiła, and to the seminary book collection at Pelplin. Numerous and valuable book specimens deriving from collections of liquidated convent libraries still exist in other libraries, both ecclesiastical and secular.

LIBRARIES OF SOVEREIGNS AND OTHER PRIVATE BOOK COLLECTIONS

Libraries of sovereigns started to develop in Poland as late as in the second half of the 14th century. From the preceding period, 11th–13th centuries, there are only traces of single book specimens belonging to the Piast sovereigns. Books devoted to the liturgy were kept in the ducal treasury and used for purposes of religious worship. Manuscripts belonging to King Mieszko II (1025–1034) and to his wife, Rycheza, are the first batch of manuscript volumes (codices) recorded in historical sources. *Ordox Romanus* constituted the main specimen—it was offered to the Polish sovereign by Matylda Szwabska (ca. 1027).

Entries in chronicles carry information on the interest in books shown by women of ducal families. Mentioned is Salomea, spouse of King Bolesław III the Wrymouth, who offered a great psalter to the monastery at Zwiefalten; and also the daughter of Leszek the White, St. Salomea, owner of an extensive collection of books which she donated to the Franciscan friars (1268).

Sporadic manifestations of interest in books occurring at the courts of the Piast rulers in the 11th to the 13th centuries did not result in the development of larger book collections. The chief unfavorable influence here was the crisis in the central state administration, which was torn apart by decentralizing forces, and finally brought about a long-term division of the country into separate provinces.

Ludwik I, a Piast prince of the Silesian line, residing at Brzeg, was the first owner of a library (comprising several dozens of volumes) that is mentioned in historical records. In 1360, on the strength of his will, this collection was divided among different members of his family and the Silesian monasteries at Brzeg, Legnica, and Lubiąz.

The reunification of Poland in 1320 became a new starting point in the history of royal book collections. The king's court gradually resumed its role as the center of political and cultural activities.

Under the reign of King Kazimierz III the Great (1333–1370) a well-stocked library existed in his Wawel residence in Kraków. According to information recorded by the chronicler Jan of Czarnków, some of the codices were handed over by the king to churches he had erected, among others the cathedral of Gniezno. Traces of this library have been preserved until today, including an ornamental monogram of the king drawn on a copy of St. Augustine's commentary to St. John's writings. In time, this commentary became the possession of Jan Długosz, the Polish historian.

The bibliophilic tradition of the Wawel Residence had been further supported by Queen Jadwiga (1374–1399), who amassed many ascetic, religious, and secular books. Most of them were translations into the Polish language. Here could be found Polish versions of *St. Brigid's Revelations*, the *Golden Legend*, *Homilies of the Four Doctors*, and meditations and prayers of St. Bernard and St. Ambrose. It seems very likely that the *St. Florian Psalter* [Psałterz Floriański], constituting one of the most ancient monuments of the Polish language and comprising Latin, Polish, and

German texts, was destined for the use of the queen. The subsequent history of the library of Queen Jadwiga remains obscure. It seems highly probable, though, that the collection was scattered. There is sporadic mention about codices from this collection later belonging to members of the royal family, as for example, the so-called *Queen Sophia's Bible* [Biblia Królowej Zofii], which in the middle of the 15th century was in the possession of the spouse of King Władysław Jagiełło (1348–1434). Queen Jadwiga sold the collection, or part of it, turning the gained funds over to the Kraków Academy.

In addition to libraries belonging to courts of sovereigns, privately owned libraries were begun in the Middle Ages. In the second half of the 14th century this trend clearly gets stronger, lasting all through the 15th century. Bibliophilic interests were greatly stimulated by the then scientific contacts, by diplomatic relations, and by religious dealings of the Poles with countries of southwestern Europe, mainly with Italy and France. Books were collected by the clergy, learned persons, and professors of the Kraków Academy. Large libraries were then amassed by the Gniezno Archbishop, Jarosław from Skotniki (died in 1376), by Cardinal Zbigniew Oleśnicki (1389–1455), and by the eminent Polish historian Jan Długosz (1415–1480). The library of Jan Długosz contained manuscripts, works by writers of antiquity, legends, chronicles, and law codices. Individual volumes of this collection are still to be seen. Private libraries were also owned by professors of the Kraków Academy. In time, some of them were turned over to the Kraków Academy.

LIBRARY OF THE KRAKÓW ACADEMY

The largest collection of books in Poland, in the second half of the 14th century, had been amassed in the library of the Kraków Academy founded by King Kazimierz III the Great in 1364. The downfall of the academy after the king's death presumably was accompanied with a dispersal of the bookstock. As soon as the university was renovated by King Władysław Jagiełło in 1400, books started to be collected once again in the different colleges of the academy. Libraries of the colleges were independent, maintained and developed chiefly from grants and bequests set up by professors or eminent fellows. These libraries mainly comprised textbooks and scientific dissertations, mostly in the domains of philosophy, legislation, theology, and medicine; with the passage of time, also works of ancient Latin and Greek authors, and books of contemporary humanists, some of them brought by participants of the ecumenical council held in Basel, 1431–1449. Under the best auspices the libraries of colleges of artists and theologians were in time merged into the great library of the Collegium Maius. Statutes of this college of 1429 established two offices of custodians of the library, appointable once a year, enjoying the privilege of reelection. These custodians were entitled to lend the codices not only to masters of the university but also to "trustworthy persons." In addition to the Collegium Maius Library, the library of the law college, without a librarian, had a smaller collection then kept in the Collegium Maius. The use of books was facilitated by smaller libraries established in the boarding houses for the students.

The Renaissance and Reformation (16th Century)

Toward the end of the 15th and in the 16th century the social influence of books continually grew in Poland. Likewise the structure of book collections changed significantly as an outcome of the economic development of the country, of the social changes, and of the rising level of cultural activities enriched by the humanistic ideology. The wealth of the community increased as a result of the intensive production of cereals both for direct export and for the home market, of the development of the mining and metallurgical industry, and of commerce and crafts. The functioning of the state administration was improved by the reorganization of the treasury, the army, and the judicial system. Legal protection was established in the significant domain of civil rights, especially freedom of religion, providing for the development of the Lutheran reformation, Calvin's theology, and Arianism. There was a blossoming of art with Wawel and Zamość, of literature with M. Rey and J. Kochanowski, and of science with M. Kopernik and A. Frycz-Modrzewski.

The influence of the Italian Renaissance with reference to library culture reached deep into the 15th century because of the long-standing relations in the early Middle Ages between Poland and Italy. Ecumenical councils and students at Italian universities brought back with them manuscripts of texts by classical and humanistic authors, for example, Plutarch's manuscript imported by Jakub from Sienna and Livy's work brought to Poland by Jan Długosz. The influx of renaissance culture into Poland increased with the invention of printing. Renaissance literature was brought from Italy (mainly from Venice), Switzerland (Basel), Germany (Nurnberg, Leipzig, Vienna), and France (Paris, Lyon). In addition to theological literature acquired until that time by church and convent libraries, an ever-broadening stream of secular literature and of books written in the spirit of the Reformation flowed into Poland. Local printing increasingly served to popularize literature, and the craft of printing accounts for the development of book collections.

PRIVATELY OWNED LIBRARIES

Libraries of the Renaissance were already organized at the beginning of the 16th century. Scholars and persons engaged in instruction were the main collectors. Because of the quantitative and qualitative improvement of the book market, and the lowered cost of books, the collectors were provided with a better opportunity for developing bibliophilic interests. Book collections of professors of the Kraków Academy, of rectors of public schools, and of representatives of other intellectual circles often held 250 or more volumes each. That number of books was attained by Mikołaj Czepiel from Poznań (1453–1518). His library contained books on legislation, philosophy, philology, and medical science; also works by most eminent representatives of the school of glossarists from Bologne. Of value, too, was the collection of Greek volumes, the first one in Poland, and one of the earliest in Europe. A rich and valuable collection of Hellenistic books was acquired by Stanisław Grzepski (1524–1570), who held a university chair in classical studies. Not of less value were the book collections of those in the medical profession.

Interest in books became the fashion and an approved activity of the wealthy in

Poland. Impressive bookstocks were brought together by Boners, the Kraków patricians; the Kraków mayor Paweł Pernus (died 1599); the Lwów mayor Jan Zaleski from Skalmierz (died ca. 1590); by the middle-class writer and Lublin mayor S. F. Klonowic (ca. 1545–1602); and the eminent poet and philologist Szymon Szymonowicz (1558–1629). A sizable collection of books belonging to the mayor of Toruń, Henryk Stroband, has been preserved almost intact in the Kopernik Municipal Library in Toruń.

Townspeople developed family collections, to which volumes were added over endless centuries. In some cases such libraries grew to impressive dimensions, for example, the collection of the Alambeks of Lwów which prospered for almost 200 years.

Representatives of the most highly privileged social circles, the ecclesiastic and secular magnates, formed a numerous group of bibliophiles in the 16th century. An outstanding role in propagating the ideas of the Renaissance in Poland was played by libraries of primates: of Andrzej Krzychi (1462–1537), a poet; and Maciej Drzewiecki (1467–1535), who had amassed a great number of books by classical authors. Drzewiecki's book plates of 1516 and 1517 are regarded as the oldest in Poland. Renaissance book collections were also developed by bishop-humanists. Those of the bishops of Płock, Erazm Ciołek (1474–1522) and Piotr Wolski (1531–1590) were notable in number and quality. With exquisite taste, Ciołek collected illuminated manuscript codices, some of which were specially made on his order. Ciołek's collection contained a profusion of Venetian printed matter. The whole bookstock was handed over to the capitular library of Płock.

Under conditions prevailing in Poland, the library of Piotr Wolski was quite unusual. It was comprised of a rich collection of Spanish works brought back from diplomatic voyages to Spain and Italy. Numerous specimens from this library have been preserved until today in the Jagiellonian Library. In that same library are kept some books from a large collection of 400 to 500 volumes belonging originally to the Kraków Bishop Piotr Tomicki (1464–1535), patron of the Kraków Academy, in particular in the field of Greek and Hebrew philology. A rich humanistic library comprising numerous "Erasmiana" was compiled by Bishop Jan Dantyszek (1485–1548). Likewise, Bishops Jan Lubrański (died 1520) and Marcin Kromer (1512–1589) were owners of libraries. Of Dantyszek's library, only single copies of books remain, most of the stock having been stolen by the Swedish invaders in the 17th century. Lubrański's collection forms the basis of the library of the academy founded in Poznań, 1519.

Collections of books belonging to laymen of influence, which were obtained in the 16th century, owe their origin in most cases to the owners' humanistic interests or to their involvement in the Reformation movement. In a few cases, bibliophily was based on snobbishness and on surrender to exigencies of fashion rather than on specific intellectual needs.

Well-supplied collections of books are in the first place to be found in dwellings of high-ranking state dignitaries. Libraries were founded by the great marshal of Poland, Piotr Kmita (1477–1553), by the voivode Michał Radziwiłł, and the castellan Jan Boner.

A privately owned library, mainly containing books on history and law, belonged

to hetman Jan Zamoyski (1542–1605), founder and patron of the Zamoyski Academy, which had a separate collection of books destined to meet the requirements of teaching and research. A library of interesting books was developed by the courtier to the king, Melchior Krupka. Krupka's bookstock was not only numerous but covered an impressive selection of topics. It contained works of classical authors and of the humanists, religious literature of the period of early Christianity and of the Reformation, and even Byzantine scientific papers. The original stock was amassed in 1550–1553, as evidenced by datings on the rich book covers and on labels.

Snobbishness and the owner's ambitions found a manifestation in the rich collection of books belonging to Chancellor Krzysztof Szydłowiecki, 1467–1532.

Libraries of dissident Polish nobility, the followers of heresies, constitute a separate group of book collections of the 16th century. Libraries of this kind belonged to the Szafraniec, Firlej, Radziwiłł of Nieśwież, and Sapieha of Rózanka families. Within the boundaries of the then Poland, in Królewiec a well-stocked dissident library belonging to Prince Albrecht, the Polish vassal, was established. In 1506, the Królewiec library owned 586 manuscripts and 2,400 printed items. Of greatest value was its so-called "silver library" comprising 20 volumes by Reformation authors, published in 1540–1562, artistically bound in sheet silver. The Królewiec library was enriched about 1551 by the collection of Kwidzyń, formerly belonging to the Poznań Bishop Paweł Speratus (1484–1551). Theological and historical treatises constituted the core of the bookstock.

Libraries of dissident nobility, which owed their origin to the idea of propagating the Reformation movement, had an extensive area of influence by making their collections available to the whole religious community. In this respect they differed from libraries comprising Latin and Greek classics, which were mainly for use by owners and a limited group of their friends. Libraries of nonconformists, therefore, brought important progress toward the popularization of book reading.

LIBRARIES OF SOVEREIGNS

The new type of Renaissance book collecting at kings' courts dates from the times of the sons of King Kazimierz Jagiellończyk, whose education under the guidance of Jan Długosz was based on Latin and Greek classics. The eldest son, Władysław (1456–1516), even before his voyage to Hungary had collected a large bookstock of Latin classics and works of humanists. His brother, Cardinal Fryderyk (1468–1503), inherited from Filip Kallimach (1437–1496) a large collection of books. In Wawel cathedral, Kraków, an illuminated pontifical published in 1494 from this library has been preserved. King Jan Olbracht (1459–1501) has bequeathed to posterity a gradual, illuminated with miniatures, issued in 1501–1506.

The inventory of the Polish treasury made in 1506, after the death of King Aleksander (1461–1506), lists 39 books, mainly on religious topics, a few Russian books, and a copy of *Statutes* [Statuty] by Jan Łaski. Most valuable here is the prayer book of 1491, now belonging to the British Museum.

The library of King Zygmunt the Old (1467–1548), situated in Vilnius, possessed

according to the register of 1510 a total of 71 volumes. Apart from this library, the king had his own collection in Kraków. Of the Vilnius books, a third were Ruthenian. Among Latin works there were treatises on law and exact sciences. A separate collection of books belonged to the spouse of Zygmunt the Old, Bona Sforza. This library comprised classical literature and works of Italian scholars. Bona's collection was taken back to her native Bari in 1556.

The library of King Zygmunt August (1520–1572) was the most outstanding court collection of the Polish Renaissance; it contained some 4,000 volumes. In its extent and range of topics it was not inferior to other libraries of kings' courts in Europe. King Zygmunt August collected books by purchasing up-to-date local literature and by acquiring foreign volumes through special emissaries. Also numerous gifts, both of a local and foreign origin, contributed to the assets of the library. A copy of the Bible was sent to the king by Martin Luther. The library of King Zygmunt August mainly abounded in law treatises and in books on history. It also contained works by classical authors, as well as writings on the domains of theology, astronomy, and medicine. The books were well bound and provided with gilded labels.

King Zygmunt August's library enjoyed the custody of court librarians, among others of the writer Łukasz Górnicki. In spite of the bibliophilic ambitions of the founder and of the lavish expenditure of funds, the library of Zygmunt August failed to play an important role in the development of intellectual life in the 16th century. After the king's death it was broken up and scattered.

King Zygmunt III Vasa (1566–1632) manifested his interest in libraries by establishing and developing the castle library in Warsaw—the most extensive court book collection of Poland in the 17th century. In addition to numerous writings provided with autographed dedications to the royal family, this library possessed expensive publications and manuscripts purchased in the country and abroad by the king's secretaries. Worthy of particular mention is the Old Greek codex of the New Testament acquired by Stanisław Reszka in Spain. The bookstock comprised several works in law, history, natural science, and theology. Books of this library were bound in parchment or in red-stained leather on which was stamped the ex libris of the Vasa dynasty. The library was supervised by two emigrant Swedish scholars: G. Borastus and J. Vastovius. The castle library, handed down by the king's father and enriched by King Wladyslaw IV, was seized and destroyed by the Swedish army. Only 40 volumes have been preserved until now in Swedish collections.

SCHOOL LIBRARIES

During the Renaissance, humanistic education and the Reformation assigned an important role to libraries of grammar schools. The development of libraries under the Reformation gave rise to Jesuitical book collections, destined for contravening and opposing anti-Catholic tendencies in a broad sense of the word, and dissident views in particular. In this way support was given to the notion that a book is not only a means for broadcasting knowledge, but also a weapon for ideological combat.

Among school libraries the topmost rank is held by the library of the Lubrański Academy in Poznań, established in 1519 together with the founding of the academy. It contains the founder's collection of several thousand volumes, mainly the Greek and Latin classics. During the 16th, 17th, and 18th centuries the library of the Lubrański Academy acquired numerous bequests from canons of Poznań, and books from the capitular library of that town. After the academy was closed by the National Education Committee [Komisja Edukacji Narodowej] in 1784, the books were divided among local high schools.

The library of the Zamoyski Academy, founded in 1594, also played an important role. The original stock of books was offered to the academy by its founder; the collection included books on Polish and Roman law, ancient Polish chronicles, and Greek and Latin classical authors. The library received, moreover, numerous gifts from professors, eminently the first rector and cofounder of the academy, Szymon Szymonowicz, who donated some 1,500 volumes from his own collection. The son of hetman Zamoyski, Tomasz, was also a generous benefactor. After the Zamoyski Academy was closed in 1784, the most valuable part of the stock was handed over to the library of the Zamoyski estates in Warsaw, where it proved of use all through the 19th century.

In the 16th century, collections belonging to heretical schools made up a numerous group of libraries, particularly those organized by Calvinists, Socinians, Arians, and Lutherans. An important feature of the heretical school libraries was their public character; they were open to all members of the given religious community.

The founding of heretic schools and of their libraries received support from the wealthy dissident nobility. With the substantial aid of Mikołaj Firlej, Calvinists in the second half of the 16th century acquired a considerable stock of books, kept at their school at Lewartów. Socinians founded a library at Pinczów in 1552, supported in their enterprise by Mikołaj Oleśnicki. In a similar manner, the Arians stocked their school at Raków with books in 1602. Lutheran communities likewise strived to provide their schools with libraries answering their bourgeois character and its need for didactic activities. In this group the library of the Toruń grammar school is of importance. Founded in 1594, on the initiative of the then mayor, Henryk Stroband, the collection was started with the post-Franciscan library and the library of the town council. It included a rich collection of editions of Martin Luther's writings, among which was the unique, intact copy of the *Enchiridion der kleine Catechismus*, published in Wittenberg in 1536. Rich collections were owned, too, by libraries of Lutheran grammar schools in Gdańsk, Elbląg, and Wrocław.

In the second half of the 16th century, the order of Jesuits launched its activities in Poland. Colleges founded since 1564 made serious use of libraries as didactic and educational means for opposing the spreading dissidence. Owing to lively contacts with foreign centers of book production, libraries of Jesuitical colleges were most abundantly provided with printed literature and possessed the best-organized bookstocks among school libraries in the country. In addition to theological literature, principally of a polemical nature, these libraries owned many scientific works in the domains of philology and historiography. Libraries at Braniewo and in Vilnius are the best among the Jesuit-college book collections. One of the colleges,

operating in Vilnius since 1570 and changed in 1579 into an academy, was granted the library of King Zygmunt August. The bookstock of the newly organized academy was increased by gifts of several Lithuanian magnates, such as Łukasz Krasnodębski, Jerzy Radziwiłł, Mikołaj Pac, and Kazimierz Lew Sapieha.

The library of the academy handed over in 1773 to the National Education Committee lost its monastic character and functioned as a high school library. The names of the school were, successively: the Vilnius Academy (1773–1782), the High School of the Great Duchy of Lithuania, and the Vilnius University (1803–1832). On closing of the university in 1832, the books were divided among Russian libraries.

The prosperous economic, political, and cultural standing of Poland in the 16th century affected the development of the library of the Kraków University. The lively intellectual and scientific movement in this university constituted an important factor stimulating this process. Owing to the well-disposed attitude of many donors, the library was able to accept the most advanced organizational postulates and could rank with the best public service libraries in Europe of the Renaissance.

Collections increased in number of volumes mainly because of generous gifts of professors of the university. Some endowments were proffered for book purchasing by persons not associated with the university. The library collection improved because of an efficient organization of acquisitions. The choice of books belonged to two professors, whose activities remained under the control of the administrative body, both as regards their decisions and the money spent.

Endowments were used to satisfy other needs of the library. Here, mention should be made of the foundation set up by Thomasz of Obiedzin (1517), which made it possible to erect a separate library building. The endowment established by Bartłomiej of Lipnica (1538) provided for a permanent remuneration of a librarian.

LIBRARIES BELONGING TO MUNICIPAL COUNCILS

With the growing prosperity of towns, libraries belonging to municipal councils became a new feature of Poland. The earliest had been established in Braniewo, presumably before the middle of the 15th century. In the 16th century, council libraries existed in Poznań, Toruń, Gdańsk and Lubań; also in Elbląg, Szczecin, and Wrocław.

The most numerous and valuable collection of books of the Renaissance belonged to the library of the "Senatus Gedanensis," founded in 1596. Originally the bookstock had belonged to an Italian refugee, Jan Bernard, Bonifacio, Marquis of Oria, who owned 1,140 volumes, and to a Franciscan monastery in Gdańsk. The collection of books of the Gdańsk municipal council grew in number on account of gifts and purchases. Finally it contained a majority of 16th-, 17th-, and 18th-century libraries which had belonged to citizens of Gdańsk, several thousand titles in some cases. Of particular value was the book collection of Jerzy Knaphius, which included many unique specimens of Italian printed music of the 16th century. The collection of the municipal council library of Gdańsk now belongs to the Gdańsk Library of the Polish Academy of Sciences.

The Counter-Reformation Period (17th Century Until the Beginning of the 18th Century)

In the history of Polish culture, the 17th century is characterized as a period of stagnancy in intellectual life and of a decline of libraries. The situation was determined by the political conditions involving the state in conflicts, both of an internal and foreign nature. Inside the country, a strong Catholic reaction guided by influential Jesuits was engaged in opposing the reformation movement and its ideology, at the same time eliminating from social life all its rationalist concepts. Along with the triumph of the Counter-Reformation came a rapid deterioration in scientific activities accompanied by a retrogression in cultural needs and interests on all social levels. These processes were intensified by long-lasting, devastating upheavals of the Ukrainian Cossacks and the rebellions of peasants all over the country, and in particular by wars waged with Sweden, Moscow, and Turkey. Poland suffered heavy agricultural and other material losses. There followed a breakdown in the economics of farms, towns, handicrafts, and trade. No less heavy were losses sustained by the cultural institutions such as libraries.

Exceptional devastation in the existing collections of books was caused by the forays of the Swedish army in 1621–1660. Losses of that period resulted not only from military activities but also from ordinary pillage, in which the Swedish army was widely engaged. Several dozens of large libraries, constituting both public and private property, fell prey to the invaders. They took over, among others, the bookstocks from Braniewo, Poznań, and Warsaw. In 1626 the capitular library of Frombork was carried away to Sweden. Since 1543 it had included the unique collection of volumes which once belonged to Mikołaj Kopernik, the eminent Polish astronomer. In time, the Frombork collection of books contributed to the wealth of the University Library of Uppsala. Likewise the "castle library," accumulated in Warsaw by the Polish kings, was taken over unscrupulously to Sweden in 1656; and so was the collection of books assembled at Ujazdów, near Warsaw, by Prince Karol Ferdynand. Among the numerous "Polonica" now belonging to the Swedish collections, many writings which had previously formed part of the famous collection of King Zygmunt August have been identified.

PRIVATELY OWNED LIBRARIES

The bibliophilic movement so active in the preceding period, which is so precisely indicative of the intensity of intellectual life, came almost completely to an end in the 17th century. More numerous collections of scientific writings were nowhere to be found except in the possession of scarce representatives of the episcopacy, the scientific world, and the nobility. Larger privately owned libraries belonged at that time to the archbishop of Lwów, Jan Andrzej Próchnicki (died 1633); to Jan Brożek, an eminent mathematician and astronomer, dwelling in Kraków (1581–1652); to state dignitaries of high rank such as Łukasz Opaliński, the majordomo and field marshal; Stanisław Jan Jabłonowski, the great Polish hetman; and Jan Fryderyk Sapieha, the great Lithuanian chancellor. In provincial magnates' residences, family libraries were accumulated by the Radziwiłłs of Birża and Nieśwież,

by the Leszczyńskis of Baranowo and Leszno, by the Lubomirski family, and others. A large library was the pride of the patrician house of Alembeks of Lwów.

The collection of books belonging to the king's secretary Hieronim Pinocci (1613–1676) represents one of the more interesting libraries of the 17th century. Pinocci was a patrician resident of Kraków, of Italian extraction, who collected about 1,700 scientific books, many of them in Italian. Pinocci's library was handed over by his successors to the Jagiellonian Library [Biblioteka Jagiellońska] in Kraków.

LIBRARIES BELONGING TO SOVEREIGNS

After the end of the Polish-Swedish war, King Jan Kazimierz (1609–1672) started to restore the depleted stock of the "castle library" in Warsaw, which had been plundered in 1656. Completion of the collection and general surveillance was entrusted by the king to a librarian, the post later held by the naturalist M. Bernhardi-Bernitz. The collection lasted in Warsaw until 1668. Presumably, at that time the library possessed about 350 volumes in various languages, mostly religious and historical literature. After his abdication, King Jan Kazimierz took part of his private library with him to France. Following his death, the collection was broken up and dispersed.

The book collection assembled by King Jan III Sobieski (1624–1696), kept partly at Żólkiew and partly at Wilanów, the king's residence near Warsaw, was comprised mainly of ancestral writings. The library grew in number chiefly by the extensive purchases made by the king. To some extent the bookstock was reinforced by the recovery of books stolen by the Swedes, after 1682. As a result of this action, parts of the collection of King Zygmunt August and King Zygmunt III Vasa were sent back to Poland. In 1689 King Jan III's library numbered over 7,000 volumes, including a rich collection of military science such as writings on the architecture of war, and works by René Descartes, Francis Bacon, John Locke, and others. After the sovereign's death, his successors handed down the library to A. S. Załuski, who merged it with his library, which was open to the public.

SCHOOL LIBRARIES

The stagnation of intellectual life in Poland, lasting through the 17th century, had a visible effect on school libraries. The libraries belonging to schools, only scarcely replenished in number with devotional literature, could not properly fulfill their educational duties both for the pupils and teachers, and for the public at large. Libraries of Jesuit colleges prospered because they were used as means for opposing the ideology of the Reformation, as did libraries belonging to certain colleges of Piarist and to religious seminaries, for instance the libraries of Jesuit colleges at Braniewo, Kraków, Poznań, Bydgoszcz, and Toruń, as well as libraries of Piarist colleges at Rzeszów, Warsaw, and Podoliniec. The most numerous book collections of seminaries were amassed in those founded in Warsaw and Wrocław. In Lwów, a library of the former Jesuit college was transformed into an academy in 1661.

The Period of Enlightenment (Middle of the 18th Century Until the Beginning of the 19th Century)

In the middle of the 18th century cultural life in Poland gradually became more lively on account of the limiting of the unfavorable effects of the Counter-Reformation movement, and of a partial restoration of the damage inflicted by wars and internal disturbances. Of significance, too, were all the measures aimed at modernizing the economics and politics of the state. Economical reconstruction of the country consisted essentially of agricultural progress, achieved by imposing agricultural rent on peasants, stimulation of the manufacturing industry, and development of financial and banking economies. Modernization of the economic system was accompanied by significant political reforms of the monarchical government, the treasury, and army. A new constitution was adopted in 1791. In addition to the socioeconomic changes under way, development of political activities, and of culture and art, became an integral component of modernization. The cultural manifestations and artistic output of this era were deeply influenced by French rationalism and classicism.

The development of modern librarianship, which took place in Poland in the middle of the 18th century, was characterized by two events in particular: first, initiatives in the realm of state policies undertaken with respect to libraries by the National Education Committee, and, second, turning over for public use of the large scientific library organized by the Załuski family.

THE NATIONAL EDUCATION COMMITTEE: SCHOOL AND UNIVERSITY LIBRARIES

The National Education Committee (1773–1794) represented the central administration of all schools responsible directly to the Seym (parliament); it constituted the very first administrative body of this kind in Europe. In addition to the introduction of changes in the educational system, the committee was engaged in working out very important reforms in the Polish methods for administering libraries. The reforms were based on defined principles of a library policy applied to school libraries, to university libraries, and to the Załuski Library [Biblioteka Załuskich]. All these libraries were to be supervised by a central administration, constituting a uniform network. The principles of library policy prepared by the National Education Committee embraced the bulk of material, financial, organizational, and professional problems connected with library activities; particular emphasis was laid on the opening of libraries to the public as a strict necessity. A full realization of the rich program for forming the library system in Poland was prevented by the breakdown of the state in 1795. Changes of some importance were put through only in the grammar school libraries and in the university book collections of Kraków and Lwów.

Changes introduced at the library of the Kraków Academy represented only one side of the reform, which was later extended over the whole higher school system, 1777–1780. The objective was the organizational integration of libraries within individual colleges. In consequence of the reform, the Collegium Maius library became the chief stock of books for use of the entire college and the public at

large. The collection amounted to 10,797 printed titles in 32,000 volumes and 1,926 manuscripts.

An important change introduced in Lwów consisted in erecting, in 1785, a university library supplemented throughout the coming decades with gifts and possessions of liquidated convents.

The library of the School of Knights [Szkoła Rycerska], established in Warsaw by King Stanisław August in 1767, contained about 10,000 volumes and was mainly didactic. On account of the teaching program it included many books on military training, mostly in French and German. In 1796 the library of the School of Knights was discontinued, the books being taken away by the Prussian government for the Warsaw secondary school [Liceum Warszawskie]. It is worth mentioning that in the second half of the 18th century several other military libraries existed in Poland. They were to be found, for instance, at the Corps of Royal Engineers, the divisions of Artillery, the Infantry Guards of the Grand Duchy of Lithuania, and later at the Legions of J. H. Dąbrowski.

THE ZAŁUSKI LIBRARY

The library of the Załuski brothers [Biblioteka Załuskich] was opened to the public in 1747. The stock of books consisted at first of merged collections of two brothers: Andrzej Stanisław Z. (1696–1758) and Józef Andrzej Z. (1702–1774). The joint bookstock comprised about 200,000 items, including manuscripts, and a large collection of maps and prints. Essentially the stock consisted of foreign-language writings acquired by J. A. Załuski during his frequent voyages abroad; but Załuski also succeeded in bringing together almost a complete collection of Polish literature. During the subsequent decades, the stock of books was enriched by purchases, gifts, and legal deposit copies granted to the library in 1780 by the Seym. It doubled in size, comprising at the time of its dispersal about 400,000 volumes. Much concern was given to appropriate organization and cataloging of this impressive bookstock. Books were arranged by language, subject, and size. About 50 manuscript catalogs worked out by J. A. Załuski were destroyed in 1944. Only printed catalogs, prepared by the library prefect J. D. Janocki, have been preserved. The large bookstock of the Załuski Library, open to the use of the public at large from 1750 onward, became the center of scientific and intellectual activities. The collection of this library was an ideal source for basic scientific and bibliographic research. Studies of this type were undertaken, apart from Załuski himself, by Konarski, Niesiecki, Dogiel, and many others.

In 1761 J. A. Załuski put his library under custody of the Warsaw Jesuits' College. After cessation of the Jesuit Order and after Załuski's death (1774) the library was taken over by the state and entrusted to the guardianship of the National Education Committee, and called the Library of the Republic. This library represented one of the largest European bookstocks of those times. When Poland lost her independence in 1795, the collection of the Republic Library was carried away to St. Petersburg by orders of the Empress Catherine II, where it became the foundation of the collection of the Imperial Public Library, now the Saltykov-Shchedrin State Public Library of Leningrad. Because of inefficient custody, the collection

of books belonging to the Republic Library was largely depleted. Part of the stock, recovered in 1922–1934 on strength of the Riga Treaty (1921), was taken over by the National Library [Biblioteka Narodowa].

PRIVATELY OWNED LIBRARIES

The organizational activities of the state covering libraries resulted in some enlivening of the bibliophilic movement. Family libraries were founded and restored to proper order. In addition to these privately owned collections, educational and recreational libraries were organized by bookselling firms and vocational associations.

In the middle of the 18th century the Radziwiłł of Nieśwież library represented the largest privately owned stock of books. It had been founded in the middle of the 16th century, but the stock of books was lost during the Swedish wars. Intensive reconstruction of the library resulted in assembling by the middle of the 18th century of some 14,000 volumes published after 1650, and numerous manuscripts. The library was provided with its own, appropriate building and with the post of a librarian-custodian responsible for the collection. In 1772 the bookstock of Nieśwież, comprising then some 20,000 volumes, was confiscated and carried away to Russia. Impressive collections were likewise assembled by Czartoryskis at Puławy and Sieniawa, by Tadeusz Czacki at Poryck, by Ignacy and Stanisław Kostka Potockis, and by the Jabłonowskis.

In the middle of the 18th century the bibliophilic movement was once again active because of the support by wealthy bourgeoisie, in the first place from the patriciate, the intelligentsia, and the rich merchants of Warsaw, Poznań, Kraków, and Toruń. However, information on the extent of this movement is scant, as libraries of the townspeople were only kept up during their lifetime and then dispersed. In exceptional cases they were incorporated into other libraries, mainly to those belonging to the town.

In the 18th century there came into being privately owned libraries connected with bookshops, which constituted a new type of library institution. At first they were only reading clubs, later becoming lending libraries. In Warsaw, toward the end of the 18th century, bookshops-cum-libraries of the above type were run by M. Groll, F. Pfaff, F. Ch. Netto, N. Glucksberg, and others.

In the same period, the organization of libraries was undertaken by associations and unions of different professional groups of the middle classes. These libraries were to serve the purpose of propagating and of improving the qualifications of members of the associations and unions. Financial resources for these libraries were derived from membership fees. The most efficiently organized library of this type, founded in 1791, was that of the Warsaw Confraternity of Merchants.

LIBRARIES BELONGING TO SOVEREIGNS

Of the 18th-century libraries belonging to sovereigns, only the collection of King Stanisław August (1732–1798) was devoted to Polish culture and consequently of permanent significance. Collections of other monarchs were of a foreign character.

Saxon kings ruling in Poland, August II the Strong and August III, at first started to collect books within the country, but in 1728 took them to their family residence in Dresden. For obvious reasons these books were of no cultural importance in Poland. The same holds true of the large library belonging to King Stanisław Leszczyński (1677–1766), assembled in Luneville, the French province of Lorraine, where the king settled down after his abdication in 1736. Following his death the collection of books selected by Leszczyński with such great acumen was handed over to two libraries of Nancy: one, a school library attached to the Jesuit College, and the other a public library which had been founded by Leszczyński himself.

The library of King Stanisław August closes the history of court libraries in Poland. Its stock of books bears the imprints of individuality of the king, a bibliophile, art lover, and patron of literature. A classified catalog prepared by the king's librarian, J. Ch. Albertrandy, revealed a total of 14,500 works grouped in 10 classes. A collection of 596 albums containing about 30,000 drawings and engravings was a separate part of the king's library. No less important was the subdivision comprising a few hundred volumes of historical, and historioliterary, manuscripts.

In addition to collections forming part of the bookstock, the king owned two separate, highly valuable collections, the so-called Royal Cabinet of Prints and the "Archivum de Varsovie."

The king also possessed handy reference libraries, the largest of which, numbering 2,128 volumes, was located at the Łazienki. After the king's death, the collections he had accumulated were assessed at the enormous sum of 222,354 Polish zlotys, the value of the manuscript collection alone being 5,000 ducats.

The library of King Stanisław August played an important role in the history of Polish enlightenment, since it was open to a large group of readers. It constituted an indispensable source in the realm of history. Use was made of this source, among others, by A. Naruszewicz, J. Ch. Albertrandy, and M. Dogiel.

After the death of King Stanisław August, his library was purchased by Tadeusz Czacki in 1809. In time, this collection was added to the library of the Krzemieniec secondary school [Liceum Krzemienieckie]. The separate collection of prints [Gabinet Rycin] was bought in 1818 for the Warsaw University Library.

The Period of Partitions and Foreign Rule in Poland (1795–1918)

The fall of independent Poland, in 1795, created an entirely novel situation in the history of this nation. The country lost its freedom for nearly 125 years, while its territory was partitioned among Russia, Prussia, and Austria. The policy of the three invaders toward Poland, its community, and its culture was unanimously hostile. Nevertheless, Polish economic and cultural activities followed different patterns in the three sectors of the partitioned country. The differences were due to dissimilar methods for suppression applied by the invaders at various times and to the differences in intensity of the suppressive measures applied, depending on a given political situation.

In the history of cultural activities of that period, two political events were especially influential: the failure of the insurrection of 1830–1831, and the granting

of autonomy to Galicia in 1867. After the insurrection, a mass emigration of its participants, often eminent representatives of Polish political and cultural life, took place. They organized centers of Polish social life, educational institutions, and libraries in foreign countries. Poland lost many of its estimable citizens, while the invaders' suppressive measures against Polish institutions and feelings of nationalism were applied with increasing violence.

The second political event was diametrically different in that the Hapsburg Monarchy was forced to grant more privileges to its provinces, including Galicia. In 1861 Galicia was granted permission to have its own Seym, whose competence based on the constitution was broadened from 1867 onward. As a result of these changes Polish local authorities were set up, and opportunities arose for development of Polish institutions, in particular the educational system. Galicia became the leading intellectual center of the country.

For obvious reasons, the loss of political independence had a profound effect on Polish culture. A part of national consciousness, Polish culture assumed a political function. Among such duties were integrating the units of the broken-up and subjugated nation by creating nonmaterial, ideological, and psychological values to provide not only for survival but also for regaining freedom.

Polish culture satisfactorily met the political challenge with which it was burdened. At the same time it proved its high degree of internal development and progress and gained a permanent standing in the national consciousness of Poles. It was possible not only to adopt the culture-forming phenomena to the changed political situation, but to save the previous spiritual attainments of the nation and to add new values to them in spite of the invaders' imposed constraint.

Likewise, an understanding of the role which the book should play to support the functioning of social consciousness is both an exponent and, at the same time, a gauge of the national and cultural maturity of the Polish community. The above is manifest in particular in such phenomena as: (*a*) founding of well-stocked, privately owned libraries, based on foundations or familial funds, which provide for the preservation of the monuments of national culture; (*b*) development of new types of social libraries satisfying the requirements of learning, libraries of scientific societies and of practical knowledge, special libraries and libraries of public education (public libraries); (*c*) continuing, under very difficult conditions, the regular activities not suppressed by the invaders; and (*d*) the improvement of library techniques by the training of librarians.

PRIVATELY OWNED LIBRARIES

Privately owned libraries, which have played an eminent role in the history of Polish scientific activities and of intellectual culture, were mainly organized on the initiative of representatives of the then social elite. As a rule, libraries were founded by rich landowners influenced by the intellectual trends of the period of Enlightenment. Considerable pressure was exerted as well by the bibliophilic movement begun in the 18th century by the Załuski brothers and by King Stanisław August.

Collecting books stemmed from patriotic feelings of individual persons as a way

of opposing the denationalizing policy of the invaders at a period when the country was deprived of its independent existence as a state.

Large private libraries, comprising not only valuable printed items but also numerous unique copies, manuscripts, and archival records, were either established as institutions based on foundations or as family book collections. Three factors favored their organization:

1. The materials suitable for libraries were available after the liquidation of convents and the consequent release of their exploited resources.
2. Sound bibliographical orientation in matters of Polish literary output, built up by F. Bentkowski's *History of Polish Literature* [Historia Literatury Polskiej], published in 1814.
3. The lesser danger of confiscation, by the alien authorities, of private property than of the bookstock in national ownership.

It was a characteristic feature of the large, privately owned libraries, whether or not supported by funds or belonging directly to the family, that eventually, on strength of the owner's decision or after his death, they were handed over to the public at large.

In addition to large, universal libraries under private ownership (often representing archival values) which developed in the 19th century, conventional bookstocks were brought together by the moderately wealthy classes, chiefly town intellectuals and small landowners. A characteristic feature of collections put together by these circles is their subject specialization. Most often they were limited to books on Polish history and literature.

FOUNDATION LIBRARIES

The earliest foundation library belonged to the Zamoyski Estates [Ordynacja Zamoyska]. Its founder, Stanisław Zamoyski, in 1811–1815 brought the family book collections to Warsaw and pooled them in a single Library of the Zamoyski Estates. The library was made up of three family collections: the family stock from Zamość, including the most valuable part of the library of the Zamoyski Academy which had been liquidated in 1784; the family library from Podzamcze, inherited by Stanisław Zamoyski from his father; and writings obtained by Stanisław Zamoyski, including several highly valuable items acquired during his journeys to Great Britain and France. During the 19th century the stock of the library continually increased in number. Enlarged by several privately owned collections, by 1938 the bookstock reached a total of almost 97,000 volumes, mostly writings in history and Polish literature. To this library belonged 165 volumes which had formed part of King Zygmunt August's collection, as well as a profusion of manuscripts, many Greek diplomas on parchment included. The Library of the Zamoyski Estates was destroyed during the Second World War.

Almost simultaneously with the Library of the Zamoyski Estates, in the Austrian sector of partitioned Poland, the so-called Ossolineum [the Ossoliński National Institute], the most eminent Polish foundation institution, was established. It was

founded by Józef Maksymilian Ossoliński in 1817. The Ossolineum was located in Lwów, in an exconvent building purchased specially for this purpose. For its upkeep, the founder earmarked the revenues from his land property at Mielec. Under the so-called establishment act, the duties of the institute were considerable. It was to accumulate materials on Polish and Slavonic matters, to conduct research, and to engage in publishing activities.

The basis for the Ossolineum Library was the collection of rare manuscripts, printed issues, drawings, and medals amassed by the founder in Vienna. In 1827 the collection was transferred to Lwów. In all, it consisted of: 25,402 printed works, 708 volumes of manuscripts, 133 maps, 551 medals, 1,445 prints, and 962 portraits. During the first years of the Ossolineum, the bookstock of the library was increased with generous gifts. After 1880 the purchase of books became an equal source for augmenting the collection. In 1900 the library owned 107,000 printed items, 4,533 manuscripts, 3,013 autographs, and a profuse collection of prints, diplomas, coins, medals, atlases, maps, and musical works. On grounds of their character and destination, the Ossolineum items were assigned to two divisions—the library and the museum. The library comprised printed items, manuscripts, and autographs; while the museum included collections of historic relics, a picture gallery, and collections of prints, coins, and medals. In the 20th century there took place a further, rapid increase of the stock of the Ossolineum library. In 1938, in addition to unique collections, there were 370,000 printed items, 13,500 manuscripts, and 7,500 autographs.

The publishing department constituted an integral part of the Ossolineum. From 1828 until its suspension in 1869, a periodical was published, the title and program of which was subject to frequent changes. There were issued, too, numerous editions of a scientific or popular-scientific character. Since 1830 the Ossolineum has possessed its own lithograph facility, and since 1833, its own printing department. Since the end of the Second World War the Ossoliński National Institute has been located in Wrocław.

In the Prussian sector of partitioned Poland, a large foundation library was established in Poznań. The founder, Edward Raczyński, historian, publisher, and translator, offered to the town in 1829 a collection of books placed in a building adapted for this purpose. According to the founder's will, the library was to be open to the public at large and to represent a center of Polish culture. It was to remain in charge of the Board of Curators, while a sum of 120,000 zlotys bequeathed by E. Raczyński constituted material security. To the bookstock of the library were added family collections and purchased collections, both of printed writings and of manuscripts. Particularly numerous were printed writings from Silesia, originating from liquidated convents. Moreover, the bookstock of Raczyński's library was enlarged with private gifts and with duplicates of books belonging to the Warsaw University, the Royal Library in Berlin, and the Czartoryski's library at Puławy. It also contained archival documents, incunabula, and manuscripts dating from the 15th to the 18th centuries. Since 1830 the library regularly received, by force of an accorded right, legal deposit of copies of all writings printed in Greater Poland.

During the 19th and 20th centuries the collection increased to about 130,000 volumes. The library kept an alphabetical catalog of its stock of books, with new editions printed in 1865, 1878, 1885, and 1932.

After the founder's death, and against his will, until 1919 the library was a German institution manifesting germanic tendencies, in spite of the Polish character of the collection. The Board of Curators were Germans. During the Second World War 90% of the stock of this library became subject to devastation. Nowadays the library exists as the E. Raczyński Town Library [Miejska Biblioteka Publiczna im. E. Raczyńskiego], open to the general public.

The Krasiński's Estate Library also belongs to the group of distinguished foundation libraries. It was established in Warsaw in 1844. Wincenty Krasiński, the founder, provided the library with a material base of security by associating it with his estate. The bookstock was founded on the privately owned collection of Tomasz Czapski, and greatly augmented in 1861–1863 by the addition of Swidzinskis' collection and of foreign collections of exceptional value. Apart from printed material, the library contained archival records, manuscripts, a picture gallery, and militaria. The basic stock of books of this library consisted in the 20th century (1938) of about 82,000 works in 250,000 volumes. The library was open to persons with scholarly and educational interests, while its outstanding historical sources were published in the periodical *Krasiński Estate Library* [Biblioteka Ordynacji Krasińskich]. In the years from 1868 to 1915, 29 volumes of this periodical were published. Of considerable significance for the development of this library was the erection of a new building in 1912–1930. During the Second World War the founder of this new library building, Edward Krasiński, died in a Nazi concentration camp, and the collection of books was almost completely ravaged.

In addition to the above, the following libraries, established during the period of the Poland partition, represented foundation collections of significance in which materials of value for national culture were accumulated: the Kórnik Library founded by Adam Tytus Działyński in 1828, later reorganized into an endowment, "the Kórnik Department" [Zakłady Kórnickie], 1925, and finally turned over to the Polish Academy of Sciences; the library of the Przeździecki Estate at Czarny Ostrów, founded in 1841, later removed to Warsaw; the Baworowskis' Library in Lwów, founded in 1857; and the Wróblewski Library in Wilno, founded in 1913.

FAMILY LIBRARIES

In the group of family libraries, first rank belongs to the collection of the Czartoryski family. By the end of the 18th century it was notable for both its size and quality. Izabela and Adam Kazimierz Czartoryski founded the library located at the prince's residence in Puławy. As early as 1830, the Czartoryskis' collection contained over 7,000 printed works and 3,000 manuscripts. To render the valuable source materials belonging to the collection accessible to scholarly research, it was decided to have them printed because the library owned a paper factory and a printing office with a lithographic printer. Of decisive importance for the further history of this unusually dynamically prospering library was the failure of the insurrection

of 1831. As a result of repressions applied after the uprising, the estates of the Czartoryskis were confiscated and the library collection was launched into a half-century of shifting from one place to another. Its reassembly was the work of Władysław Czartoryski. Owing to his endeavors the library was finally located in the building formerly housing the municipal armory in Kraków, and its upkeep was supported by a new foundation. The library was opened to scientific research in 1875. It then included 24,000 old printed books, 10,000 manuscripts, and 1,300 parchment diplomas. Of particular value, both historical and scientific, were Polonica dating from the 16th century and numerous Polish historical documents. Until the mid-20th century the bookstock of the Czartoryski Library in Kraków was regularly and very conscientiously supplemented. During the Second World War, the Nazi invaders plundered and carried away the collection of illuminated manuscripts, of which part was restored after the war. The library now forms part of the National Museum in Kraków.

Ancestral book collections in different periods and under varying conditions have contributed to the wealth of the Ossolińskis' National Department [Zakład Naradowy im. Ossolińskich], the greatest and most active foundation institution serving Polish culture. To this group belong the Lubomirskis' Library in Przeworsk and the Pawlikowskis' and Dziaduszyckis' Libraries.

As far back as the end of the 18th century, the Lubomirskis' Library contained about 2,000 volumes. Well supplied over the first half of the 19th century, this collection increased to 13,000 volumes. The basic collection of more than 11,000 volumes was built up of foreign-language writings. Polish literature was only represented by 1,082 books. On strength of an agreement concluded in 1823 with J. M. Ossolinski, Henryk Lubomirski committed himself to hand over to the Ossolineum his collection of library and museum specimens. This agreement was carried out in two stages, with considerable time lapsing between them. A small part of the collection of the Lubomirski family was removed to Lwów in 1823, and the remaining part from 1869 to 1872. In Przeworsk a collection of only a few thousand volumes, mainly in French, was left.

The Pawlikowskis' Library represented one of the most valuable Polish book collections. It was started abroad, at Baden near Vienna in 1830 as a result of the endeavors of the bibliophile G. Pawlikowski. The collection consisted of about 19,000 volumes of Polish printed material and 6,000 of books in foreign languages. Unusually valuable, too, were the collections of manuscripts, diplomas, drawings, and prints. In 1848–1849 the Pawlikowskis' Library was transferred to Lwów, and in 1914 the heirs passed on the whole collection to the Ossolineum.

The history of the Dzieduszyckis' Library was different. Founded on their estate, Poturzyca, in 1812–1830, the stock of books of this library was removed in 1857 to Lwów and located in a building designed expressly for this purpose. The library, open to scientific research, was regularly supplemented and attained a total of nearly 50,000 volumes by 1938. Because the building was taken over by the army in 1939, almost the whole stock was removed to the Ossolineum.

Of unusual value for Polish culture were also the collections assembled in their manorial residences by the Tarnowskis, Potockis, and Branickis.

The Tarnowskis Library, founded about 1820, was located at Dzików. Its col-

lection had absorbed, among others, the former Jesuit libraries from Sandomierz, and the library from the Cistercian Abbey at Oliwa. Part of the collection owed its origin to the bookstock of King Stefan Batory. Among the printed items were unique editions of Polish Renaissance writers, M. Rey, S. Orzechowski, B. Paprocki, J. Bielski, and others. The section of manuscripts contained several parchment diplomas and many other items. Before the fire in 1927, which destroyed most of the bookstock, there were some 30,000 volumes in this library.

To the first half of the 19th century belongs the Potockis Library in Wilanów, which was organized by pooling together in 1832 the collections of the brothers Ignacy and Stanisław Kostka Potockis. The bookstock included part of the collection belonging to King Jan III Sobieski, as well as the collection of Konstanty Przeździecki. In addition to the foreign-language section with mainly French literature, the Wilanów Library contained unique editions of Polish printed works, among which were books by A. Modrzewski. Moreover, the library comprised cartographic collections dating from the 18th and 19th centuries, and manuscripts, part of which were removed to Kraków in 1904. The Wilanów collection with its total of about 23,000 volumes (1926) was handed over in 1932 to the National Library on permanent loan.

From a somewhat later period derives the Branickis' Library, established in 1866 and located at Sucha. This library owes its origin mainly to the purchase of valuable privately owned collections; in the 20th century it numbered some 40,000 volumes (1939). The collection comprised, among other writings, part of the bookstock of King Jan III Sobieski, as well as graphical collections of the writer Józef Ignacy Kraszewski; also ancestral archives of the Branicki family, manuscripts from the 13th to 19th centuries, and parchment documents. The library of the Branicki family became the possession of the Tarnowskis by strength of relationship by marriage. After World War II the bookstock was divided among appropriate state-owned libraries, museums, and archives.

Some role in the history of Polish libraries had been played by the collections belonging to the Tyszkiewicz family, finally scattered during World War I; and the library of Hutten-Czapskis in Kraków, handed over in 1903 to the local National Museum.

LIBRARIES OF SCIENTIFIC SOCIETIES AND OF TRADE ASSOCIATIONS

Development of scientific research in the 19th century brought about the necessity to organize scientific activities. These tendencies are manifest in the numerous scientific societies founded at that time. Libraries adjoined them to constitute laboratories of scientific research for members of the societies.

The first library of this type in Poland was the Library of the Society of the Friends of Science in Warsaw [Biblioteka Towarzystwa Przyjaciół Nauk w Warszawie] founded in 1803. It owes it existence mainly to the initiative of Aleksander Sapieha, who offered his Baden collection and a fund for replenishment of the library. At first, the library was only open to the members of the society; however, after 1811, it was accessible to the public at large. In 1814 its stock numbered 14,445 volumes and 210 manuscripts, and increased to more than 30,000 volumes

by 1833. After the failure of the November insurrection the Society of the Friends of Science was liquidated. The foreign-language collections were taken to the Imperial Public Library of St. Petersburg (at present, the Saltykov-Shchedrin State Public Library of Leningrad) and the Polish collections were gradually incorporated into the University Library of Warsaw.

An impressive collection was owned by the library belonging to the Scientific Society of Płock, founded in 1821. After the November insurrection, the collection of books, some 8,000 volumes, was at first taken over by the voivodship (province) school, then in 1898 a vast majority of its was removed to the Library of the Academy of Sciences in St. Petersburg. Restoration of this library is largely due to the efforts of Józef Zieliński. In 1902 he offered to Płock, for public use, some 20,000 volumes gathered by his father Gustaw Zieliński. This collection included works on law, history, and literature, as well as several valuable old printed items in Polish and in foreign languages. After 1921, in consequence of restoration as stipulated for by the Riga Treaty, the U.S.S.R. gave back to the library part of the collection carried away to Russia during the partitioning of Poland. At present, the library is called the Library of the Zieliński Scientific Society of Płock [Biblioteka Towarzystwa Naukowego Płockiego im. Zielińskich].

A numerous and valuable stock of books was brought together by the Library of the Kraków Scientific Society, existing since 1856; reorganized in 1873 into the Library of the Academy of Knowledge, later the Library of the Polish Academy of Science, and now the Library of the Polish Academy of Sciences in Kraków [Biblioteka Polskiej Akademii Nauk]. The collection of the library, 9,180 printed works and 570 manuscripts, increased in number as the result of gifts. In 1939 there were 196,000 printed volumes and 2,074 manuscripts. The musicalia were later removed to the Jagiellonian Library.

A somewhat lesser collection, 150,000 volumes, was acquired at that time by the Library of the Poznań Society of the Friends of Science, founded in 1857. During the Second World War, the library lost many of its most valuable materials. The collection completed after the war contains valuable manuscripts of the most eminent Polish writers, Juliusz Słowacki, Zygmunt Krasiński, Eliza Orzeszkowa, among others. Extensive collections for scientific activity were also amassed in libraries of scientific societies of Toruń, Wilno, and Przemyśl.

In the middle of the 19th century libraries of a special character were organized. They comprised collections meant for the use of specialists, and intended to aid the improvement of qualifications of different professional groups. Of great importance in this respect are the Library of the Medical Society in Warsaw [Biblioteka Towarzystwa Lekarskiego], the Library of the Association of Polish Technicians [Biblioteka Stowarzyszenia Techników Polskich], and the Library of the Lawyers Council [Biblioteka Rady Adwokackiej] in Warsaw and Wilno.

UNIVERSITY LIBRARIES

In the 19th century, save for some periods of stoppage, there were four universities. In the Austrian-partitioned territories there were the Jagiellonian Library [Bib-

lioteka Jagiellońska], the oldest university library; and the Library of the Lwów University [Biblioteka Uniwersytetu Lwowskiego]. In the Russian sector there were a library in Wilno, started in the 16th century; and the library of the newly founded Royal University of Warsaw [Królewski Uniwersytet Warszawski]. In Poland, university libraries differed from analogous libraries in western Europe because they were open to the general public. Two of them, in Warsaw and Kraków, took over from time to time the functions of the national library and made up for the liquidation of the Republic Library [Biblioteka Rzeczypospolitej], collections of which were carried away to St. Petersburg.

Owing to Poland's loss of independence in 1795, the development of the Kraków University Library was noticeably arrested. During the earliest decades of the 19th century, as a result of the pressure exerted by the Austrian authorities, Polish literature was acquired in a very limited amount and therefore the collection gradually became increasingly German. This period is characterized by a development of the internal organization of the library. Particularly intensive was the processing of newly collected materials. The building was expanded and repaired. After the grant of autonomy to Galicia, the structure of the collection was systematically corrected. Karol Estreicher, chief librarian from 1868 to 1905, made great attempts to collect as much Polonica as possible, thus imparting a national character to the total collections. His monumental *Polish Bibliography* [Bibliografia Polska] is a register of Polish literature and of various items of Polonica in foreign countries, covering the period from the 15th up to the 19th century.

The University Library of Lwów had undergone a deep crisis in the middle of the 19th century. Its valuable collection, some 51,000 volumes, mainly derived from annulled convents, was destroyed by fire during the bombardment of the town in 1849. The library collection built up numbered more than 120,000 volumes in 1905. At that time the library was moved to a special-purpose building erected to house the books; it began many new services for readers. This was made possible by the possession of a well-designed reading room of 140 seats, provided with a large reference library. By 1918 the book collection had increased as the result of gifts from professors, doctors, and the Lwów intellectual community.

Since 1803 the well-organized Library of the Imperial University of Wilno [Biblioteka Cesarskiego Uniwersytetu Wileńskiego] functioned on principles carefully laid down in its regulations. Readers' names were kept on file. The stock of the library represented many centuries of tradition; the earliest acquisitions dated back to 1570, the time when a Jesuit college was founded in Wilno. From the time of the opening of the university until 1825, the library rapidly enriched its stock, mainly with works in mathematics and natural science. The collection was provided with an alphabetical catalog. In 1832, after the 1831 insurrection, the university and its library were liquidated and the stock of more than 60,000 volumes, as decided by the czarist authorities, was divided among Russian libraries.

At that time an entirely new university library, founded in 1817, was the Library of the Royal Warsaw University [Biblioteka Królewskiego Uniwersytetu Warszawskiego]. Its bookstock was made up of the collection of the Warsaw Secondary School [Liceum Warszawskie], of books and manuscripts from former convents

and monasteries, of gifts, and of purchases. After 1819 this library received legal deposit copies of publications printed in the Congress Kingdom of Poland [Królestwo Kongresowe]. That its stock greatly increased was due to the purchase of the collection of prints belonging to King Stanisław August. In 1830 the collection of the library amounted to over 134,000 items, which included 6,000 incunables, some 20,000 manuscripts, 120,500 prints and drawings, and some 1,000 maps and atlases. After the November insurrection in 1831, the collection of the library was taken to Russia, except for about 30,000 volumes of selected Polish books. Until 1861 the library remained in a state of inactivity. In the years 1862–1869, it became for a time an important center of intellectual activities serving a Polish college, the Central School [Szkoła Główna]. After the liquidation of the Central School, the library was submitted in 1871 to a direct superintendence of the Imperial University of Warsaw, after which it acquired mostly Russian literature. In 1894 the housing conditions improved when the library received a building of its own. Just before World War I (1911) the collection of the library amounted to about 568,000 volumes. The most valuable part of the collection, manuscripts and the archives, was taken away to Rostov in 1915.

SCHOOL LIBRARIES

Considerable and valuable collections of books of scientific importance were acquired by some of the schools existing in Poland in the 19th century, in the Prussian-partitioned sector particularly: the St. Magdalene State Grammar School of Poznań [Gimnazjum Państwowe im św. Magdaleny], the Warsaw Secondary School [Liceum Warszawskie], and the Comenius State Grammar School of Leszno [Gimnazjum Państwowe im. Komeniusa w Lesznie]. The collection of the Poznań grammar school, originally founded in 1803, acquired the stock of the Jesuit college as well as part of the collections of the former Lubrański Academy. It consisted of about 50 volumes which had belonged to the library of King Zygmunt August. During the interwar period, the University Library of Poznań [Biblioteka Uniwersytecka] took over the more valuable part of the collection and the old books, including 12 incunables.

A unique collection belonged to the grammar school library in Leszno founded in 1890. It was made up of the exceptionally interesting collections of books of the Czech Brothers (Unitas Fratrum), who settled in the town after the fall of the Hussite movement, in the 17th century.

In the Russian-partitioned sector of Poland the largest school library was owned by the Krzemieniec Secondary School [Liceum Krzemienieckie]. The library was founded by Tadeusz Czacki in 1805 when he acquired 15,580 books from the library of King Stanisław August with a catalog worked out by the king's librarian, J. Albertrandy.

In this purchased collection the stock of printed works in various languages on Poland's history, some 2,000 volumes in all, was most valuable. The collection of the Library of the Krzemieniec Secondary School, increased by gifts and purchases, comprised in 1834 about 30,000 volumes. The library always possessed a reading

room that remained open to the public at large. Since 1811 a printing plant was attached to the library. After the failure of the insurrection in 1831, the Library of the Krzemieniec Secondary School was liquidated and the bookstock was handed over to the Kijów University in 1834.

The Library of the Warsaw Secondary School [Liceum Warszawskie], established in 1805, had a short history, for in 1816 it was totally reorganized as a public library attached to the Royal University of Warsaw. The significance of this library lies in its owning a bookstock consisting of 12,000 volumes, of which many were of historic value, in particular, the collection of books formerly belonging to the Knight's School [Szkoła Rycerska] liquidated in 1794, as well as the collection of Ignacy Krasicki, the eminent Polish writer of the period of enlightenment.

PUBLIC LIBRARIES

The socioeconomic transformations associated with industrialization and with the development of capitalistic economies in the second half of the 19th century and at the beginning of the 20th century created a need to establish scientific libraries and also collections of educational books which would satisfy the needs of wider social circles.

Educational libraries were established first in Warsaw. The organization of this kind of library was undertaken as early as 1861 by the Department of Admission-free Reading Rooms of the Warsaw Philanthropic Society [Wydział Czytelń Bezpłatnych Warszawskiego Towarzystwa Dobroczynności], which by the end of the 19th century managed to launch no less than 23 public libraries. At the same time the People's Library of Cieszyn [Czytelnia Ludowa w Cieszynie] was opened. On a wider scale, the organization of public libraries had been undertaken by several educational societies, active in all three partitioned sectors, namely: the Society for People's Education [Towarzystwo Oświaty Ludowej] in the Austrian and Prussian sectors, the Society for People's Reading Rooms [Towarzystwo Czytelni Ludowych] in the Prussian sector, Polish Mother Country [Macierz Polska] in the Austrian sector, Society for National Schools [Towarzystwo Szkoły Ludowej] in the Austrian sector, Polish Mother Country for Schools [Polska Macierz Szkolna] in the Russian-partitioned sector, Reading-rooms Society of Warsaw [Towarzystwo Czytelń m. Warszawy], and still others. These organizations founded thousands of libraries, thus performing the gigantic task of developing and propagating book reading on a large scale. A notable development of public libraries occurred in Poland after the revolutionary activities of 1905 which brought about a mitigation of the national policies pursued up to that time by the czar's authorities toward the Polish population living in the Russian-partitioned sector. These new political tendencies found their expression in a comparatively liberal statute on associations introduced in 1906. It was now possible to undertake organized activities on behalf of Polish culture and education on a wider scale. Along these lines, urban public libraries were founded in Kraków (1905), in Warsaw (1907), in Lublin (1908), and in Łódź (1917). The first libraries maintained from funds of communal associations were organized. Similarly, school, factory, and institute libraries, as well as privately

owned lending libraries, engaged in the propagation of reading and the free distribution of books.

POLISH LIBRARIES ABROAD

The political and national oppression exerted by the invading countries, in particular the repressions that followed the failure of the November insurrection of 1831, delayed the development of Polish libraries. Cultural activities went on in foreign centers of emigration. Libraries founded abroad had a double function to perform: (*a*) they collected the monuments of Poland's cultural traditions to have them ready for the independence of Poland; and (*b*) they served the purpose of fortifying the national feelings of emigrants, and of spreading knowledge of the Polish language and of Poland's history among the young generation growing up or taking their education in foreign countries.

The most important were the Polish Library [Biblioteka Polska] in Paris, the Polish School Library [Biblioteka Szkoły Polskiej] on Batignolles Boulevard, and the Library of the Polish National Museum [Biblioteka Muzeum Narodowego Polskiego] in Rapperswil, Switzerland.

The Polish Library in Paris was founded in 1838 by the French Société de Civilisation. Influenced by an article published by Adam Mickiewicz under the heading "Spoilation of Libraries and Museums in Poland," the society issued an appeal to the community asking for pecuniary means for establishing a Polish library. The collection, which was built up from lavish gifts of Polish emigrants (A. Mickiewicz, J. U. Niemcewicz, G. Małachowski, and others), contained abundant sources of the history of the November insurrection. From the beginning of its existence, the Polish Library in Paris received a subvention from the French government. In 1866 this library was considered a public utility, while in 1891 it was taken over by the Academy of Knowledge [Akademia Umiejętności] and reorganized into its Research Station in Paris. During World War I, the collection of this library amounted to 120,000 printed volumes, several thousand manuscripts, and 30,000 prints.

Not so numerous yet equally valuable was the stock of the Polish School Library [Biblioteka Szkoły Polskiej] at the Batignolles Boulevard in Paris, established in 1843. Supported by Polish emigrants, it contained a rich stock of materials on the history of Polish emigration. After 1863 it acquired numerous source materials on the January insurrection. The private collection of J. Lelewel was a valuable gift to the Batignolles Library. In 1874 the collection of the library was removed from Paris and set up as a deposit in the Kórnik Library. It consisted at that time of 21,383 printed volumes, 5,000 engravings and drawings, about 2,000 maps, and more than 500 batches of manuscripts. In 1927 the Ministry of Religious Creeds and Public Enlightenment moved the Batignolles collections to the National Library. In agreement with his last will, Lelewel's heritage became the property of the Public Library and the University Library in Wilno.

The Library of the Polish National Museum in Rapperswil was founded in 1871; it accepted the donations of Polish emigrants from the time of the November insurrection, namely, of W. Plater, founder of the museum; of L. Chodźko, K.

Ostrowski, and others. At the end of the 19th century this library held the largest collection of books of Polish emigrants, and claimed the role of a national library. The collection included about 100,000 printed works, including 25,000 emigrant leaflets, and much foreign literature on Poland. The cartographic section possessed 3,100 maps and atlases of the 18th and 19th centuries. The graphic arts were represented by about 13,000 drawings and a unique collection of 9,100 photographs of emigrants and of participants in the January insurrection (1863). Among the 2,800 musical scores were rare editions of M. Ogiński, F. Chopin, and W. Sowiński. Most valuable was the collection of manuscripts and archives referring to the so-called Great Emigration, and to the European committees for supporting Poland of 1831, 1846, and 1863, sources of the history of emigrant literature, archives of the National Government, 1863–1864, etc. The Library of the Polish National Museum had also basic source materials for the history of Polish struggles for independence during the period of partitions. In 1921 the Rapperswil collections became the property of the Polish state, and in 1927 they were transferred to the country and distributed between the National Library and the National Museum.

The Period of the Second Republic (1918–1939)

The development of Polish libraries was launched on a new course, growing dynamically soon after freedom was regained by the Polish nation in 1918. The founding of the Polish state abolished the political restrictions hampering the spread of culture during the period of foreign rule and gradually solved the problems associated with modernization of library organization and procedures.

The principal effort of library administrators and of the authorities responsible for the functioning of libraries concentrated on the problems of organization of those libraries which were of importance for the development of science.

Hence, the following achievements were attained; (*a*) the National Library, three university libraries, and several libraries attached to other higher schools and to government offices were created; (*b*) all state-owned libraries were provided with subventions assuring their continuation; (*c*) a restoration of book collections seized by the invaders was carried out. Likewise, bookstocks of Polish libraries abroad were brought back to the country. The National Library and the university libraries received legal deposit copies of publications printed in Poland.

There was much progress in methods of library work and interlibrary cooperation. The progress was based on a new cataloging instruction for books (1934), guidelines for cataloging manuscripts (1935), and the first steps toward establishing union catalogs and the program for exchanging duplicates.

During the 20 years of the interwar period the profession of librarianship had finally taken shape, aided by broader development of vocational training of library staff members, who had to attend preparatory courses at different levels. The 1-year Library School [Jednoroczna Szkoła Bibliotekarska] attached to the public library of Warsaw represented an important center of vocational training at a middle level. Courses on a university level were given at the Free Polish Academy [Wolna

Wszechnica Polska]. To raise the qualifications of the personnel of state research libraries, state examinations were established in 1934.

A considerable contribution to the process of modernization of librarianship in Poland was made by the professional organization brought into existence in 1917, namely, by the Union of Polish Librarians [Związek Bibliotekarzy Polskich]. The library profession became consolidated, modern forms and methods of work in libraries were elaborated, professional training was instituted, and the publication of the professional periodical *The Library Review* [Przegląd Biblioteczny] resumed in 1927. Its true beginnings date back to 1908–1909.

Constructive solutions to problems involved in the activities of state-owned research libraries satisfied the requirements of university centers and research stations making use of the collections of foundation libraries open to scientific investigations, of privately owned collections, and of libraries belonging to scientific societies. On the other hand, no solution was found to the problems of the organization of public libraries receiving no funds from the state.

THE NATIONAL LIBRARY

The public library opened in Warsaw in 1747, founded by the Załuski brothers, represented the first national collection of books comprising all Polish writings. After the fall of the Polish state the collections had been confiscated (1794) and carried away to St. Petersburg by orders of Empress Catherine II. During foreign rule in Poland (1795–1918) the functions of a national library were performed by the Ossolinski National Department [Zakład Narodowy im. Ossolińskich] of Lwów, by the University Library of Warsaw, by the Jagiellonian Library, and the Library of the National Museum in Rapperswil. It was possible to organize a central state library, however, only after the reestablishment of Poland's independence in 1918. In the state budget, necessary funds were reserved for establishing a national library, and book acquisitions began. Officially the National Library was founded in Warsaw on February 24, 1928, by virtue of a decree of the president of the Polish Republic; it was opened to the public on November 28, 1930.

The task of the National Library in Warsaw was to collect and preserve the complete literary output of the Polish nation, expressed by script, print, or whatever other means, whether chemical or mechanical. Moreover, the library was to amass literature in foreign languages which was concerned with Poland or which was necessary for the development of Polish scholarship and culture. The original stock of the National Library comprised in particular: part of the collection of the former Załuski Library, returned after 1923 by terms of the Riga Treaty; the collection of the Library of the Polish National Museum in Rapperswil; and the collection of the library of the Polish School in Paris. The bookstock was to be regularly increased by legal deposit copies of current Polish publications received as a result of a decree of the ministers of Religious Creeds and Public Enlightenment, and of Internal Affairs, dated July 4, 1927.

Attached to the National Library was the Bibliographical Institute, whose task

was to publish the current national bibliography. It appeared under the title *Official List of Printed Works* [Urzędowy Wykaz Druków]. Since 1931 the Office for International Exchange of Publications has been active within the organizational framework of the library.

The housing conditions of the National Library presented a very difficult problem, as it did not possess its own building. The subsidy granted in 1928, amounting to 2 million zlotys, proved insufficient and the stock of books was kept in 12 different places. In 1939 the collection comprised: 450,000 volumes of new (19th and 20th century) publications; 85,000 old books, including 2,200 incunables; 40,000 manuscripts; 80,000 graphic art items; 30,000 scores and musical manuscripts; about 10,000 items constituting the Central Phonographic Archives; and 11,000 cartographic items.

UNIVERSITY LIBRARIES

After Poland regained its independence, the libraries of universities existing in Kraków, Lwów, and Warsaw resumed their activities. Newly established universities received new libraries.

The wealthy Jagiellonian Library was preoccupied mainly with improving its information service and its internal organization. The catalogs were improved to some extent, and in 1937 the elaboration of a classified catalog began. Between the years 1931 and 1939 a new building was erected, fully answering the requirements of modern library-building principles, a remarkable achievement in those times.

The library of the Lwów University actively made up for the losses caused by military action—by the receipt of legal deposit copies; from lavish donations, both by institutions and private persons; and from purchasing. Of exceptional value was the collection formerly belonging to W. K. Czartoryski from Honfleur, France, given to the library. Moreover, in 1935 it was possible to buy part of the collection left by J. Koziebrodzki, which comprised among other items several dozens of incunables and 1,300 old Polish books of the 16th and 17th centuries. By the outbreak of World War II, the University Library in Lwów had accumulated some 420,000 volumes, of which 1,300 were in manuscript, 3,000 incunables and diplomas, as well as a numismatic collection comprising about 14,000 items.

Likewise, the University Library of Warsaw, in 1939 including over 700,000 volumes, began adding to its stock. In consequence of restoration the library regained from the U.S.S.R. the collection of prints once belonging to King Stanisław August as well as his valuable manuscripts. During the interwar period the collection of the University Library increased to 820,000 volumes of printed material, 103,600 drawings and prints, and 4,132 manuscripts.

The founding of three new university libraries in Poznań, Wilno, and Lublin was a great financial and organizational effort. The Poznań University Library was established in 1919, its original collection deriving from the Kaiser Wilhelm Bibliothek. Tremendous organizational work was undertaken to Polonize the collection and to shape the library into a scientific institution adapted to the needs of the

university. As a result of the receipt of the legal deposit copies, and of intensive exchange activities, the collection of the Poznań University Library attained, by 1939, a total of about 500,000 volumes. The library also launched a wide information service. The union catalog of department libraries and a union catalog of periodicals to be found in Poznań libraries was begun. Scientific research and didactic activities were undertaken, and the Society of the Library Friends [Towarzystwo Przyjaciół Biblioteki] was founded.

Utilizing the collection of the Public Library of Wilno, which had served the goals of russification, the Public and University Library was organized. Over the period 1919–1939, this library amassed and organized its collections, which numbered 657,000 volumes by the outbreak of World War II. Much concern was given to an appropriate cataloging of the stock. In 1925 a subject catalog was started.

The Library of the Catholic University of Lublin was founded, together with the university, in 1918. The basic bookstock of the library consisted of Polonica returned from St. Petersburg, and was increased by local purchases, donations, and exchanges. The Lublin Library mainly consisted of publications in theology, philosophy, and the other humanities.

SPECIAL LIBRARIES

In addition to libraries with universal collections of books, special libraries—in particular technical, economic, and agricultural collections—served the corresponding types of higher schools. At that period the most important technical libraries were the Central Library of the Academy of Engineering in Lwów, with traditions dating back to 1817; the Library of the Warsaw Academy of Engineering, founded in 1898 and Polonized in 1915; and the Library of the Mining and Metallurgical Academy of Kraków, founded in 1919. Among economics libraries, the Library of the Main School of Planning and Statistics in Warsaw is outstanding. It was instituted in 1906 and formerly belonged to the Commercial College and the Main School of Commerce. In that same year the Library of the Main School of Farming in Warsaw was initiated.

Libraries belonging to Polish authorities and Polish administration units represented a new type of special libraries, the origins of which were associated with the reinstatement of the independent Polish state. The bookstock of these libraries was essentially destined to aid the performance of administrative functions in legislative activities and cultural policy formation. In many cases they served as research laboratories for scholars.

Among libraries of ministries, the earliest founded was the Central Pedagogical Library (1917) belonging to the Ministry of Religious Creeds and Public Enlightenment. Soon after, in 1919, a library belonging to the Ministry of Transport was organized. Also many libraries of central institutions were instituted, such as the Patent Office, the General Public Prosecutor's Department, the Supreme Court of Justice, the Central Post Office (General Management of Communications), etc.

The Library of the Central Statistical Office, founded in 1918, was the largest among libraries attached to central administration organs. By 1939 it had been

stocked with about 60,000 volumes, including a multivolume series of official statistics and works on statistical theory.

In 1919 the Seym Library was founded, transformed in 1922 into the Seym and Senate Library, and in 1931 into the Library and Archives of the Seym and Senate. At first the stock of this library embraced the collections of the Polish Parliamentary organizations active in partitioned Poland, as well as the collection brought together for the Constitutional Commission of the Interim State Council. During the interwar period the collection increased in number by accessions of duplicates from Warsaw libraries, of legal deposit copies of official documents, of Polish publications sent in by publishing firms, and of foreign items acquired through exchange.

During the period 1919–1939, vigorous development was characterized by the main scientific library of the Polish Army: the Central Military Library. Its stock of books, amounting to about 350,000 volumes, consisted of valuable publications and source materials on military arts. Information services were continually extended. The library kept union catalogs of publications in scientific military libraries and of militaria in other Polish research libraries; it provided bibliographical information on military books; it propagated information about its collections by means of the periodicals *Bibliographical Communication* [Komunikat Bibliograficzny] and *Military Bibliographical News* [Wojskowe Wiadomości Bibliograficzne].

PUBLIC LIBRARIES

The organizing of public libraries was one of the more important and difficult tasks undertaken by the library administration of the interwar period. Efforts were made directly after the regaining of independence, by both librarians and social workers. It was the first aim to obtain a library statute which would obligate local government authorities to organize and maintain public libraries.

These endeavors were thwarted by the opposition, whose view was that the administration of libraries should belong to the sphere of activities of social and educational organizations, because the existing economic situation of the country did not justify the burdening of local government budgets with expenditures on libraries. Owing to these opposing tendencies the library statute was not voted through, and only a few local authorities organized on their own account local networks of public libraries to serve their districts. As a result, in 1938 Poland had 8,982 public libraries, of which 884 were run by local governments and 8,098 by social organizations. The joint stock of books amounted to 6,500,000 volumes, one volume for about 5 inhabitants. Stocks of books of these libraries, though, were in most cases antiquated or obsolete, collected in a haphazard manner, and their educational function was insignificant. Moreover, they were unevenly distributed. Most of them, some 5 million volumes, were available to 9 million inhabitants of towns, while barely 1.5 million volumes were for the 24 million dwellers of rural areas.

Finally, in spite of all the efforts involved, it proved impossible to solve, throughout the interwar period, the important and pressing problem of establishing an appropriate base for encouraging the reading habit.

The Period of War and Nazi Occupation (1939–1945)

During the war and the Nazi occupation, Poland suffered heavy losses in all spheres of social life; in its economy, population, and culture. An evaluation of the material losses has shown them to have gone beyond 38% of the value of the permanent assets of the state. They can be expressed by the sum of $16.9 billion (American), according to the price in 1939, while losses of the other 18 countries of the coalition formed against Hitlerism (leaving out the U.S.S.R.) amounted jointly to $53 billion. Not in the least smaller were demographic losses. According to the official appraisal carried out by the War Reparations Bureau in 1947, as a result of military activities and the reign of Nazi terror, Poland lost 6,028,000 persons of its community, of these 644,000 on account of immediate military action. Given as percentages, these losses are the highest in the world. The intelligentsia was exterminated by the occupiers as the organizational and managing force of any underground movement.

Extinction was planned for the entire sphere of culture on a scale as never before in any nation. All Polish schools were closed, except for the preparatory ones, along with all educational, scientific, and artistic institutions. Cultural activities of the Polish community, pushed underground, were organized under conditions of resistance. Clandestine tuition was pursued on a medium and higher level, and underground publishing (mainly of periodicals) and artistic performances were organized. Cultural creativity and all attempts in this domain represented a particular form of resistance against the occupiers and maintained the feeling of continuity of the national culture.

Poland sustained tremendous losses in its monuments, architecture, collections of museums, archives, and library items. Only Kraków, Lublin, and Toruń—of the town centers of culture—avoided military ravages. The heaviest general losses were suffered by Warsaw.

In the years 1939–1945, collections of books of Polish libraries were devastated and disorganized, while the most valuable items were seized by the occupying force or deliberately destroyed. The losses in bookstocks of libraries have been estimated at 66% of their number in 1939. In particular, Warsaw libraries sustained immense losses in the resources, equipment, buildings, and the staff, not only as a consequence of military action but in the first place owing to the deliberate extermination policy pursued by the occupying force.

The central state library, the National Library [Biblioteka Narodowa], sustained very heavy losses in its unique collections. In 1939, during the siege of Warsaw, fire destroyed valuable collections of manuscripts which had been kept in the Central Military Library after receipt from the Library of the Polish National Museum in Rapperswil and from the library of the Polish School in Paris on the Batignolles Boulevard. In 1940 the German authorities organized the so-called Staatsbibliothek Warschau, consisting of three departments: (*a*) the University Library functioning as a research collection for the use of Germans; (*b*) the National Library, closed and changed into a store of Polish printed matters; (*c*) the section containing valuable special collections from various libraries, hoarded in the building of the Krasiński

Library. This most valuable collection was set on fire by German troops after the failure of the Warsaw insurrection, and was thus completely destroyed. From the particular collection of the National Library it was possible to save only 23 of the most valuable manuscripts; they were carried away to Canada at the beginning of the war, together with the Wawel treasures. Among them were: *Sermons of the Holy Cross* [Kazania Swiętokrzyskie], the *St. Florian Psalter* [Psałterz Florianski], and Chopin's autographs. The more valuable manuscripts removed to Germany in about a dozen wooden boxes were also saved. Found by the Soviet Army, they were returned to the National Library after the war.

In addition to the Library of the Krasiński Estate and the Central Military Library, also the Zamojski Estate Library, the Przeździecki Estate Library, and the Public Library of Warsaw were burned by the withdrawing German troops, losing about 80% of their possessions. The remains of the collections of the Krasiński Estate Library, the Zamojski Estate Library, the Library of the Polish National Museum at Rapperswil, and the Library of the Polish School in Paris on the Batignolles Boulevard are now in the National Library of Warsaw.

Almost entirely destroyed, too, were the Library of the Warsaw Academy of Engineering and the Library and Archives of the Seym and Senate. Only 10% of the resources and collections carried away by the Germans in 1944 were returned.

In a similar, brutal way occupying forces destroyed book collections in other parts of Poland. In Poznań, they set fire to a tremendous pile of books gathered expressly for this purpose. They were Polish books kept in the Church of St. Martin. The collections of public libraries and school libraries were subject to scattering and destruction owing to military action.

The Period of the Polish People's Republic (Since 1945)

THE PERIOD OF RESTORATION AFTER WAR DAMAGES (1945–1949)

General Characterization

After World War II the introduction in Poland of the system of people's democracy altered the sociopolitical reality and established grounds for future prospects of development which remain unprecedented.

The political power was handed over to the working classes. Under strenuous conditions of a war-plundered country, the working population undertook the tremendous process of creating a new epoch of Polish history, and of further pursuing the almost millennial tradition of the Polish nation.

In addition to altering the political system, changes were introduced in the territorial shape of the country and in the national structure. Poland regained her former western and northern territories situated on the Odra River and Baltic Sea and was transformed into a nationally uniform country.

In 1945–1949 basic social and economic reforms which constituted the framework of the new socialist system were undertaken. In the first place was the agrarian

reform (1944–1945), then educational reform (1945), and the nationalization of industry (1946) and of banking and commerce (1948).

The economic system regained internally consistent functioning within the new state boundaries. The western and northern regained territories were integrated with the remaining parts of the country and put under national management. Economic reconstruction facilitated rapid restoration as one of the most remarkable achievements of this period.

Within the domains of education and culture it was most essential to prepare the community for a deep involvement in political, economic, social, and cultural life. The program of democratizing education was begun in cooperation with the Polish Teachers' Union, and backed by the progressive opinion of scientists, teachers and dealers in cultural activities, and by other social circles.

The chief trends in the educational reforms could be expressed as four principles: the school should be uniform, common, public, and free at all levels of training. A uniform school meant uniform knowledge and uniform curricula. A common school meant extending the range of instruction to all children. A public school meant liquidation of private schooling. A free school stood for teaching which would be free of charge, and also reduction of the costs of supporting a child in school through boarding schools and scholarships. The basic trends in the democratization of the educational system in both preparatory and grammar schools were put through in 1947–1948. The achievements in propagating education even as early as 1946–1947 are evidenced by the fact that every fourth citizen of Poland attended school.

The chief effort then was concentrated on a full realization of the universality of tuition in seven-grade preparatory schools and on improving the organizational level and curricula of the preparatory school in rural areas. In the year 1950–1951, the number of children in school, aged between 7 and 13 years, were 98% of children in the whole population.

Great effort was devoted to extramural education which was expected to refine classroom education. Extramural instruction has played a particularly important social mission, not only among youngsters but also among adults.

The greatest difficulty was the lack of intellectual workers because of war losses. The number of higher schools in 1945–1946 amounted to 46, including 14 newly established ones, including the Universities of Łódź, Toruń, and Wrocław; the Academies of Engineering in Gdańsk, Wrocław, Łódź, and Gliwice; and the Engineering Colleges in Warsaw, Poznań, and Szczecin. By 1949–1950 the number of higher schools had increased by 21 schools. In 1945–1946 the number of students was 55,998, while in 1949–1950 there were 115,532. These university-level schools also needed to be democratized and reorganized. The decree of October 18, 1947, issued on the organization of learning and higher schools, introduced a new system. By the terms of this decree the structure and programs of education were altered. The democratized system of university education provided for educating large numbers of students in the working classes and the country folk. In 1945–1963, there were about 380,000 university graduates; 35% of working-class extraction and 20% of peasant origin.

An extensive network of extramural higher studies for persons engaged in pro-

fessional work was organized. In the school year 1949–1950, 1.2% of the student community participated in evening, extramural, and university-extension studies. A widely developed system of teaching courses afforded opportunities for gaining qualifications in a short time and for social advancement for persons of working-class or peasant descent.

From the earliest postwar period continuous attempts were made to compensate for the losses incurred by the war. The losses, though, were immeasurable, the occupiers having destroyed *planmässig* all that was Polish, everything associated with Polish culture. The collections of museums, archives, and libraries, all true monuments of national culture, vanished in the program of destruction.

With financial support from the state it was possible to restore these cultural institutions. The development of culture was directed at extending the range of mass recipients. Particularly significant was opening to the public at large such institutions as museums, theaters, operas, philharmonic societies, clubs, community centers, etc., which, being subsidized by the state, frequently offered free admission. Mass communication media—such as multi-impression publications, the press, radio, and the film—were developed widely, and likewise with government subsidies, were easily accessible.

The effort involved in restoring the country was nationwide. This endeavor brought order and the strengthening of the sociopolitical system and of material well-being. During this period, in some spheres of economic activities the prewar level was reached and often surpassed. Changes in the political system put before libraries novel opportunities of bringing into being progressive traditions of prewar librarianship and the experience of such librarians as Edward Kuntze, Helena Radlińska, Jan Muszkowski, Wanda Dąbrowska, Józef Grycz, Adam Łysakowski, and others.

Libraries of the interwar period became subject to almost total destruction as a consequence of the war. War losses of library collections amounted to 66% of the total stock of books. Out of 22 million volumes, in 1939, 7 million volumes were saved. These losses were largely irreversible, especially because of collections of manuscripts that were destroyed. The German invaders planned the destruction of the whole of Polish literature. Library collections were burned or taken to paper factories and pulped.

That any of the library collections were saved was due to the sacrifices of the Polish community, which stowed away items of Polish literature notwithstanding the peril if found, as this was a capital offense to the Nazis. These items were placed after the war under particular protection of the government agencies, institutions, and social organizations. Because of this care, of the devotion of librarians, and of the understanding of the whole community it soon became possible to introduce order into most of the remaining collections, and to put through a restoration of items removed during wartime to other countries.

From the very first days of the liberation of Poland, making use of the experience of the interwar period the librarians began to work out the outlines within which the state library policy could be realized. The earliest draft of a library bill was prepared by librarians and submitted to discussion by April of 1945. With some

amendments the draft was voted through by the ministerial cabinet on January 31, 1946, and finally sanctioned by the Presidium of the National People's Council. This decision represented an obvious triumph of the progressive traditions of Polish librarianship and was a result of many years of work done in the interwar period. The decree on libraries and the care of collections, 1946, constituted the first legal act which regulated the activities of libraries in Poland.

The decree covered the basic principles of a program and the organizational framework. It introduced a classification of libraries by their social functions; it sustained public libraries which had been neglected in the past; it created legal grounds and a financial basis for organizing Polish librarianship.

Libraries and book collections were acknowledged as national cultural property, destined to serve the whole community. This way, all the citizens gained a right to make use of library collections.

The library network was to cover school, public, and research libraries. The following libraries were not included: libraries of private schools, of scientific institutions, of offices, and of trade unions, factories, enterprises, parties, and political organizations. Those libraries functioned according to their own statutes or those of their founding institutions.

Activities of libraries were set forth in the decree as follows:

> . . . school libraries are to supply schoolchildren and teachers with reading matter required in connection with school learning and upbringing.
>
> . . . public libraries serve reading in the widest sense, the upbringing of the society, general and vocational education, cultural recreation of all citizens.
>
> . . . general and special research libraries are to serve in the first place the goals of research, of creating and propagating knowledge, of general and vocational education on a higher level, and likewise of practical applications of scientific findings to answer the needs associated with current activities of the authorities, administrative bodies and local government, other types of institutions, as well as economic and industrial units. Research libraries may at the same time function as special institutes conducting studies on the book and engaging in bibliographical work.

Administration of public libraries and their general supervision were entrusted to the minister of education. Moreover, the decree stipulated the establishment of a State Library Council, which would advise the minister of education in matters of libraries. The council consisted of representatives of various institutions, of scientific and technical societies, of different types of libraries, of trade unions, etc.

The State Library Council proposed legislative action, advised on drafts of statutes and of other regulations, explored the needs of libraries, and set forth their desiderata.

The Supreme Administration of Libraries in the Ministry of Education was the executive body of the state library policy. At its head was Dr. Józef Grycz, an eminent Polish librarian. It was the concern of the administration, among other things, to make budgetary plans, to select librarians and provide for their education and qualification, and to work out organizational principles. The activities of this

institution, which lasted from 1946 to 1950, created permanent grounds for the organization of librarianship.

Organization of the network of public libraries was very difficult at first. The collections of books saved from destruction were not adequate for their needs, and the dilapidated printing houses were incapable of producing rapidly large amounts of publications. Publishing work was undertaken once more by prewar firms: Gebethner and Wolf, Książnica Atlas, Mortkowicz, Trzaska, Evert and Michalski, Arct. At that time the publishing cooperatives—Czytelnik, Książka i Wiedza, Chłopska Spółdzielnia Wydawnicza, Nasza Księgaria, and the Państwowe Zakłady Wydawnictw Szkolnych—were established. The total production amounted in 1946 to about 3,300 titles in 38.9 million copies; while in 1949, to about 4,600 titles in 72.9 million copies. Despite the notable increase in the size of editions, the publishing production remained inadequate to supply libraries, especially in view of the tremendous war losses.

In this difficult situation the Book Disseminating Committee [Komitet Upowszechnienia Książki] was established in 1948. This committee issued a series of inexpensive mass editions of Polish and foreign literature. These books were distributed to school and public libraries by the Central Storage of Books [Centralna Zbiornica Książek] and also among factories and workshops with libraries.

The number of book collections continually increased. In 1948 the prewar level of 22 million volumes was reached. The rise in number was due partly to the acquisition of abandoned collections taken under the care of the state and gifts from institutions and private persons, both in the country and from abroad. The developing publishing industry and book market and the resumption of legal deposit afforded conditions for active library programs.

A dearth of qualified librarians worsened the difficult situation regarding the organization of libraries. Assistance was offered by teachers, who organized and ran school and public libraries.

The training of librarians was undertaken on an accelerated basis of preparatory courses. The first institution educating librarians at a middle level was the State Center for Schooling Librarians [Państwowy Osrodek Kształcenia Bibliotekarzy] at Jarocin near Poznań. Since June of 1948 it had been offering two-level courses intended in a short time to train persons working in libraries without proper qualifications.

The first university chair in library science was organized by Jan Muszkowski in 1945 at the faculty of humanities of the newly founded University of Łódź. The studies lasted 4 years, and in 1950 postgraduate courses in librarianship were also organized for other students of the humanities.

The decree issued by the Presidium of the National People's Council in 1946, which established the State Book Institute, was another very important landmark in the development of librarianship. The State Book Institute was engaged in research in library science, bibliography, and reading. Dr. Adam Łysakowski, the eminent Polish librarian, became director of this institution. In addition to research, the State Book Institute had worked out an organization of a network of research libraries and was active in the field of standardization and documentation. It started

publishing a bibliography of library science. The institute was an affiliated member of the International Federation for Documentation (FID). After its discontinuance in 1949, the collection and documentation were taken over by the Bibliographical Institute of the National Library.

The first period in the history of Polish libraries in People's Poland lies between 1945 and 1951. The laying down of legal, organizational, and financial grounds for the functioning of libraries on the strength of the decree issued on April 17, 1946; the working out of new organizational forms; the initiation of researches in the field of library science; and the introduction of library science into university studies are the most important achievements of this time.

In the years 1950–1951, in connection with the reorganization of the central administration, a division of responsibilities for the administration and supervision of libraries took place. The Ministry of Education took over the supervision of school and pedagogical libraries; the Ministry of Culture and Art, of public libraries and the National Library; and the Ministry of Higher Schools, of research libraries and of academic schools. Decentralization of the library administration carried out in 1950–1951 has survived until the present in its settled form.

The National Library

After the war the National Library, the Central State Library founded in 1928, began to function in 1945, starting almost from the very beginnings. Losses sustained by this library during the war included the most valuable collection of the former Załuski Library and the Rapperswil bookstock. Other resources of the National Library were likewise heavily depleted. The inventories and catalogs were nearly completely destroyed. The saved collection consisted of about 380,000 volumes of books of the 19th and 20th centuries, and about 100,000 annual sets of newspapers and periodicals. In 1945 the National Library possessed a total of about 600,000 volumes. During the next few years the collections carried away by the German occupiers were returned to the library. Since the earliest days, the National Library had conducted antiquarian searches to make up for the losses. Its stock had been replenished by taking over deserted collections and collections of libraries which had not been reactivated, such as the Krasiński Estate Library and the Zamoyski Estate Library. A reconstruction of the inventories and catalogs made it possible to open the library to the public on June 1, 1946.

In 1946 the National Library once more started publishing the Polish national bibliography, the *Bibliographical Guide* [Przewodnik Bibliograficzny], which was a continuation of the *Official List of Printed Items* published before the war.

Since 1948 the library has published the *Index to Periodicals* [Bibliografia Zawartości Czasopism], which is a register of articles printed in Polish periodicals.

Research Libraries

The decree on libraries imposed on research libraries the tasks of serving scientific activities and of disseminating theoretical and practical knowledge at a higher level.

Moreover, research libraries were to conduct scientific studies on books, to compile bibliographies, and to improve the methods of library work. The decree obligated research libraries to cooperate with other types of libraries.

During the postwar period, university libraries and libraries of other university-level schools were the first to resume operations. This was necessary in connection with the start of higher studies. The organization of learning was resumed along with the removal of the traces of war. The problems of research libraries were as difficult as those of other libraries. There were hardly any librarians, books, or resources.

The Library of the Warsaw Academy of Engineering [Politechnika Warszawska] was completely destroyed by fire. The collection of the Gdańsk Academy of Engineering [Politechnika Gdańska] was partly removed and partly burnt. The Wrocław Academy of Engineering [Politechnika Wrocławska] owned a stock of books left by the Germans—70% of which were useless. Only the stock of the Jagiellonian Library had been protected in time from destruction because of the efforts of the then director, Edward Kuntze. Also, the stock of the Library of the Warsaw University [Uniwersytet Warszawski] was partly saved owing to the devoted efforts of its librarians.

Technological schools by comparison with other types of higher schools were in worse circumstances as regards scientific and didactic literature. In contradistinction to the humanities or socioeconomic learning, for technological disciplines the most important items were laboratories and workshops. The situation was worsened by the fact that the quality and usefulness of the preserved collections were questionable. Many publications were not even of archival value for technical disciplines. Therefore, of greatest importance for research libraries was a rapid selection, arrangement, and processing of the stocks in libraries, so as to open as soon as possible.

In 1944, the first to render accessible its collection was the Curie-Skłodowska University Library in Lublin. The university was established on November 15, 1944, at a time when war had not ended elsewhere in the country. At the same time also the Library of the Catholic University in Lublin resumed its activities.

In 1945 functioning was resumed by libraries of newly founded higher schools and of libraries which maintained historical continuity. To the latter belong the Jagiellonian Library in Kraków (1364), the University Library in Warsaw (1817) and that in Poznań (1919), the Library of the Mining and Metallurgical Academy in Kraków (1919), the Library of the Main School of Farming in Warsaw (1906), and the Library of the Main School of Planning and Statistics in Warsaw (1906).

In the years 1945–1949, higher pedagogical, musical, and medical schools were established. All three categories organized their own libraries. Libraries of higher schools functioned as public libraries and rendered accessible their collections to all interested persons. They differed from one another by their organization and equipment on account of their different histories and origins, yet all accumulated scientific books for research and didactic needs of higher schools, helping one another by pursuing interlibrary lending and by handing over duplicates and unneeded material.

Public Libraries

The network of public libraries had to be established and equipped completely, in the same way as the other networks of research and school libraries. Of a total of about 9,000 libraries (1938) only about 500 were saved, and of these about 200 were in towns.

Economic difficulties of the early years prevented a rapid restoration, yet the achievements of 1945–1949 created a base for the future rapid increase and development of public libraries.

The network of public libraries organized by virtue of the decree of April 17, 1946, comprised district, residential, town, and voivodship (province) libraries and library stations.

A shortage of librarians, of bookstock, of accommodation, and of equipment made it difficult to organize libraries. On account of this, the Ministry of Education decided to organize in the first place district libraries destined to serve large rural areas, because they were the most important links in the public library network.

In 1947 there were about 300 district libraries, while there were about 1,000 public libraries in all.

Intensive organization of public libraries is manifest in the continual increase in their number. In 1948 there were 2,700, while in 1949, there were about 4,000 libraries and 17,500 library stations. In a very short time, by conducting library courses, some 25,000 employees were trained to take over the libraries and library stations, these persons mainly coming from the profession of schoolteachers.

In those years, providing the libraries with the most necessary literature presented a serious problem. The state laid out large sums for spending on the organization of libraries and on purchasing books, yet the respective needs regularly increased. Partial support came from the community itself in the form of funds and books, usually on the "Education Day" or during the "Booklover's Week." These attempts largely contributed to an earlier founding of many libraries.

The state authorities took a deep interest in the development of libraries. In 1947 a special resolution was taken up, stipulating furnishing the Regained Territories with Polish books. The State Council founded about 200 libraries, each of them being stocked with 500 volumes. The libraries were a great support for the Regained Territories, in which Polish literature had been destroyed during the years of war. In propagating reading in the Regained Territories, privately owned lending libraries were helpful. In 1946 there were 28 of them in the Wrocław Voivodship. Joint collections of these libraries amounted to 17,000 volumes. In the following year the number of libraries rose to 70, and the number of books to about 50,000 volumes. Also schoolchildren and students profited by the lending libraries, finding in them the necessary textbooks and reading matter.

In 1947–1949, the first voivodship libraries were founded in Szczecin, Wrocław, Kraków, Poznań, and Warsaw. Those libraries amassed literature required by the whole voivodship. They did not profit by any organizational traditions, as during the interwar period there were no such libraries.

Regarding public libraries, historic continuity had been maintained, among others,

by the Public Library of Warsaw, the Hieronim Łopaciński Public Library in Lublin, and the L. Waryński Public Library in Łódź.

The Public Library of Warsaw has had a very interesting past amid the history of Polish libraries and the history of education. Founded in 1907 by the Society for Public Libraries in Warsaw, it soon became the most popular library of the Polish capital. Its original stock consisted of the collection of the Scientific Reading Room of 1890, numbering about 3,000 books and periodicals. The eminent Polish writer Stefan Żeromski belonged to the founders of the society and of the library.

In 1914 the Public Library of Warsaw was endowed with a specially designed building founded by Eugenia Kierbedziowa. The stacks with the collections were burnt during the Second World War, to be rebuilt and extended after its end. In 1929 the library was taken over by the Warsaw Municipal Council, which ensured its regular budgeting, so that it could expand its activities, and particularly start organizing branches.

The first director of the Public Library of Warsaw, Faustyn Czerwijowski, held his office from 1907 until 1937, and rendered good service for the development of the library.

Owing to the application of modern methods of work, the library performed the function of a training laboratory for librarians over several generations, and also of a center of professional guidance for newly organized libraries. This role had been played in peculiar periods of Poland's history, just after the regaining of independence in 1918, and again after the regaining of freedom and independence in 1945.

In 1929 the Public Library of the City of Warsaw started to publish its *Bulletin*, which later changed into *The Librarian* [Bibliotekarz].

During the prewar period the library owned a collection of books amounting to above 500,000 volumes, and a network of lending libraries and district reference collections. After the war, barely 20% was saved of the rich collection of the library. Despite the enormous losses, the Public Library of Warsaw resumed its activities as early as November of 1944. On its 50th anniversary, in 1957, 12 years after the regaining of independence of Poland, the library could boast of achievements much surpassing the prewar level. The collection of books had attained an impressive total of 700,000 volumes; the town network comprised 95 branches, more than in 1939, when it had 55 branches.

School Libraries

On the strength of the decree of 1946, school libraries were included in the network of public libraries subordinate to the Ministry of Education (at present the Ministry of Education and Guidance). The school libraries were charged with the task of supplying schoolchildren and teachers with reading material required in connection with school learning.

A rapid development of the educational system involved an increase in the number of schools of all types and hence in the number of school libraries. In the years 1954–1955 there were about 26,000 school libraries and their collections

numbered jointly about 35 million volumes. In 1962 their number had increased to 30,000, while that of volumes rose to about 57 million. Poland held one of the top positions in the world in this respect.

THE PERIOD OF FURTHER DEVELOPMENT OF LIBRARIES AND THE INCIPIENT ACTIVITIES OF SCIENTIFIC AND TECHNICAL DOCUMENTATION CENTERS (1950–1960)

General Characterization

The year 1950 was the beginning of the 6-year plan of industrialization, aimed at a transformation of the economic structure of a basically agricultural country. The level of industrialization reached during the realization of the 6-year plan made it possible to attempt the next stage of economic development and to raise the standard of living of the community.

The next, 5-year, economic plan (1956–1960) introduced uniform development of all fields of activity of the national economy and the modernization of industry. During that decade, Poland was one tremendous building site.

Industrialization of the country entailed changes in the demographic and social structure, brought about by the townward migration of the rural population. Social advancement on a large scale and democratization in all the domains of life were started.

The transformation of Poland into an industrial country was clearly manifest in the processes of urbanization, which have resulted in the same number of inhabitants dwelling in towns as in the rural areas. The extent of these processes is evident in the fact that over the 20-year period of People's Poland, about 9 million persons of rural origin settled in towns or industrial centers. For all these persons, migration into a town was associated with economic and cultural advancement. Still another consequence of the industrialization of the country was the dwindling difference in the supplying of villages and towns, both receiving an equal share of goods of permanent use, rendering possible the pursuit of a similar life style. All these social transformations, along with changes in science and technology, played an important role in the process of remodeling Polish culture in those years.

From the beginning, reestablishing Polish culture involved wider assignments than a mere compensation for war detriment, though these losses were heavy. The state took over the patronage of cultural activities, reorganizing the institutions devoted to culture into social and state-owned establishments. The demand for literary production increased tremendously, and particularly needed were communication media, multiedition publications, the press, radio, film, and television. In those times the editions of books were three times as large as in the prewar period. Analyses of the book market revealed a great demand for books during the period in question, in particular for fiction, classics, encyclopedias, textbooks, and popular nonfiction.

Numerous newly organized cultural and educational institutions, clubs, community centers, and regional societies also contributed to the propagation of culture.

Under the reformed system of public education, elementary teaching was ef-

fected within the limits of a 7-grade school; secondary, middle teaching in a 4-year lyceum; vocational instruction in a 5-year technical school following a 7-year preparatory training in the elementary school. Vocational schools afforded graduates with different qualifications, ready for employment in the industrial and agricultural units, in the medical profession (paramedical personnel), and in the educational system. The demand for qualified workers increased rapidly at that time. There existed about 26,000 elementary schools, 2,000 secondary schools, about 5,000 vocational schools, and 84 higher schools (data for 1954–1955).

The degree of spreading of elementary schools, of secondary and vocational schools, and of university-level schools, ranked Poland very high, along with other leading countries. In 1950–1951, the number of schoolchildren aged between 7 and 13 years amounted to 98% of the total of children of that age; while in the 1960s it reached 99.9%

Owing to the considerable development of the material base for the educational system and the growing number of teachers and their rising qualifications, the conditions were ready for developing an 8-year elementary (primary) school. After many years of discussion on the new educational system (since 1956), the Seym of the Polish People's Republic voted through, in 1961, the resolution on the development of the educational system and the guidance system, covering the main lines of changes in curricula and methods of organization. Learning in the elementary schools was extended to 8 years.

Great success in education was also attained with the expansion of the network of schools in 1966, this particular development being connected with the realization of the program of erecting 1,000 school buildings as a Tribute to the Millenium [Pomnik Tysiąclecia].

The requirements of science and economy made it necessary to introduce planning and coordination of scientific research and modernization of the organization of scientific activities. These requirements were the subject of debates at the First Congress of Polish Science in 1951.

In 1952 the Polish Academy of Sciences was established to become sponsor of the whole of Polish science. In addition to its own researches, it was to coordinate all other investigations. Gradually, three organizational entities emerged, in which research is being conducted, namely, the Polish Academy of Sciences, university-level schools, and research institutes directly connected with industry, agriculture, medical practice, etc. Moreover, scientific research is carried out by libraries, archives, and scientific societies. In the postwar period, results obtained by the Polish school of mathematicians represent the most eminent achievements of Polish learning. The Polish Academy of Sciences took over the library of the former Polish Academy of Knowledge [Polska Akademia Umiejętności] and the foundation libraries.

Centers of Scientific and Technical Documentation

The industrialization of the country created a need for documentary information on scientific and technical achievements all over the world. To satisfy the requests in this respect, documentation services were developed.

The earliest specialized services of scientific and technical documentation were organized in factories, laboratories, research centers and institutes, designing offices, etc. These first services were established within the industrial centers of Warsaw and Silesia, and were attached to vocational libraries or formed part of them. Activities of these services broadened those of libraries, adding a greater variety of information and unusual sources of information. Libraries accumulated literature, showing preference to periodical publications, special collections comprising standards, patents, catalogs, price lists, and commercial and trade materials; whereas centers of scientific and technical documentation undertook selecting and analysing sources, produced secondary documents, and prepared synthetic and abstracting information for the use of their own institutions and for other customers, introducing it into the information dissemination system.

In 1950 the Chief Institute for Scientific and Technical Documentation was created. It was to be engaged in conducting research leading to creation of a new system of documentation needed for the development of industrial production, in coordinating the activities of the centers of scientific and technical documentation, and in the training of documentalists.

The bringing into being of the Chief Institute is regarded as the initiation of a planned development of scientific and technical documentation services, and later of scientific, technical, and economic information. The institute has worked out the first framework of documentary activities, consisting of attempts to define concepts and to determine tasks and functions. A uniform system has been established as regards information and its form, such as documentation cards, abstracts, and lists of literature. The Universal Decimal Classification was introduced for obligatory use in the centers. Documentation of literature was decentralized. The centralized system was applied to collecting secondary information, and to its registration and distribution. The documentation card is still used in the centers of scientific, technical, and economic information as the basic form of information processing.

The institute conducted training courses for documentalists, classifiers, librarians of professional libraries, and technicians of reproducing laboratories, and also courses in foreign languages. In the years 1950–1960, by the agency of these courses 600 members of the staff of the institute and of documentation centers were trained.

In 1958 the State School of Scientific and Technical Documentation was organized in Warsaw for the alumni of the 11-class secondary school. Here, technicians of documentation were educated.

To the more important works of the institute belonged the issuance of classification tables and the editing of a review of Polish scientific and technical literature for foreign recipients in Russian and English *(Polish Technical Abstracts)*, at present also published in French and German.

The number of documentation centers amounted in 1950 to about 30, and in 1960 to about 100. In addition to the centers, also information stations, active on a smaller scale, were organized. There were about 300 in 1960.

In 1955 the institute started to publish a periodical entitled *Current Problems of Scientific and Technical Documentation;* since 1962, owing to the ever-broadening range of topics resulting from a reorganization of the information activities, the

periodical has been issued under the title *Current Problems of Information and Documentation.* Since 1955 the Central Institute of Scientific and Technical Documentation has been a member of the International Federation for Documentation.

At the onset of its activities, the Chief Institute of Documentation employed 20 persons (March 1950). At present the National Center for Scientific, Technical, and Economic Information maintains a staff of 400 persons, of whom many are experts. The directors of the institute were, successively: Zygmunt Majewski (1950–1960), Wojciech Piróg (1960–1974), and Konrad Fiałkowski (since 1975).

In the Polish Academy of Sciences, in 1953, the Center of Bibliography and Scientific Documentation was established with the task of conducting bibliographic and documentation work for the departments of the academy. During the successive years, documentation departments and workshops attached to individual institutes of the academy were organized.

Plans for a further uniform development of Poland, both social and economic, and a continuous rise in the quota of scientific and professional literature determined an improvement in the documentation activities and their extension into economic problems.

Optimization of the organizational and technical methods applied in documentation services were made the subject of wide discussion in the Technical Committee, the Polish Academy of Sciences, and the Central Institute for Scientific and Technical Documentation, which were working out a new system of technical and economic information, a system which would fully answer the requirements of the national economy.

Resolutions taken by the government on May 16, 1960, and covering all information activities, were intended to establish indispensable links in the system and to determine their tasks in the field of national economy. This resolution did not embrace the information activities conducted by documentation departments of the Polish Academy of Sciences, and by departments of scientific information of libraries of higher schools. They were obliged to serve the researchers of their parent institutions and to cooperate with the nationwide service of technical and economic information. Moreover, the resolution stipulated that information activities should comprise:

1. Library activities, i.e., collecting, systematizing, and rendering accessible all kinds of publications and other materials, as well as propagating the reading of professional literature.
2. Documentation activities, i.e., collecting, processing, and supplying to the interested parties information in the fields of science, technology, economics, and administration in the form of extracts, summaries, reports, bibliographies, analytical and synthetic lists, monographs, etc.
3. Informational contact, i.e., dissemination of informative materials, propagation and popularization of best achievements in the scientific, technical, economic, and organizational fields with a view to their application in national economy.

The aim of information activities as understood above was to create grounds for technical, economic, and organizational advancement. This way, the organization of information services was adapted to the needs, conditions, and organizational

structures of enterprises, branches, and ministries, and yet it maintained uniform methodological principles, obligatory on a countrywide scale. Under the resolution all centers of technical and economic information were obliged to maintain professional libraries appropriate to the tasks of the center.

Organizationally, the system of technical and economic information extended over departmental, branch, sectional, establishment, and voivodship (province) centers. Branch and sectional centers of information constituted the basic links in this system.

The departmental centers were organized in ministries and central agencies for providing information service for the cells and the staff of these institutions. These departmental centers were also put under obligation to supervise the organization of information activities put through in centers of institutions subordinate to the ministry, hence of branch, sectional, and enterprise centers.

Branch and sectional centers were mainly set up in scientific and technical organizations subsidiary to production, in research institutes, laboratories, designing offices, and federations of enterprises. They were obligated to carry on information activities not only for the benefit of their own organizational unit but also as a service for all requesters interested in the given branch or field of knowledge all over the country. Some of these branches and sectional centers are engaged in research on information methods and techniques, and it is their duty to provide enterprise information centers with information materials.

Enterprise centers were organized in all larger enterprises employing no less than 500 workers. It is their assignment to answer information requests of members of their own staff; to process information on scientific, technical, economic, and organizational achievements of the enterprise; and to introduce it into the information dissemination system.

The earliest voivodship information centers were established in Katowice, Szczecin, and Wrocław—experimentally. Now there are ten. They were put under obligation to carry on information activities to serve the national council, organizational units of these councils, and cooperatives.

The system of technical and economic information was supervised by the Technical Committee authorized to set up directives, both organizational and methodological, and to issue guidelines on the main trends of development of technical and economic information in Poland. The Central Institute for Scientific and Technical Documentation represented the central organ for coordinating and controlling information activities; it was an extension of the Technical Committee.

In 1961 the Central Institute for Scientific and Technical Documentation was transformed into the Central Institute for Scientific, Technical, and Economic Information. The basic assignments of the institute remained unchanged. It continued to be a leading institution in the domain of information. It coordinated the activities of the network of centers for technical and economic information; it conducted research into information theory and methodology; it provided information service for the central authorities. To the institute belonged the organization of training information workers and information receivers, cooperation with foreign countries, standardization of activities in the field of documentation and information, and

popularization and propagation of information. This wide range of diversified assignments made it hard for the institute to meet its obligations, in particular the conduct of research. In 1971 a division of assignments and of scientific research activities took place.

The above discussed resolution (May 1960) constituted the foundation for development of information activities in the 1960s. The resolution exerted a deep influence on the patterns of information activities not only in the economic sphere but also, indirectly, in other social activities gradually drawn into the information system. At that time, networks of information centers serving agriculture, trade, medical science, health protection, etc., were developed.

The years 1950–1960 are regarded as the period in which the structural base of documentation activities in Poland were formed. The most important achievements of that period are the working out of organization of centers, of forms and methods of documentation work, and of forms of training and for raising the qualifications of the employees of the centers. The decade had been, moreover, a period of broadening interest in documentation activities, of their appreciation and a growing awareness of the necessity of their existence, of establishing contacts with documentation centers abroad, and of making use of their experience. Hence the greatest achievement lay in the strengthening of the position of documentation as the indispensable factor and agency of all progress, and in the introduction of documentation activities into national economic planning.

The origin of centers for scientific and technical documentation (1948–1950) and the development of another information system in addition to libraries is one of the more important events in the history of libraries. At first, activities of these two services ran along their own lines, with no opportunities for cooperation. Writings of that period emphasized the different fields of interest, and different forms and methods of work, which separated these two services. Nevertheless, the duplication of the information practice was considered an unfavorable phenomenon.

Absence of cooperation between librarians and documentalists was not a phenomenon confined to Poland. In those years, the situation in this respect was similar in most of the countries possessing libraries and at the same time having documentation services. In Poland, relevant changes were brought forth by librarians themselves, who had activated library services by extending their information activities.

In February of 1951 a National Conference of Representatives of Research Libraries was held, devoted to problems of modernization of methods of work in research libraries. Realization of the resolutions made at the conference found its expression in the creation of the Section of Scientific Information at the National Library, and in the organization of divisions of scientific information in libraries of higher schools and in large public libraries. In their information activities, libraries had applied some of the methods of work then considered as documentation techniques.

Problems associated with information had not often been discussed in library literature, yet the new assignments involved the need of training librarians to perform information work. In 1953 the State Center for Correspondence-Schooling of Librarians was organized in Warsaw, and it soon became the second source of

trained librarians. The new subject "information service" became a permanent item in the programs of courses organized by these centers.

The following years witnessed certain tendencies toward cooperation of libraries with centers for scientific and technical documentation. The libraries and documentation centers dealing with economic problems were the first to undertake cooperation. Mainly on the initiative of the Main School of Planning and Statistics in Warsaw, and under its guidance, the publication of union catalogs of foreign economic literature in Polish socioeconomic libraries was started in 1956. A similar cooperation was established among libraries and centers in agriculture, communications, and medicine.

After 1960 libraries assumed their information activities as one of their basic tasks. In several legal acts regulating the assignments of libraries, recommendations for cooperation with centers of scientific-technical documentation were expressed.

In the conclusions drawn after congresses and conferences of librarians, a uniform policy regarding information activities, which would preclude doubling of information work, was stipulated.

The idea of cooperation between the two systems has grown into a necessity. The 1960s brought further initiatives for cooperation on a regional and local scale, yet on the countrywide scale a platform of understanding was not built before the 1970s, when in both systems it was necessary to modernize information activities through the application of modern technology and to introduce planned specialization of library collections.

The National Library

In 1954, on the strength of the resolution of the Presidium of the government, the National Library received a new statute. It determined legal grounds and the tasks of the library, extending its activities. In addition to collecting literature in Polish and on Poland, and in addition to recording current Polish publications and compiling statistics of the national publishing output, the central library of the state was required to perform tasks serving the development of library services in Poland and to take care of the most valuable collections of the country. The National Library consisted at the time of three basic sections: the library proper, the Bibliographical Institute, and the Books and Readers Institute. Activities of these three sections extended all over the country, and for this reason the National Library ranked foremost among research libraries. The Bibliographical Institute issued the following basic publications: *The Bibliographical Guide—The Official List of Publications,* in which the whole book production of Poland was registered; the *Index to Periodicals* (monthly); *Foreign Polonica;* the *Bibliography of Periodicals and Serials;* and the *Bibliography of Bibliographies and of Library Science.*

The Books and Readers Institute was established in 1955. It was mainly engaged in research aimed at determining the role of libraries, books, and reading in the development of socialist culture in Poland. By examining the social process of the use of books in different milieux, the institute influenced the book market and the structure of book collections in public libraries. Moreover, it was the assignment of

the institute to conduct work in the field of standardization, library education, and organization of the public library network.

The number of collections in the library reached 2 million units in 1960, while the annual inflow of accessions was about 30,000–40,000 volumes.

In comparison with the collection of the interwar period, 770,000 volumes (1939), the increase was greater than ever in the history of Polish libraries. Nevertheless, special collections, though highly valuable, were inferior to the prewar ones destroyed by the German occupying forces.

In 1951 the Section of Scientific Information was appointed to perform its activities all over the country. It offered information to institutions, libraries, and to private persons. Since 1952 it has been publishing a list of the more important bibliographies compiled by libraries and research institutes.

Successively, after 1945, the directorship of the National Library was held by S. Vrtel-Wierczyński (1945–1947), Ksawery Świerkowski (1948), Władysław Bieńkowski (1948–1956), Bogdan Horodyski (1956–1962), and Witold Stankiewicz (since 1962).

Research Libraries

Research libraries did not form an organized system. Larger groups belonged to the Polish Academy of Sciences and to university-level schools. Libraries of research institutes were subordinated to about 20 ministerial departments. Continuous development of science and of the reading of scientific literature presented the research libraries with the task of satisfying fully the requirements for scientific literature and information.

The lack of organizational links among libraries acquiring collections along similar lines, and between libraries of academies of engineering and libraries of ministerial institutes, prevented a rational utilization of the acquired collections.

Cooperation of libraries with respect to acquisitions became a necessity. The idea of cooperation in this field and the specialization involved were not new to Poland.

One of the first to speak of the specialization of libraries and of their cooperation was E. Kuntze (1919). A few years later the problem of specialization constituted the topic of the debates of the Second Congress of the Polish Library Association. The matter was also considered by A. Łysakowski, J. Grycz, and K. Dobrowolski.

Professional periodicals of 1958–1960 contain several articles on specialization of collections, which was regarded as the optimal solution to the shortcomings in acquisitions and for proper utilization of collections. Most notable are the papers by Bolesław Swiderski: "Cooperation of Libraries in Acquiring Collections" (1958, 1960, 1964); and by Jan Pasierski: "On Specialization." These articles constituted the theoretical base for working out legal documents outlining the principles of planned specialization of collections in research libraries. The information activities of research libraries of the Polish Academy of Sciences and of university-level schools covered a wider range only after 1960, when they assumed various forms.

Public Libraries

The development of public libraries in 1950–1960 proceeded with a rapidity unknown up to that time in this country. The newly organized network of voivodship, district, town, and village libraries was the greatest group of libraries.

In 1950 there were 4,500 libraries, together with branches, and about 18,100 library stations with collections numbering around 10,500,000 volumes. By 1955 the network of libraries had increased to about 1,000 libraries and branches, about 11,000 library stations, and some 13 million volumes. In 1960 the number of libraries and branches was about 8,000, the number of library stations about 23,000, while collections consisted of about 32 million volumes.

At the same time the reading habit began to spread. A statistical analysis has shown that users of the libraries in this network, 3,500,000 persons in 1960, had borrowed about 66,500,000 volumes over a period of 1 year. The number of readers constituted 12% of the population.

In 1969 the number of readers increased to 19.5% of the population. At the disposal of readers stood 50 million volumes, while the number of loans amounted to almost 111 million volumes in a single year.

With respect to the degree of development of the reading habit, Poland equaled the leading countries with well-developed reading traditions, alongside of Denmark, Finland, Sweden, Great Britain, and the United States. Public libraries, engaged in the propagation of reading and in popularizing books, conducted information activities as well, mainly concentrated in the bibliographical and reference sections of the voivodship and town public libraries. Multibranch information on a large scale and in different forms was carried out by libraries of Warsaw, Łódź, Poznań, and Toruń.

Vocational Libraries

In 1953 the Presidium of the government issued a special resolution on the development of vocational libraries, putting institutions employing about 100 persons under the obligation to organize libraries on the premises. After 1953 the number of vocational libraries rapidly increased. In 1960 there were about 4,200, and their collections included about 13 million volumes. Their rapid development was closely associated with a change in the economic structure of the country and the resulting necessity for providing vocational literature necessary for performing production assignments and for improving the qualifications of the staff. In consequence of realization of the resolution issued by the Ministry Cabinet on May 16, 1960, concerning the organization of technical and economic information, a merger of vocational libraries with centers of scientific and technical documentation took place. This legal act united two different, separately acting sectors into a country-wide network of technical and economic information. The actual organizational and functional integration of the centers and vocational libraries had taken place earlier. The centers for documentation were established in vocational libraries or attached to them. In effect, organizational relations vary; it may be that a center

is an organizational unit of a library, or, vice versa, that a library is an organizational unit of a center. It may also happen that a library and a center constitute separate organizational units. The basic tasks of vocational libraries consist in collecting sources required in connection with the current and long-range plans of the parent institution and in library and bibliographical service to users.

THE PERIOD OF INTEGRATION AND MODERNIZATION OF LIBRARIANSHIP AND SCIENTIFIC INFORMATION (1961–1975)

General Characterization

This period has been characterized by the rapid development of all domains of Polish life. There has been a uniform progress in the different industrial branches and in agricultural economics. Modernization of technology has been stressed, as well as the organization of work, the methods of administration, etc.

The significance of scientific investigation and of the social function of science has been furthered. The direct influence of science on the development of the Polish economy and on culture has made it clear that the level of science and investigating potential is becoming one of the basic factors which determine the rate of development of the country. In 1974 Poland had 387 research institutes (outside of those in higher schools), in which about 18,000 scientific workers were employed.

During the Second Congress of Polish Science in 1973, which summed up the achievements of scientific activities and determined the directions for their development, the debates also covered problems of the future development of scientific information in the country and of research libraries, which are considered an indispensable agency in all scientific work.

In 1973 the Committee of Experts concluded their work with a report on the state of education in Poland and a model of the future educational system. The report was considered by the Seym of the Polish People's Republic, which then passed a resolution on the system of national education. The chief decisions stipulate for the propagation of education on a secondary level, and for the development of the system of continuous schooling (courses, postgraduate studies). An important function is to be performed by informal educational institutions, which cooperate with the school system, and among which school, public, and vocational libraries are destined to play a particular role. Already in the academic year 1974–1975, a total of 427,700 students acquire education at 89 higher schools. Extramural studies are increasing in number. University-level schools are to be found in 24 towns.

In recent years, publishing output has greatly increased. In 1960, 6,880 titles were printed; and in 1975; 11,250. Editions increased from 92,290,000 in 1960 to 150,828,000 in 1975. In 1975, 2,700 titles of periodicals were issued. Aside from evident quantitative changes, the number of titles in the exact and natural sciences decidedly increased.

The improvements and the rapid disappearance of environmental cultural differences between the urban and rural population have caused several changes in

librarianship and scientific information services. Not so much the increase in number of libraries with their traditional services, as the undertaking and expansion of new information functions has characterized these changes. Libraries of all types became increasingly engaged in performing the role of information centers. Fully aware of the need to modernize the methods of work and to hasten the introduction of mechanization and automation of library and bibliographic activities, and regarding them as absolutely necessary tools for transforming libraries into modern information stations, the librarians at large expressed these views in numerous publications and during the meetings and conferences of the Polish Library Association. Closer cooperation among different types of libraries utilizing the network of scientific, technical, and economic information was postulated. Agreements then made and decisions taken have become the foundation of present-day forms of cooperation and have created opportunities for introducing further improvements. One of the forms of activity then initiated, whose rapid development can be observed now, is the regional cooperation among libraries of all types and centers for scientific information.

The views expressed by librarians and information workers were put forward in projected decrees—in time they became regulations which were binding for libraries and centers for scientific information.

As a result of a resolution of the Ministry Cabinet, voted through in 1960, the network of scientific, technical, and economic information was considerably altered. These changes, dictated by the necessity of improving information services as an indispensable element of technical advancement and progress in the national economy, pertained to the organizational structure of the system and the activity of the centers.

The new structure of the network of centers for scientific, technical, and economic information was founded on the principle of specialized centers. Decentralization of their activities was maintained, the Central Institute for Scientific, Technical, and Economic Information remaining the coordinating agency. The information activities of the centers were linked with the activities of vocational libraries, which were included in the system. Three basic types of centers were established: departmental (for general supervision of centers under one ministry), branch (responsible for serving users interested in a particular branch of science, and also preparing informational publications), and enterprise (small units in enterprises and factories). Also, a few centers of information for different regions were created—their task was to provide information for local authorities and industries. In addition to performing a coordinating function, the Central Institute for Scientific, Technical, and Economic Information conducted scientific research and methodological investigation, provided information on sources of information, and prepared information for the central authorities. Information on patents and inventions, on completed scientific investigations, and on trade literature was developed. In 1960–1970, the number of centers increased from 600 to above 2,000.

The number of employees of information centers increased from 1,500 in 1960 to 7,500 in 1971. With the growing number of centers and employees of the system of information, the national fund of documents increased, new forms of in-

formation materials developed, and information activities intensified. In 1970 the information centers prepared 130,000 documentation cards for scientific and technical publications, which were distributed in 13 million copies. The network of information centers published more than 600 titles of periodicals.

Events of great significance for the organization of scientific information in Poland were the creation in the Polish Academy of Sciences, in 1961, of the Center for Bibliography and Scientific Documentation (at present the Center for Scientific Information), and also the establishment of centers for information and documentation in the institutes of the academy. These centers maintain documentation of scientific investigation within a given field of knowledge and register the results of activities of their parent institutions.

In 1967 the institutes of the Polish Academy of Sciences and the universities agreed to join in organizing additional schooling of information workers and information users and to coordinate their information activities. By the terms of this agreement the information centers of the Polish Academy of Sciences and the main libraries of higher education started recording the scientific investigations completed at their parent institutions by sending these data to the Central Institute for Scientific, Technical, and Economic Information, which in turn started publishing them in special bulletins. The Center for Documentation and Scientific Information of the Polish Academy of Sciences took up the role of a coordinator of information activities of the merged networks.

Developing and modernizing the methods of work, libraries and information centers needed greater numbers of qualified personnel. Therefore, in the 1960s, there was a development of library education, both on an academic and secondary school level. Various forms of courses for librarians and information workers were also developing.

The Chair in Library Science at the University of Warsaw, existing since 1951, was transformed in 1969 into an Institute for Library Science and Scientific Information with a revised curriculum. The Chair in Library Science at the University of Wrocław was engaged in both intramural and extramural training of librarians. In 1969 interfaculty studies were begun at the university of Łódź, and the next year at the Jagiellonian University of Kraków. The necessity to prepare librarians of public libraries to perform increasingly complex tasks also caused the altering of curricula of the State Center for Correspondence Training for Librarianship in Jarocin (in 1961) and in Warsaw.

Organization of the National Library Network

In 1968 the Seym of the Polish People's Republic voted through the Statute on Libraries, the current legal act on librarianship. The statute kept valid the principal stipulations of the 1946 Decree on Libraries, namely, the uniform library policy pursued on a countrywide scale, the access to libraries shared in common by the whole nation, and cooperation of all types of libraries. To ensure realization of these principles the statute retained the notion of a national network of libraries, including research, vocational, school, pedagogical, and public libraries; while in-

troducing a new concept of departmental (ministerial) library networks, and determining the assignments of ministries and national councils regarding the supervision of the libraries to ensure proper conditions for their activity. The statute of 1968 has put libraries belonging to the national network under an obligation: "to cooperate with respect to collecting, storing, processing and rendering accessible the stocks of books, preparing and disseminating bibliographic and documentary information on scientific research, and raising the qualifications of librarians." Moreover, the statute obliges the minister of culture and arts, in agreement with the interested ministers and the secretary of the Polish Academy of Sciences, to establish valid principles for the national network of libraries to be observed in matters of specialization of library collections, coordination of bibliographic and information activities, interlibrary loans, and union catalogs. The minister of culture and arts, who directly supervises public libraries and the National Library, directs the application of the accepted principles and makes known to the directors of the interested ministries his remarks and conclusions on the activities of subordinate libraries.

The State Library Council, comprising representatives of the interested ministries and organizations, constitutes the social advisory and consultative organ to the minister of culture and arts for libraries.

Supervision of individual networks of libraries is exercised by ministers, by the management of trade unions and of social organizations, and by the agency of governing organs established for this purpose.

In 1974 there were in Poland around 47,000 libraries, whose joint collections numbered about 265 million documents. The collections increase yearly by about 6 million. Acquisitions are decentralized in Poland. Libraries acquire new local and foreign publications by the intermediary of the bookselling trade. Antiquarian booksellers are put under obligation to report to particular libraries (research and public) whatever materials they have acquired or received for commission sale which represent cultural assets in the understanding of the statute on the protection of cultural wealth, issued in 1962. These materials cannot be sold to other institutions or to private persons before the lapse of a predetermined period. First refusals of printed materials reported by the antiquarian booksellers is vested in the National Library and next in the Jagiellonian Library. Without a permit from the National Library, export of library materials published before 1945 is prohibited.

The collections of 11 research libraries are mainly built up from legal deposit copies sent in by printing establishments of all kinds, including local mimeograph centers.

The National Library receives for its collections two copies of each printed item issued in the country; one copy of Braille publications issued in editions up to 100 copies; and single copies of standards, of patent specifications, and of gramophone records. All these copies constitute material for the current national bibliography and for the statistics of publishing in Poland.

Two legal deposit copies are also supplied to the Jagiellonian Library in Kraków and to university libraries in Lublin, Łódź, Toruń, Warsaw, Wrocław, the Silesian Library in Katowice, the Public Library of Warsaw, and the Voivodship and Town

Public Library in Szczecin. In addition to the above, 17 public libraries of the voivodship or town category receive copies of publications printed in their regions (so-called regional copies). Foreign materials for Polish libraries are purchased by the mediation of the firm Ars Polona (books) or Ruch (periodicals).

Interlibrary exchange within the country covers publications not sold on the book market and unneeded materials. The interlibrary exchange of printed matter was legally regulated in 1965, in a special provision of the law. International exchange of publications is carried on by libraries either directly or through the International Exchange of Publications Bureau located at the National Library. Exchange often takes place on the strength of bi- or multilateral agreements between research libraries.

The National Library

The Statute of the National Library of 1969 ranks it as the central library of the state, whose assignment is to carry on library, bibliographic, and scientific research; and service, advisory, information, standardizing, and publishing activities. (See Figures 1–3.)

The National Library continues to collect all Polish literature and foreign Polonica. The policy of collecting foreign literature is based on the obligation of acquiring printed publications and unpublished materials indispensable for the development of Polish culture and learning. Consequently, the National Library is in the first place interested in building up an extensive and up-to-date collection of bibliographic and reference works, at the same time accumulating publications in the fields of social sciences and humanities, with particular regard to the domain of its special concern: library science and scientific information. At the present, the collection of the library amounts to about 3 million items, increasing every year by about 160,000 items. The stock of manuscripts, mainly acquired after 1945, to

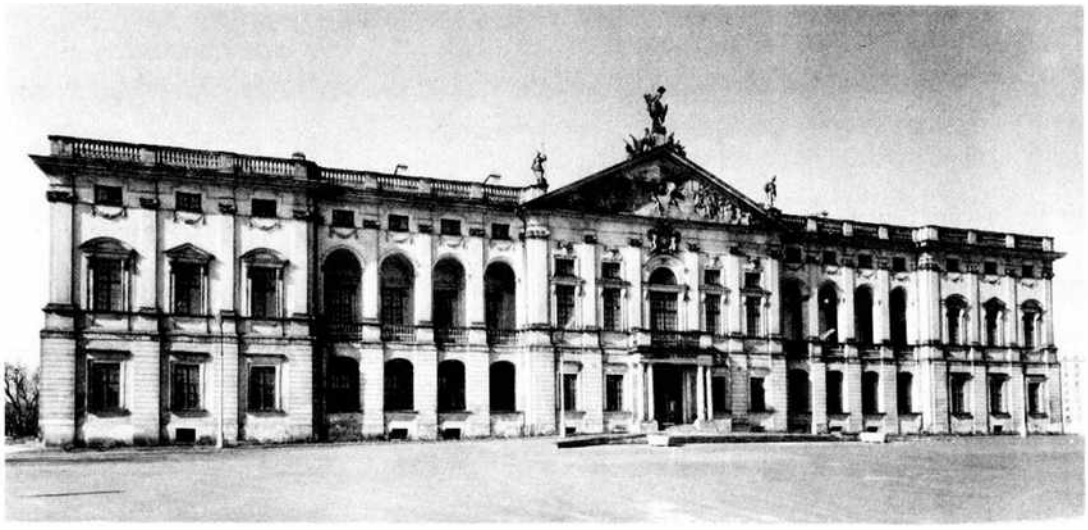

FIGURE 1. *National Library, Special Collections, Warsaw.*

FIGURE 2. *National Library, Special Collections, interior (Wilanow Hall), Warsaw.*

replace war losses, comprises over 10,000 items. Among them are medieval illuminated manuscripts such as the *Psałterz Floriański* [St. Florian Psalter] and numerous autographs of Polish writers. The collection of old books, those printed before 1801, numbers over 115,000 volumes, while the number of prints, drawings, and illustrations exceeds 175,000 items. The collection of maps and atlases (above 18,000 items) represents Polish cartography from the 16th to the 20th century.

The National Library takes care, moreover, of all valuable materials kept by other libraries of the country, and systematically microfilms them, thus building up a central collection of microreproductions, some 100,000 items.

Receiving all Polish publications makes it possible for the National Library to play the role of a central information center on Polish printed output. In this capacity, the National Library compiles and publishes the current national bibliography consisting of four parts:

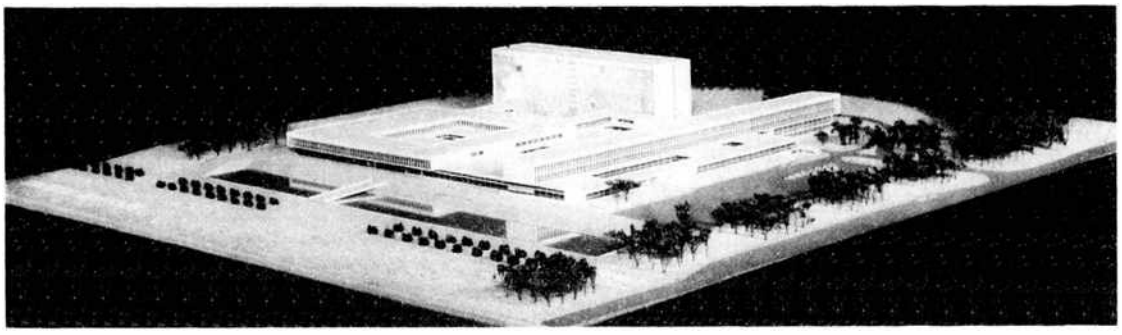

FIGURE 3. *Model of the National Library.*

Bibliographical Guide (a register of books published in Poland)
Index to Periodicals
Bibliography of Periodicals and Serials
Foreign Polonica

It also prepares and publishes the official statistics of Polish printed output (*Polish Publishing in Figures*). Work on a retrospective national bibliography covering 1901–1939 is well advanced.

Among the central functions performed by the National Library are the union catalogs. The union catalog of incunables has already been published. Union catalogs of foreign periodicals and books currently received by Polish libraries are also published with the use of a computer. The Bibliographical Institute of the National Library functions as the bibliographical center of the country; and besides publishing the national bibliography, it is engaged in conducting theoretical, standardizing, and methodological research on bibliography, in publishing special bibliographies, in documentation of library and information science (*Bibliography of Bibliographies and of Library Science, Analytical Bibliography of Library and Information Science*), and in registering bibliographical works still in preparation. For the use of public libraries, recommended reading lists, devoted to individual writers, anniversaries, etc., are published.

Particular stress is laid on the introduction of automation into bibliographical and library activities. The Data Processing Center has already worked out principles of a complex automated system which is to be introduced in the National Library. This system has been included in the national system of scientific, technical, and economic information, by which an integration of bibliographical and library information flow has been provided for.

The National Library carries on research on the history of books and libraries and pursues studies on the theory of librarianship. The Books and Readers Institute of the National Library conducts investigations into sociological aspects of reading in different social groups; makes analyses of the activities of libraries, mainly public ones; and undertakes methodological work.

The results of scientific investigation are published in such serials issued by the National Library as *Rocznik Biblioteki Narodowej* [The National Library Yearbook], *Prace Instytutu Bibliograficznego* [Proceedings of the Bibliographical Institute], and *Z Badań nad Czytelnictwem* [Readership Studies].

The National Library is a member of international professional organizations (IFLA, FID, ISO, IAML) and it cooperates with boards of editors of international bibliographies (for example, *Index Translationum*). The National Library contributes to the work on a system of information for the socialist countries—the International Center for Scientific, Technical, and Economic Information in Moscow being the chief coordinator.

As the central library of the state, the National Library plays a leading role in working out the concept and future shape of Polish librarianship. Commissioned by the minister of culture and arts, the National Library supervised the preparation of a report on Polish libraries (1974), and in 1975 it worked out a program for

the development of Polish librarianship until 1990. The program contained the framework for development of different types of libraries, their information activities, organization and management of the national library network, and also the direction of changes in the training of librarians.

Organization of the National Network of Scientific, Technical, and Economic Information

The growing requirements of users of information and the necessity to adapt to these needs the range and service of information caused the introduction, in 1971, of changes in the organization of the system of information. In addition to the organizational changes in the network of centers, the resolution of the Cabinet Council has determined the assignments and the direction of activities of scientific, technical, and economic information services, settling—among other things—the basic obligation of adapting the ranges, methods, and forms of information to the requests of definite groups of users, in particular the managerial staff of all hierarchical levels, scientific workers and technicians, teachers, employees in the fields of trade and services, and inventors and authors of technical improvements. Information activities were extended over scientific, technical, and economic achievements, over methods and techniques of administration, over patents, and finally over technical and commercial literature. Moreover, information was adapted to the needs of the educational system and was put to use in the popularization of the achievements of science and technology. The new regulations have created grounds for including in the scientific, technical, and economic information system the information services carried on by libraries of the Polish Academy of Sciences and of higher education. The organizational network of the existing types of centers has been maintained, while the administering organ (the Central Institute for Scientific, Technical, and Economic Information) was divided into two distinct institutions, namely, the National Center for Scientific, Technical, and Economic Information; and the Institute for Scientific, Technical, and Economic Information.

Centers of the following categories constitute the network of scientific, technical, and economic information:

1. Central information centers, which amass documents of particular kinds (e.g., standards, patents) and which perform information activities within the range of their specialization.
2. Branch or sectional centers of information, localized in research institutes, designing offices, etc., which collect sources referring to particular fields, process them, and provide information to all interested persons in the form adapted to their needs.
3. Enterprise centers of information established in working places with the task of informing the employees of their parent institutions about technical, economic and organizational progress in the field of interest of the given enterprise, making use of materials prepared by the branch centers.

There are also voivodship centers of scientific, technical, and economic informa-

tion destined to organize the supply of information on the local economy for the use of local authorities. These local centers collect literature, standards, and patents which are of bearing on the needs of the region; they provide information on local industrial plants and scientific institutions; they publish informative bulletins adapted to the requirements of the region.

In 1974 there were about 2,500 information centers of various categories. Centers of scientific, technical, and economic information have been developing for several years, and have worked out many forms and methods of activity. A staff of experts in the field of information has been educated. Within the individual categories various forms of information have developed, starting with bibliographical information, through the supplying of data and facts, and ending with synthetic reviews.

The basic form of material supplied to users is information on sources and their contents. This information is duplicated and sent out to subscribers in the form of documentation cards, subject bibliographies, lists of accessions, and the like. Synthetic information is prepared by the better-organized centers in response to requests, and also at the initiative of the center, after its users' needs have been identified.

Significant results have also been gained in the domain of automation of information processes. Among the retrieval systems put to use are the BUDINDOK system for searching out patents in the field of the building trades; the ASIW system informing on official foreign trips, in the departments of heavy industry and machinery; and the system of bibliographic information on the shipbuilding industry (APIS). To hasten the availability of information it is important to acquire data from foreign automated systems, particularly from the international information system of the member countries of the Council for Mutual Economic Assistance (COMECON), and to subscribe to the bases of the more important foreign systems.

Polish specialists of the whole network of information participate in the building up of an international system of scientific, technical, and economic information to serve the COMECON countries. Some parts of this system are already functioning, including a system of information on completed scientific research and dissertations in the COMECON countries; and on systems for the field of chemistry and for chemical industry, on the building trades and the building materials industry, and on electronics. There is also a system of information on periodicals published in the COMECON countries and on information organs in these countries.

Independently from the network of information centers belonging to industrial establishments and to other trade institutions, technical and organizational advancement is disseminated by special sectors, clubs of rationalizers, standardization sections, patent agents, and by scientific and technical associations. Certain assignments forming part of the information system are carried out by special institutions. The technical advancement centers, for example, situated in Katowice and Warsaw, disseminate new solutions of constructions, new methods of production and technical advancement, technical culture, and achievements in the national economies. Moreover, these centers organize and conduct various courses, seminars, etc.

The National Center for Scientific, Technical, and Economic Information

The National Center represents an organ responsible for programming, planning, coordinating, and controlling the development and activities of the Polish system of scientific, technical, and economic information.

In its endeavors to realize these assignments, the National Center works out programs and plans of development of information activities in the country; it pronounces opinions, from both the subject and financial point of view, on plans of professional literature import and its distribution; and it coordinates designing, programming, and introduction of automated information systems. Moreover, the task of the National Center is to decide upon the choice of information carriers which are to be used in the Polish system of information and the information retrieval languages, as well as methods of information activities.

Consultation and advice in the organization of information cells and on the methods applied, coordination of training and further professional education of information workers, and introduction of customers to the use of information are important fields of activities of the National Center. Being an information institution on a central level, the National Center keeps a documentation card file and an index of information centers, which together provide information on the literature in various fields of knowledge and on centers able to give information on problems.

The National Center is also engaged in countrywide information on completed scientific research; on conferences, congresses, expositions, and reports on foreign official tours; and on translations of foreign technical literature.

The National Center is the publisher of the basic periodical in this field, *Current Problems of Information and Documentation* [Aktualne problemy informacji i dokumentacji], and of information bulletins covering particular categories of documents described above.

It is also the function of the National Center to represent the Polish service of scientific, technical, and economic information in foreign countries, and to cooperate with foreign centers and organizations which conduct information activities, in particular with the International Center for Scientific, Technical, and Economic Information of the COMECON member countries. The National Center is a member of the International Federation for Documentation, of the International Organization for Standardization, and of other international organizations involved in problems of scientific information. It concludes and realizes international agreements and treaties in the exchange of information; it plans the requirements of the network of scientific, technical, and economic information regarding international cooperation; and it organizes contacts between Polish and foreign information systems. The first director of NCSTEI was Jan Sygitowicz (1971–1973), followed by Mieczysław Derentowicz (from 1974).

Research and methodological investigations in the realm of scientific, technical, and economic information are being conducted by the Institute for Scientific, Technical, and Economic Information, administratively subordinated to the National Center. This institute carries on fundamental and applied research and

developmental studies aimed at improving the national information system, analyzes the requirements of information users, prepares standards associated with information activities, works out projections for the development of the information system, investigates the tendencies and directions in the development of world information and subsequently adapts them to local needs, and coordinates scientific researches and methodological investigations concerned with information.

The institute is the publisher of the *Review of Literature in Problems of Information* (a quarterly), of a series entitled *Works, Studies, Contributions*, of the Universal Decimal Classification Schedules, of the *Bibliographic Bulletin of the Clearing-house at IINTE*, and of *Schooling Materials*.

The Network of Libraries and Scientific Information Centers: Libraries and Cells of Scientific Information Belonging to the Polish Academy of Sciences

Libraries of the Polish Academy of Sciences are organized into a network composed of independent libraries, libraries of research institutions of the Polish Academy of Sciences, libraries of research stations of the Polish Academy of Sciences working in foreign countries, and libraries of scientific societies subsidized by the Polish Academy of Sciences. In 1974 the stock of books in libraries of the Polish Academy of Sciences amounted to about 4,800,000 volumes. Independent libraries in Gdańsk, Kórnik (near Poznań), Kraków, Warsaw, and Wrocław organize environmental collaboration of libraries of the academy. They carry out methodological instruction as regards library activities for libraries in their territory and provide training and additional schooling of the staff of local libraries.

Libraries of the Polish Academy of Sciences make their collections available to the personnel of the academy and to any user needing them for scientific or educational purposes; they are engaged, too, in information services and in scientific research. Much research conducted at the libraries of the Polish Academy of Sciences is connected with the cataloging and processing of their collections. Unique materials of great independent libraries create grounds for historical and literary research and for investigation of source materials. Many bibliographies prepared by the libraries of the Polish Academy of Sciences have appeared in print.

The library of the Ossoliński National Establishment of Wrocław (founded in 1817) is the largest independent library of the Polish Academy of Sciences. Writings in the humanities referring to former and contemporary Polish culture, especially memoirs, Polish Slavonic studies, and foreign Polonica, are being collected at this library. The graphic arts collection of the Ossolineum includes the most extensive Polish collection of book plates. In all, the stock of the library amounts to above 850,000 items. Making use of its unique collections, the Ossolineum library conducts scientific research and editorial work, the results of which are published in its own journals.

The Gdańsk Library of the Polish Academy of Sciences, the most ancient library of the academy, founded in 1596, mainly collects publications in the humanities, referring in particular to Gdańsk, to Pomorze, and to sea problems. Among its manuscripts are numerous miscellanea which contribute to the history of Gdańsk.

The library now has more than half a million volumes. It publishes periodicals containing its research findings and texts.

The Library of the Polish Academy of Sciences in Kórnik, near Poznań, founded in 1817, possesses a rich and valuable collection of source material for the history of culture in Poland, including incunables, manuscripts, and archival materials. The stock of the library consists of about 200,000 volumes. The scientific findings of the librarians and information about sources preserved in the collections are published in the library's periodicals and series.

The Library of the Polish Academy of Sciences in Kraków had continued the work of the Library of the Kraków Scientific Society (1856). It owns valuable collections in the humanities, mathematics, and natural science, as well as an abundant stock of manuscripts, which largely refer to Kraków and the Kraków region, totaling about 450,000 items.

The Library of the Polish Academy of Sciences in Warsaw owes its origin to the collection of the Warsaw Scientific Society. At present the stock of books is replenished with accessions on the history, theory, and methodology of science; scientific prognostication; and library science and scientific information; and it numbers about 150,000 items. The library is engaged in research and provides information within the range of the specialization of its collections. The library is the publisher of documentation reviews of Polish and foreign literature.

Among the fifty-odd libraries of institutes belonging to the Academy of Sciences there are to be found both humanistic institutions, such as the libraries of the Institute of Literary Research, the Institute of Fine Arts, the Institute of History; and institutions specializing in exact sciences, such as libraries of the Institute of Mathematics, the Institute of Experimental Biology, the Institute of Basic Technical Problems, the Institute of Physics, and the Institute of Immunology and Experimental Therapy.

Libraries belonging to and subsidized by scientific societies make up the third group of library units under the auspices of the Polish Academy of Sciences. These libraries collect publications in social sciences associated with the individual regions of Poland. Library units also form part of research stations of the Polish Academy of Sciences in Paris and Rome.

Documentation and scientific information divisions and workshops, organized within research institutes of the Polish Academy of Sciences in the 1960s, have been engaged in preparing current and retrospective bibliographies, reviews or documentation cards of scientific investigation already completed or in progress, reports on official trips to foreign countries of members of the staff of the parent institutions, union catalogs of literature within the realms of the specialization, bibliographical lists for scientific research conducted at the given institution, and subject bibliographies for other libraries, both in the country and abroad. Moreover, they publish information bulletins on the activities of related scientific institutions, lists of institutions or persons active in a given field of research, etc. In addition to this kind of informative materials, applicable in all scientific realms, there are forms of documentation techniques specific to some scientific disciplines covering unpublished sources of information, such as "object-documents" or "unwritten sources,"

and monuments of art or technology and specimens or relics of an animate and inanimate nature. This documentation work is supervised or done by experts at such institutions of the Polish Academy of Sciences as the Institute of Fine Arts, the Institute of the History of Material Culture, the Zoological Institute, and the Botanical Institute.

University and Professional Higher School Libraries

In Poland libraries of higher institutes of education are divided into groups according to the different types of educational activities. Hence, there are libraries of universities, and of higher schools of economics, pedagogy, agriculture, medicine, military science, music, fine arts, the theater, theology, and physical education. (See Figure 4.)

In 1974 there were 90 libraries of higher schools (main libraries and their branches), possessing a joint collection of some 32,784,000 volumes.

The statute of higher education, passed in 1958, ranks these libraries as universal agencies charged with scientific, didactic, and service assignments. The scientific assignments involve preparing a workshop for scientific investigation of the parent authority and scientific activity of the staff of the library. Didactic functions consist of participating in the schooling of students (organizing collections adapted to the

FIGURE 4. *The K. C. Norwid Public Pedagogical Library, Lielona Góra.*

curriculum and conducting certain classes), and services include rendering the collections available and providing information.

Libraries of universities and professional schools function as public research libraries. Their stock of books is open not only to academic staff and students, but also to any person wishing to take advantage of the library for scientific or educational purposes.

The typical library of this kind is made up of the main library together with branches and the libraries of individual faculties, institutes, and departments of the school. The main libraries coordinate the acquisitions of departmental libraries, publish union catalogs of the collections, supervise the activities of all libraries of the school, and train the library staff.

The main libraries have been recognized as school centers of scientific information, to which is entrusted providing information on the scientific output of the parent institution, and information service for scientific workers and for the didactic process. Sections of scientific information, set apart in libraries, impart information to individual users and pursue documentation and bibliographic activities.

Libraries of higher schools prepare and send into the central national information system documentation cards of research conducted at the given high school, reports on official trips abroad, translations of foreign publications made at the given school, and foreign publications in the fields of mathematics, natural sciences, and technologies obtained by means other than subscription. In addition to this, libraries prepare bibliographies of the scientific output of the staff of their schools; they cooperate in the working out of documentation publications and of union and regional catalogs. Registers of accessions kept by most of the libraries provide basic current information on the collections of library materials.

In recent years great changes have taken place in the methods and forms of work of some of these libraries. This holds true in the first place regarding libraries of the higher technical schools in Wrocław and Warsaw, which have introduced automation of information activities; and regarding the library of the Central School of Planning and Statistics in Warsaw which, in addition to its own activities, has organized a system of socioeconomic libraries, whose work it coordinates.

Among the 10 university libraries, the Jagiellonian Library in Kraków (founded in 1364) deserves the first place. (See Figure 5.) This library remains under a statutory obligation of collecting all Polish works published before 1800. Apart from this, since 1932 it has been receiving legal deposit copies of all printed works published in Poland. Its bookstock of nearly 2 million is of a universal type with a preponderance of the humanities; a narrower specialization covers the cultural history of the Middle Ages and of the Renaissance. The Jagiellonian Library possesses exceptionally valuable collections of manuscripts including some 2,500 medieval manuscripts. Here is to be found the autograph of the "De revolutionibus orbium coelestium" by Copernicus. The largest collection of incunables in Poland is in this library.

The University Library in Warsaw (founded in 1817) is one of the larger libraries of this country (above 1,800,000 volumes). In its general collection the humanities are in preponderance, while Rosica make a narrower specialization. The University Library has rich collections of periodicals of the 19th and 20th

FIGURE 5. *Jagiellonian Library, Kraków.*

centuries and an unusually valuable collection of prints, architectonic drawings of the 16th to 18th centuries, and Polish graphic art of the 20th century. The University Library is engaged in lively information activities, applying among other methods, the selective dissemination of information.

The University Library in Wrocław (founded in 1945) took over the collection of the Town Library reaching back to the beginning of the 16th century, the collections of the former university library established in the 19th century, as well as old and valuable collections of Silesian libraries. The stock of books of the University Library numbers over 1,300,000 volumes; it includes the greatest Polish collection of medieval manuscripts (2,500 volumes) and a valuable collection of autographs of the 16th to 19th centuries (about 17,000). The library accumulates literature in all scientific fields represented at the university, particular stress being laid on material having a connection with Silesia. The Main Library of the Wrocław University supervises professionally a network of 33 libraries of institutes, faculties, and chairs of the university.

Libraries of 20 higher technical schools differ largely from one another by the specialization of their collections. The library of the Silesian higher technical school collects, first, literature on mining engineering; the library of the Łódź higher technical school, on the textile industry; the library of the Szczecin higher technical school, on shipbuilding.

Of these libraries, the most universal in its collections is the library of the higher technical school in Warsaw, with a total of 250,000 volumes. In addition to current literature it possesses an abundant stock of works on the history of technology. Just recently the library has launched an automated service of selective dissemina-

tion of chemical information and for this purpose has made use of the Chemical Abstracts tapes.

The Library and Information Center of the comparatively recent higher technical school in Wrocław (founded in 1946) has organized an automated system, Automatic Processing of Scientific Information (APIN), which forms part of the information system of the institution. At present, two parts are operative, information on scientific investigations of the staff of the higher technical school in Wrocław and selective dissemination of information from the following data bases: PASCAL, INSPEC, ISMEC, Chemical Abstracts Condensates, and ISI. The APIN system modified and introduced the MARC format of bibliographic and catalog data.

Public Libraries

"Public libraries serve the purpose of developing and satisfying the reading requirements of the community, at the same time contributing to the propagation of knowledge and the development of culture" (Article 23 of the Statute on Libraries of 1968).

Toward the end of 1974 there were about 9,000 public libraries (branches included) in Poland, which had at their disposal a total collection of over 70,000,000 volumes. Public libraries form a multistage network developed to so great an extent that in every administrative unit and rural district, there is a library belonging to this network. The network of public libraries comprises voivodship, town, and district libraries, as well as branches and library stations.

Libraries of a higher organizational rung (voivodship; municipal in larger towns) are not only obliged to provide the inhabitants of their own area with library facilities, but also to give advice and recommendations on methods and programs of activities to libraries of a lower level, and to assist them in matters of schooling, bibliograpical work, and organization.

The following voivodship and town libraries have been acknowledged as research libraries because of the value of their collections and high level of work: the Public Library of Warsaw, the Voivodship and Town Public Library in Szczecin, the Town Library in Toruń, the Town Libraries in Łódź, Kraków, Poznań, and Bydgoszcz.

On the whole, collections of public libraries are of a universal character and basically consist of publications in the Polish language. Foreign material (mainly for reference) is only to be found in libraries of larger towns. About 45% of the collections consists of fiction for adult readers, 32% popular scientific books, 22% literature for children and young people, and 1% periodicals.

Public libraries also function as centers for regional information, and on account of this, selected voivodship libraries receive a copy of each printed item from the given voivodship free of charge. They collect more and more audiovisual materials, gramophone records, magnetic tapes, films, slides, etc.

Public libraries make their collections available for use on the premises or for lending. Open access to the book shelves, newly introduced, helps the readers

enjoy choosing publications by themselves. Books not found in the library are borrowed from some other public or research library on interlibrary loan.

The extent of the collection made available to readers by the public libraries is best illustrated by the following figures: in 1974, over 7,000,000 readers made use of 142,000,000 publications.

For the community at large, the public libraries are the only easily accessible sources of information in all the scientific domains. Information services, therefore, constitute an essential part of the educational activities of these libraries. With the ever-widening interests of the community, satisfying information needs of the various groups is becoming the foremost activity of the public libraries. Information provided by public libraries is used by institutional users (political organizations, social organizations, cultural and educational institutions, administrative bodies and local authorities, industrial enterprises) and by individual customers. Among individual users there is a preponderance of schoolchildren and students. Of particular significance are services of these libraries for extramural students and for persons searching for information necessary to complete their vocational assignments or to raise their qualifications and broaden their knowledge.

In accordance with the profile of their collections, the public libraries represent centers in the first place for general information. The extent and methods of work are adapted to the needs of the users and largely consist in giving direct advice, indicating appropriate sources, and teaching their use.

Public libraries also act as intermediaries between users and other information systems. This mediation consists of searching for documents needed by the users in the collections of research libraries and then borrowing these documents for them, or else in forwarding queries to libraries and to centers of scientific information best qualified to supply the answer.

Recent years have witnessed a growing demand in the public libraries for technical, economic, agricultural, and scientific information. An increasing amount of space is occupied by works on economic problems of the region. The traditional structure of the book collection has been changing for several years to suit the needs of different groups of users. To cope with these tasks, public libraries organize specialized reading rooms by dividing the collections, provide information desks, and cooperate with special libraries and with scientific, technical, and economic information centers to which they forward the requests of users.

Public libraries are also centers of comprehensive information on the local region, which they impart on the basis of their fund of documentation. They also publish information materials on this subject. Voivodship libraries prepare and publish regional bibliographies in which much space is given to economic problems of the region.

Public libraries have an influence on two-thirds of the persons who use books. The percentage is largest among persons with secondary school education (45% of the total), then among persons with higher education, and then vocational school alumni. More than half of the readers of public libraries are educated persons.

Most worthy and popular among public library readers is the Public Library

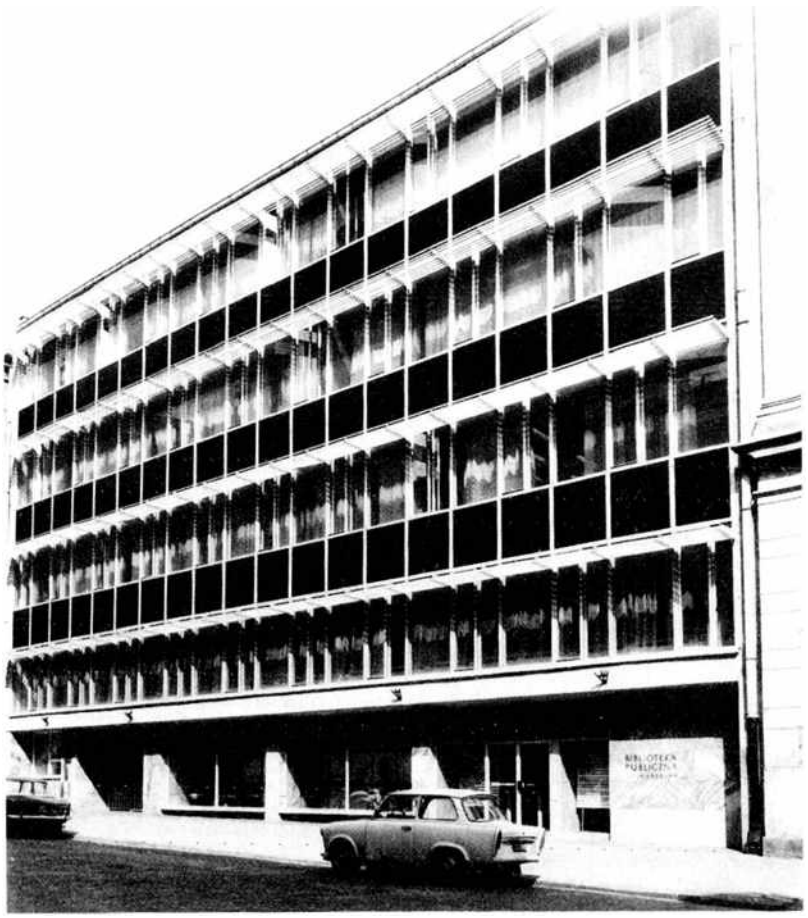

FIGURE 6. *Public Library, Warsaw.*

of Warsaw (founded in 1907), which possesses (1975) more than 800,000 volumes. (See Figure 6.) It is a research library of a universal character specializing in Varsaviana. This library includes the Museum of Children's Literature, the only one in Poland. The main library coordinates the activities of a network of 180 district branches and library stations for adults and children. It also gives professional guidance and trains librarians employed in the subordinate units.

The Town Public Library of Łódź (founded in 1917) is highly valued by the community. In 1922 it started organizing separate libraries for children, the first in Poland. At present is possesses more than 400,000 volumes and governs a network of some 90 branch libraries.

A valuable collection belongs to the Town Library of Poznań. Founded in 1829 by Edward Raczyński, a magnate and social worker, and donated to the town, it plays the role of the principal library of the region of Greater Poland. Its collections at present include over 800,000 volumes, among them manuscripts by writers and social workers associated with Poznań, as well as old books, maps, and atlases, referring usually to the Greater Poland region. The Town Library controls a network of branch libraries and library stations situated in the town.

School Libraries

In Poland, school libraries are to be found in all primary, secondary, and vocational schools. In 1974 there were about 25,000 libraries, their joint bookstocks amounting to more than 100,000,000 volumes. Basically the collections consist of obligatory and complementary reading matter (in accord with the curricula) and of popular science books, reference works, and other books of educational and artistic value. The choice of books for libraries is mainly based on lists of books and periodicals recommended by the Ministry of Education. Improvement in the qualifications of school librarians is one of the tasks of the Institute for Training Teachers and Education Studies.

School libraries participate in the work of schools aimed at the intellectual development of schoolchildren, particularly their training toward self-education, by developing and satisfying individual interests.

School libraries provide access to their collections, pursue educational and advisory activities, and in addition to this give library orientation classes, during which schoolchildren learn about libraries, their activities, and how to profit from libraries and use sources of information.

Similar tasks are carried out by libraries of other educational institutions, such as youth clubs, community centers, and social welfare and educational homes.

Vocational Libraries

Vocational libraries exist in factories and public service enterprises, in designing offices and laboratories, and in offices and research institutes subordinate to ministries. In all, there are more than 5,600 vocational libraries in the country. Some of them (about 150) play the part of scientific institutions, while about 37% belong to the system of scientific, technical, and economic information.

Among vocational libraries, technical, economic, trade, agricultural, and other special libraries can be distinguished. Technical libraries in factories and industrial plants are the most numerous group. All vocational libraries are closely connected with scientific and technical information.

The basic function of vocational libraries is to collect and process sources which have a bearing on the work of their parent enterprises. These sources constitute the basis not only for carrying on the production, services, research, and information activities, but also for improving the professional qualifications of the staff and for developing inventiveness.

In book acquisitions, particular concern is given to special collections of a technical character, and in processing, to revealing their contents. Vocational libraries make use of modern forms of serving the readers, namely, the circulation of periodicals, documentation cards, and technical and trade literature, and supplying bibliographical information.

In those institutions which are devoid of enterprise information centers, vocational libraries transmit to the users materials prepared by branch centers for scientific, technical, and economic information.

Libraries of research institutes subordinate to different ministries likewise belong to the group of vocational libraries. Usually they form part of the information centers of these institutes. It is their assignment to accumulate and provide access to their publications and other documents remaining within the range of activities of the institute, to impart bibliographical information, to compile bibliographies for members of the staff, and to popularize vocational literature. Many of these libraries have an interesting past and possess rich collections. Here should be mentioned, among others, the Main Branch Library of the Mining Ministry in Katowice, the Main Communications Library in Warsaw, and the Chemical Library in Warsaw.

The Remaining Categories of Libraries

Trade Union Libraries. A large group, made up of more than 6,000 stations, is that of libraries belonging to trade unions, which collect fiction. Collections of trade union libraries numbered about 17 million volumes in 1974.

The network of trade union libraries consists of permanent libraries, centers of mobile libraries, and reference libraries. Permanent libraries are organized in enterprises and institutions with a staff exceeding 500 persons, in state-owned farms, and in schooling centers of trade unions. Centers of mobile libraries service library stations at institutes with less than 500 persons on the staff.

The network of libraries of trade unions supplements the network of public libraries. Although trade union libraries remain under the superintendence of the Central Council of the Trade Unions, vocational instruction and improvement of the educational level of their employees is provided by voivodship and town public libraries.

Libraries for the Blind. These belong to the Polish Union of the Blind and constitute a separate network, supervised by the Central Library of the union. Independently of this network, there exist libraries belonging to schools for blind children.

Other. Much concern is given in Poland to bibliotherapy. Libraries of hospitals and sanatoria develop the reading habit in the patients and help invalids to adapt to new professions.

Libraries in prisons and reformatories, which aid the process of resocialization by carrying on educational activities, make a group in themselves.

Organization of Scientific Information Flow

Within the national network of information, information activities are carried on under two systems: (*a*) according to the types of documents (the subject range here is universal); and (*b*) according to the fields of knowledge, to industrial branches, problems, etc.

The National Center for Scientific, Technical, and Economic Information and the National Library are the institutions put under obligation to carry on *information on information agencies.* Both these institutions maintain card indexes of centers and libraries, and publish their lists. Organization of information

on regional agencies belongs to public libraries, both of the town and voivodship type, and to voivodship centers for scientific, technical, and economic information. In recent years many lists of libraries and information centers active within one town or region have been published.

Centers for General Information

Responsibility for collecting, processing, storing, and disseminating primary and secondary information materials of the universal kind rests with: the National Library; the National Center for Scientific, Technical, and Economic Information; the Center for Information on Patents; centers of technical advancement; the Center for Scientific Information of the Polish Academy of Sciences.

The National Library fulfills its task by collecting all Polish literature and by publishing current information on new books, periodicals and their contents (national bibliography), information on bibliographical lists compiled in libraries, and on bibliographical work in progress. The maintaining of national union catalogs of foreign literature, of old books, and of periodicals in Polish libraries constitutes another important function performed by the National Library as a center for universal library information.

The National Center for Scientific, Technical, and Economic Information receives data from information centers and research libraries, based on which it publishes directories on: translations, completed scientific investigations, secondary documents, reports on official trips to foreign countries, and topical documentation lists prepared at the scientific, technical, and economic information centers.

Moreover, the National Center for Scientific, Technical, and Economic Information runs the central file of documentation cards, which provides information on Polish and foreign publications within the scope covered by the network of centers coordinated by it. The cards are prepared at the specialized centers. In addition to this, the National Center works out and publishes for the managerial staff analytical and synthetic information materials on various topics and problems.

The Center for Information on Patents of the Patent Office of the Polish People's Republic accumulates local and foreign descriptions of patents and provides information in this respect.

Information on local and foreign standards and on other problems involved with standardization is imparted by the Center for Standardizing and Metrological Information in Warsaw.

The Center for Scientific Information of the Polish Academy of Sciences publishes, among other items, a review of the contents of Polish scientific periodicals (*Polish Scientific Periodicals Contents*) and of foreign periodicals (in the form of microfiches), and reference publications in the field of science.

Universal research and public libraries are engaged in imparting catalog, factual, and bibliographic information in various domains of knowledge. Among research libraries, mention should be made of the National Library, general-purpose libraries of the Polish Academy of Sciences, and university libraries. Public libraries pursue very lively information activities on a popular-science and popular level.

The Network of Centers for Branch Information

In Poland there are about 8,000 scientific or vocational libraries and centers of scientific, technical, and economic information specializing in accumulation of documents and in pursuing information activities within particular branches of knowledge. Some branches have their own organized information networks with centers, while other branches cooperate on the basis of individual agreements. There exist, too, agencies of unique specialization.

As one of the most efficiently organized networks of branch information should be regarded that of the field of biomedicine. It consists of three groups of libraries. To the first group belongs the Main Medical Library (founded in 1945) of Warsaw with its seven branches in different towns. To the second group belong libraries of scientific medical research institutes and of medical academies. To the third group belong libraries of hospitals and sanatoria, etc. The network is controlled by the Main Medical Library, which maintains a professional supervision of the libraries and functions as the center for biomedical information. The library publishes a current bibliography of medical literature, both Polish and foreign. It makes use of the data bank of the MEDLINE system at the Karolinska Institut in Stockholm.

The Main Medical Library owns a rich collection of about 1½ million volumes, both of most recent literature and of valuable sources for the history of medicine in Poland.

The network of agricultural information is coordinated by the Central Agricultural Library in Warsaw. Founded in 1955, this library took over the abundant collections of former agricultural institutes and adds to them continually. At present the stock of the Central Agricultural Library numbers about 140,000 volumes, a valuable collection of agricultural periodicals included. Rich collections are in its two branches. The Central Agricultural Library coordinates purchasing of books in the agricultural libraries and their documentation and publishing activities; it publishes union catalogs of agricultural periodicals, as well as bibliographies of professional literature. The Central Agricultural Library organizes schooling of agricultural librarians.

Also in the realm of communications, a network of information has been organized. It is managed by the Main Communication Library in Warsaw (founded in 1919), whose stock of books, amounting at present to about 75,000 volumes, comprises writings in all divisions of communication. The library coordinates the stocking of vocational libraries of those divisions, imparts methodological advice, and organizes schooling of librarians. It issues union catalogs of periodicals in the domain of communication, as well as a bibliography of the subject.

Literature in the socioeconomic domain is accumulated by libraries of higher economic schools and by a few other libraries of a special type. Cooperation of these libraries has been organized by the Library of the Main School of Planning and Statistics in Warsaw, which also publishes union catalogs of books and periodicals in their collections.

The Central Statistical Library (founded in 1918), attached to the Main Statistical

Office, performs central functions with respect to libraries of regional agencies for national statistics. Its stock of more than 300,000 volumes comprises, among other items, governmental statistical sources of the 19th and 20th centuries and collections of foreign official statistics.

Also, military libraries and information agencies are organized into a network. Military libraries can be divided into research, professional, and educational libraries. Research libraries and centers of scientific military information exist in academies and higher military schools as well as in military research institutes. Professional libraries serve the needs of army units. The Central Military Library in Warsaw (founded in 1919) is the chief library of the Polish Army. This library possesses large collections, over 300,000 volumes, on the history of, and modern problems in, military science. It is engaged in carrying on central bibliographical activities associated with this subject and with methodological and schooling activities for the whole network of military libraries.

General supervision of the network of research and professional military libraries and of military centers of scientific information is exercised by the Center for Scientific Military Information. The basic function of military educational libraries is to develop the reading habit in soldiers and their families.

The merging of libraries specializing in similar subjects is another form of organizing bookstocks and specialized information. Illustrative cases are the merged libraries of the institutes of philosophy and sociology, as well as institutes of geography of the University of Warsaw and of the Polish Academy of Sciences.

The Seym Library (founded in 1920) has a collection of documents unique of its kind. It accumulates parliamentary and official publications, Polish and foreign, collections of constitutions, electoral laws, parliamentary regulations, and stenographic records of sessions of the Seym. In all, the stock of the Seym Library numbers over 200,000 volumes. The Seym Library plays an auxiliary and scientific role in the work of the Seym, State Council, and the government.

Information on towns and regions has also been organized. There are two kinds of agencies for collecting and disseminating this type of information. Voivodship and town public libraries acquire literature of various fields concerning their regions; they compile bibliographies and prepare documentation, pursuing wide information activities in this respect. A different circle of users have voivodship centers for scientific, technical, and economic information, which have been organized in a few voivodships. They collect information on the economic potential of the region and satisfy the requirements of the administration and of regional economies.

Programs of Development of Scientific Information and Librarianship

In 1974, on the recommendation of the minister of science, higher schools, and technology, a program of a national system of scientific, technical, and organizational information (SINTO) was worked out. The concept of SINTO is aimed at creating a functionally integrated system, which will satisfy users' demands for both reference (secondary) and source (primary) information irrespective of the form of documents, their subject matter, and location. Functional cooperation of

scientific information services, libraries, and archives, maintaining their existing organizational links with the bodies which supervise their activities and development, is one of the conditions of realization of the system. SINTO provides for the existence of three interdependent subsystems: the central, branch, and regional arrangement. Foundations of such a system have in Poland a historical tradition, and, therefore, realization of the system is to consist in developing and modernizing the activities of central information agencies and of libraries already existent and in organizing libraries to fill any gaps. At present, one of the stages of realization of SINTO is being worked out—a countrywide plan for subject specialization of research libraries. Among the existing research libraries, central libraries for particular fields of knowledge will be designated; they will be responsible for the policy of acquiring collections within the given field and for organizing respective information service.

A gradual automation of information activities by improving systems already in existence and by designing a new pilot system is now being planned. At the same time standardization of the processing methods, of formats, information carriers, and equipment, will be introduced.

The building of a national system of information is to be preceded by several legal and organizational decisions, and by extensive investigations, such as examining the requirements of users, exploring the structure of information stock, and studying languages of the system, etc. Research work and implementation have already been started. These activities are to be subsidized by the central national budget as one of the basic problems of vital importance for the development of the national economy.

Education in Library and Information Science

HISTORY

Education for librarianship at the university level has in Poland a tradition going back to the beginning of the 19th century, when several of the universities introduced courses in bibliography for students in the Faculty of Letters. Such historians and bibliographers as Bandtkie, Lelewel, and Estreicher conducted the courses along with their scientific research in book and library science.

After World War I, in the wake of the new political and cultural conditions in the Polish Republic, an effort was made to set up a program of studies specially designed for the training of professional librarians. It was difficult to incorporate such a program in the advanced schools along with the traditional disciplines. Therefore, the efforts of the librarians resulted in the program being introduced only into the Faculty of Social Work in the Free University of Warsaw, which, being a private, nonaccredited educational institution, did not have the right to confer academic degrees. This program, which functioned from 1925 to 1939, was designed primarily for the training of librarians for public libraries.

Other candidates had to be content with the several courses organized by large

university libraries, which prepared for the state examination, both higher and lower, which had been obligatory since 1930. Interrupted during the war, they were restored in 1945 and continued until 1948.

It was not until 1945 that the first regular Chair of Library Science, similar to a graduate library school in the United States, was inaugurated at the University in Łódź by Professor J. Muszkowski, eminent specialist in the book world and former educator in the prewar Free University. The Chair was placed first in the Faculty of Humanities, then in the Faculty of Letters.

The scholastic system at that time envisioned two parallel forms of university education. One, 4 years in length, led to the master's degree; the other, of 3 years length, led to a professional certificate. This was in response to the urgent need of all professions whose prewar personnel had been dispersed. It was essential to make up the loss quickly.

In the first instance, library science was treated as a specialization of 2 years duration in the third and fourth year of studies in the Faculty of Letters. The program included: history of books and libraries, bibliography, librarianship, public reading, and subjects in areas of bookselling and publishing. The idea of Professor Muszkowski was to organize a center of library science education not only for librarians, but also for all working with books, including booksellers and publishers, research workers, and educators.

The other program was considerably reduced and restricted to courses in librarianship introduced in the final, third, year of philology, history, and sociology. They comprised only 210 hours of lectures and 180 hours of practical work in a large library. The aim was practical, not theoretical. This form of education was not satisfactory in the long run.

The entire system of university education was modified around 1954, and the studies extended to 5 years. Following these changes a 5-year library education program, similar to the other disciplines, was set up in the universities of Łódź, Warsaw (established in 1952), and Wrocław (established in 1957). The Chairs (called, since 1960, Institutes of Library Science) were located in the Faculty of Letters (Łódź and Wrocław) or in the Faculty of History (Warsaw).

The course led to a master's degree in Library Science. The program included three groups of subjects. (*a*) The first group consisted of general subjects required of all students, called common foundation courses, such as philosophy, Polish history, logic, economy, and three foreign languages, all this adapted to the requirements of the librarian. (*b*) The second group comprised proper library science subjects treated both historically and practically, which included: history of books and libraries, librarianship, public libraries and reading problems, and bibliography. From the fifth semester on, there were two parallel alternative courses—one concerned with special library collections (manuscripts, old books, music, etc.), and the other with problems relating to public libraries, publishing, and bookselling. (*c*) The third group was made up of other required subjects including a comprehensive history of science covering 225 hours during the fifth and ninth semesters. In addition, the students were obliged to take part in various jobs, exercises, proseminars and seminars, and also in a scheme of practical work covering 4 weeks,

organized each summer in a university library. At the end of each academic year, the students sat for examinations; the fifth year was primarily devoted to the preparation of the thesis for the master's degree.

In 1956 the University of Wrocław organized a 5-year correspondence course for young librarians who for various reasons had not been able to proceed to the university and only possessed a secondary school diploma. The program, almost the same as for regular students, is based on using handbooks, outlines, and selected reading lists, and continues to this day. To facilitate their studies, conferences were arranged each year in order to supervise work done at home, and at the end of the year examinations were required for the master's degree in library science.

During the years 1952–1962, 204 candidates obtained the degree of Master and 11 the degree of Doctor in Library Science. (All graduate library schools in Poland have the right to confer the doctorate.)

In addition to these library schools, there were other forms of teaching at an advanced level. In order to accelerate professional training and increase the number of qualified librarians in the rapidly expanding university libraries, regular courses were organized between 1952 and 1959, intended for librarians employed in libraries of institutes of higher education and possessing a master's degree in any other subject. This education, of a self-instructional nature, led to a period of a month's internship in a university library, and at the end of this period a professional examination was held. One hundred and seventy-two candidates became qualified through this form of professional training.

Librarians who specialized in some field of librarianship during the years 1947–1960 also had many opportunities to study their specialization thoroughly. Special courses of several weeks' duration were devoted to such special subjects as manuscripts, incunabula, maps, bibliography, preservation, etc., leading to an examination. These courses were organized in the large research libraries and conducted by eminent specialists and scholars. Similar provision for information officers and documentalists was introduced under the direction of the Center for Scientific and Technical Information in 1950.

Library science instruction at the secondary level is much less developed in Poland. The first attempts go back to the period after World War I. Many courses were then organized by the large public libraries and by the Polish Library Association.

A School of Library Training, offering a 1-year course, was established in 1929. It operated until 1939 in various forms and prepared students for public library work.

After World War II, the development of libraries served to increase the demand for more systematic instruction, and in 1949 a Center of Library Science Education was established at Jarocin, near Poznań. It offered regular courses for librarians already working in public libraries. The students had at their disposal a collection of the main publications. During the years 1949–1958, 130 courses of different categories were organized by the center and attracted 5,613 students.

Between 1950 and 1959, five library schools at the higher level were in operation in cities in various parts of the country. Over a period of 4 years the students

were taught general subjects side by side with professional courses. The studies led to a professional secondary school diploma.

During this time the qualifications of public librarians were raised considerably, demanding at least a baccalaureate and 2–3 years of professional education. As a result, the secondary school courses were abolished and the work taken over by the Center of Librarianship offering a 2-year course for holders of the baccalaureate. The program included both professional courses (history of books and libraries, cataloging, public libraries, preservation of documents) and other subjects considered necessary for future public librarians (literature, pedagogy, and two modern foreign languages).

Apart from this regular professional training, there is a Center of Correspondence Instruction. The 1-year program is designed for those who possess the baccalaureate. It is based on a series of publications and on consulting centers set up in the regional libraries. This instruction has for its purpose the preparation of students for future professional work and also the improvement of the attainments of those already working in libraries but lacking professional training.

PRESENT STATUS

In spite of its considerable development, the teaching of library science at the university level has been for some recent years a subject of criticism in all library and information centers.

The studies have since 1962 been submitted to constant changes and reorganizations. The decree of the government specifying much more precisely the status of personnel and dividing them into three grades—higher, lower, and administrative (this last is excluded from the professional grades)—called for a different preparation for each grade. This raised the question as to whether education for librarianship should be unified, with provision made in the program for all the various needs of a profession which is becoming less and less homogenous, or whether, on the other hand, only a basic preparation should be given, with the more specialized studies transferred to the courses provided as a part of an actual professional work in a library.

Furthermore, the problem, acute everywhere, of adapting library science curricula to the needs of special libraries and information centers—where specialists in other disciplines, the so-called subject specialists, are badly needed—was also an urgent one in Poland.

Independently of all those questions and needs, the existing graduate library schools have been blamed for a lack of quantitative and qualitative development of future librarians and information officers, for overly detailed and often out-dated contents of curricula with little useful application to actual and future professional work, and for lack of further development of the discipline.

These critical views are found in the Report on the Library System in Poland submitted to the government in 1973. Pursuant to one of the recommendations of the report concerning library education, the Ministry of Higher Education created in 1974 a Working Group composed of specialists, librarians, instructors, informa-

tion officers, and library and information science researchers, in order to develop curricula for library and information education at the university level which would meet the requirements of present and future needs of the profession and of the discipline.

After an exhaustive study and broad discussion, the conception was adopted of a broad and unified education in library and information science to serve all the types of libraries and information centers. According to this concept, two versions of curricula were worked out. One version relating to the function of libraries in the whole information system, and closely integrating library and information science, is saturated with information-related subjects, such as mathematics, statistics, management, logic; whereas the other version, resting on the premise of social functions of books and libraries, is heavily oriented toward historical, sociological, and educational matters. There are also differences in presenting proper professional subjects, such as history of libraries, bibliography, and librarianship, which are completely integrated with information problems in the first version. In this way, one program has a mathematical inclination and the other one a humanistic background.

The program, in both versions of 4 years duration, contains basic courses required of all students and elective specializations in the fourth through eighth semesters. Particular emphasis on specialization is put in the program of mathematical inclination (one-third of the whole program, i.e., 1,000 credit hours). Apprenticeship of 12 weeks duration (4 weeks in summer after the first, second, and third years) required of all students is organized in libraries, information centers, publishing houses, and bookshops. The studies lead toward a degree of Master in Library and Information Science. The degree is obtained after all required examinations and after presentation of a thesis accepted by the Faculty.

Since 1975–76, a new program is offered by 14 Graduate Library Schools (called Institutes of Library and Information Science); 8 of them are located at universities and 6 at Higher Schools of Pedagogy. So far 3 schools, at the Universities in Kraków, Poznań, and Warsaw, have adopted the program.

In addition to this basic library and information science instruction at the university level, three universities offer night studies for postgraduate students, specialists in other disciplines and working in a library or in an information center not less than 2 years.

The very acute problem of education for information users is now solved mainly by the Center for Scientific and Technical Information, and by the Center of Scientific Information at the Polish Academy of Sciences. Also, some large libraries have organized courses and lectures for information users.

A program in librarianship and documentation is offered by all Polish universities and by some Higher Schools of Pedagogy for their own students of the first and second year. They are taught how to use libraries and information sources. In the academic year 1973–74, four universities took part in an experimental course in information science for students of different disciplines; it was conducted according to the program prepared by the Educational Committee of the FID.

The education for information users, who are already professional workers, is

offered by some libraries, information centers, and the National Organization of Technicians (NOT) by means of courses, conferences, lectures, and publications.

Research in the Field of Library and Information Science

LIBRARY SCIENCE

A Brief Historical Review

Library science, representing a group of theoretical, historical, and practical disciplines concerned with processes of book manufacturing, dissemination, and reading, has been developing, as in other countries, in a long historical process since the beginning of the 19th century. Certain elements of library science, in particular of bibliography, are to be found as early as the 18th century, in a booklet by Józef Andrzej Załuski (1702–1774), called *Programma literarium ad bibliophilos* (1732). In this work the founder of the future National Library postulated compilation of a complete Polish bibliography and a union catalog of manuscripts, and an annual list of newly published books. He also outlined an impressive publishing plan, in particular covering historical works.

The earliest theoretical grounds for the new learning were laid out in writings of eminent Polish historians and bibliographers, in the first half of the 19th century. They delivered lectures on library science, with particular regard to bibliography, and they published valuable books. Jerzy Samuel Bandtkie (1768–1835), chief librarian of the Jagiellonian Library, published a history of printing shops in Kraków (1815), the history of the library of the Jagiellonian University (1821), and a history of printing shops in the Kingdom of Poland and the Grand Duchy of Lithuania (3 vols., 1826). In his lectures on bibliography, Bandtkie took a broad view of the subject, including in it graphic art, the art of writing and manuscripts, the art of printing, and the history of libraries and library science. At the Warsaw University, lectures in bibliography were given in 1820–21 by one of the most eminent Polish historians, Joachim Lelewel (1786–1861). Lelewel accumulated extensive documentation, which enabled him to publish an impressively erudite book *Two Bibliographical Volumes* (Vol. 1, 1823; Vol. 2, 1826). This work is regarded as the first Polish writing which in a comprehensive study covered all the problems of library science. In agreement with the then current views, Lelewel divided library science into "the knowledge of manuscripts, i.e., graphic art" and "the knowledge of library books, i.e., library science," distinguishing also bibliography in its strict sense. Among other problems, he discussed the theory of library science, fundamentals of the knowledge of manuscripts, fundamentals of the study of incunabula, the invention of printing, history of the printing art in Poland, and the history of Polish libraries and librarianship. Also, the illustrious author of the *Polish Bibliography*, Karol Estreicher (1827–1908), a lecturer in bibliography at the Warsaw Main School from 1865 to 1868, was concerned with the problems of library science. Estreicher distinguished between pure bibliography, identified by him with

bibliology (after Peignot), and applied bibliography, concerned with external features of books (material, script, typography, binding, etc.). Pure and applied bibliography were divided by Estreicher into the knowledge of script of manuscript science, the knowledge of printed books, librarianship and the book trade, and the knowledge of classifying works according to interrelations of science.

After Poland gained independence in 1918, library science was developed by eminent theoreticians and practicians, mainly from the milieu of librarians. The main interest was focused on the history of manuscripts and printed books in the 15th and 16th centuries, on the methodological problems of library science, and on readership studies. A prominent investigator of the history of the book, Kazimierz Piekarski (1893–1944), created highly valuable bases for studying the history of books from the 15th to the 16th century, initiating—among other things—a union catalog of printed books of that period existing in Poland; it was burnt during the Warsaw uprising in 1944. Piekarski compiled an inventory of incunables in Polish libraries (1925), and published, together with Kazimierz Hałaciński (1878–1930), colophons of Polish printers, booksellers, and publishers (3 issues, 1926–1929). He described the resources of old books in a few Polish libraries and began publishing a monumental series presenting the history of Polish printing presses in the 16th century with their whole documentation, *Polonia Typographica Saeculi Sedecimi* (2 issues, 1936–1937). Piekarski's theoretical considerations on methods for investigating old Polish books and bibliography imparted a new developmental direction to these studies in Poland. He applied, among others, a typographical method to complement historical and archival researches.

Great achievements in the study of manuscripts, history of the book, and history of libraries had one of the most distinguished historians of science in Poland, Aleksander Birkenmajer (1890–1967). Among other works, he published a study on manuscript books (1936), a few writings on old bindings, a catalog of an exhibition of 15th- and 16th-century books printed in Kraków (1936), treatises on the *St. Florian Psalter* as a monument of calligraphy, and on paleographic analysis of manuscripts (1939). Jan Muszkowski (1882–1953) took an interest in bibliographical matters, worked on a continuation of the *Polish Bibliography* by K. Estreicher, and was also interested in the statistics of printed issues and in library science in the wide meaning of the term. Among other items, he published *The Life of the Book* (1936; 2nd ed., 1951), in which problems of the production of books, their circulation, and reception are presented.

Methodological problems of library science were discussed by Mieczysław Rulikowski (1881–1951), for example, in his publication *Bibliology*. The past and present state of library science and its new trends were set forth by Kazimierz Dobrowolski (born 1894) in his work *Problems in Library Science* (1936). Adam Łysakowski (1895–1952) published, among other items, the *Subject Catalog* (Part 1, 1928; Part 2, 1946), and L. J. Żivne's book *Bibliography and Bibliology*, which he supplemented with a few chapters on Polish and foreign contemporary theoreticians of bibliography.

Stefan Vrtel-Wierczynski (1886–1963) devoted his time to bibliographical problems and published a few dissertations on the organization of bibliography in Poland,

and he also took an interest in library policies and wrote papers on the legal deposit copy and the policy of book acquisitions. The works of Józef Grycz (1890–1954) had an effect on the modernization of Polish librarianship; among other issues, he published a few articles on cataloging rules in Poland and elsewhere. Under his editorship, the first Polish cataloging instruction was published under the title *Cataloging Rules in Polish Libraries*—Part 1: *Alphabetical Catalog of Printed Items* (1934). An interest in readership studies also developed. Paweł Rybicki (born 1902) published a study entitled *The Sociology of Reading* (1936). A particular role was played by Helena Radlińska (1879–1954), who propagated reading in rural districts and towns, pursued practical activities on a wide scale, and developed research. Her work *The Book among People* was published in several editions (1st ed., 1929). She also headed the School of Bibliology at the Polish Free University in Warsaw.

The Present State of Affairs in Library Science, since 1945

This period is characterized by a much wider and much more dynamic development of library science. Of decisive importance is the hastened progress of education, the policy of the socialist state aiming at propagation of culture, the much greater production of books and periodicals, the development of the network of libraries, considerable increase in the number of users, and new technologies for organizing library and bibliographic work. Of great importance was the introduction of library science into university curricula after 1945 and later into higher pedagogical schools, 1974.

Soon after the end of World War II, the State Book Institute was founded in Łódź (1946) with Adam Łysakowski as its director. After the liquidation of the institute, its equipment and part of its obligations were taken over by the National Library in Warsaw, in particular the Bibliographical Institute. Scientific investigations in the domain of library science are conducted chiefly at the National Library, and likewise in other research libraries, the Jagiellonian Library in Kraków, the University Library in Warsaw, the University Library in Łódź, the Library of the Ossolineum in Wrocław, the Library of the Polish Academy of Sciences in Warsaw, the Main Medical Library in Warsaw, the Central Agricultural Library in Warsaw, the Library of the Central School of Planning and Statistics in Warsaw, the Library of the Higher Technical School in Wrocław, and still others—as well as at library and information science institutes of universities in Warsaw, Wrocław, Kraków, and Poznań, for example.

Among the disciplines of library science, studies on the history of the book continue to follow the commendable traditions. Research in the fields of bibliography, librarianship, and reading have grown in scope. Two comprehensive collection editions, the elaboration of which required much additional research (in particular historical studies, and the solution of difficult methodological problems), represent a considerable achievement. In 1971, in Wrocław, the *Encyclopedia of Library Science*, in 1,437 pages, appeared in print, covering in 6,000 articles the whole contemporary knowledge of the disciplines constituting library science. Over 400 authors contributed to this work. Aleksander Birkenmajer, Bronisław Kocowski,

Jan Trzynadlowski, Alodia Kawecka-Gryczowa, Helena Więckowska, and Stanisław Pazyra were on the board of editors. The most outstanding articles of the encyclopedia are concerned with the history of the book and the history of libraries. The information material on recent development of the institutions dealing with books is also valuable. In spite of some deficiencies, inevitable in the first editions of such publications, the encyclopedia plays an important informative and educational role. The other work, of even greater scientific import, is the *Biographical Dictionary* of persons connected with the Polish book, in over 1,000 pages, which appeared in 1972, under the editorship of Irena Treichel. The contributors to this dictionary were university librarians and librarians of the Polish Academy of Sciences. It covers about 3,000 biographies of copyists, illuminators, printers, publishers, librarians, bibliographers, bibliologists, booksellers, bookbinders, illustrators, and bibliophiles. Each biography includes a bibliography of works of the individual and abundant documentation referring to him. This way, the dictionary represents an extraordinarily valuable contribution to the history of the Polish book.

The publication of catalogs of manuscripts in library collections is of great importance for historical studies. In all, there appeared about 60 catalogs of manuscripts of the largest Polish libraries. At the National Library, under the supervision of Alodia Kawecka-Gryczowa, intensive research on the old book was developed. Under her editorship valuable publications appeared such as the union catalog of incunables entitled *Incunabula quae in bibliotecis Poloniae asservantur* (Vols. 1 and 2, 1970), comprising 5,768 bibliographical entries (19,207 copies), supplemented with data on the provenance and on bindings, and a continuation of the previously mentioned edition *Polonia Typographica Saeculi Sedecimi* (No. 1, 2nd ed., 1968; No. 2, 2nd ed., 1963; No. 3, 1959; No. 4, 1962; No. 5, 1964; No. 6, 1966; No. 7, 1970; No. 8, 1972; No. 9, 1974).

Alodia Kawecka-Gryczowa has published a valuable monograph, *Rodecki's and Sternacki's Arian Printing Houses* (1974, Polish and French editions); and also, with coauthors *Printers of Old Poland* (Vols. 1–3 in preparation, Vols. 4 and 5, 1959; Vol. 6, 1960).

At the Wrocław University an efficient center of library science investigations emerged. Bronisław Kocowski published a monograph, *The Printing Art in Lower Silesia;* Karol Głombiowski was the author of a comprehensive methodological essay *Problems in the History of Reading,* 1966. Marta Burbianka prepared monographs on the printing presses in Silesia. Research on papermaking and on watermarks was conducted by Kazimiera Maleczyńska, and in Łódź by Jadwiga Siniarska-Czaplicka. Edward Chwalewik's *Polish Book Plates of the Sixteenth and Seventeenth Centuries* appeared in 1955. Maria Czarnowska published a historic-statistical work, *The Quantitative Development of Polish Publishing from 1501 up to 1965,* in 1966.

In the field of library science an outstanding place is held by the history of libraries. Dissertations of interest have been published by Marian Łodyński, Bogdan Horodyski, Helena Więckowska, and Irena Treichel, among others. Monographs have appeared on the histories of great libraries, the Jagiellonian Library, the Warsaw University Library, the Ossolineum Library, the Zamojski Estate Library, the

Public Library of Warsaw, and on many others. Contributions to the history of church and convent libraries are made by a center belonging to the Catholic University in Lublin, which is the publisher of the biennial *Church Archives, Libraries and Museums*. This publication contains many valuable dissertations and source materials for the history of convent libraries in Poland.

The development of bibliography is very intensive. A continual increase in the number of published bibliographies brought the necessity for extending research on bibliographical theory and methodology. Adam Łysakowski published two valuable dissertations: *Defining Bibliography: Its Subject, Methods and Tasks against the Background of Bibliology*, 1950, and *The Problem of the Contents and Value of Books in Bibliography*, 1953. Kazimiercz Budzyk, author of *Studies in the Domains of Bibliography and Bibliology*, 1946, was concerned with methodological problems of bibliography with regard to books of the 16th and 17th centuries. Helena Hleb-Koszańska published a treatise on *Composition of a Special Bibliography*, 1949. An important part was played by *Bibliographical Methods* (2nd ed., 1963), published under the editorship of Helena Hleb-Koszańska, Maria Dembowska, and Henryk Sawoniak; and the more popular work *Bibliography in Theory and Practice*, by Józef Grycz and Emilia Kurdybachowa, 1953. An extensive study written by Stefan Vrtel-Wierczyński, *An Outline of the Bibliographical Theory*, 1955, discusses not only bibliography, but also methodological problems of library science. The *Bibliography of Polish History* can be regarded as a notable achievement—issued since 1944 in annual volumes, Jan Baumgart being its chief initiator, organizer, and author until 1948. In 1969 Józef Korpała's *History of Bibliography in Poland* appeared and was later translated into German. The main center of bibliographical research is the Bibliographical Institute of the National Library, which in addition to publishing the current national bibliography is engaged in compiling a retrospective national bibliography dating back to 1901. Moreover, it publishes a *Bibliography of Bibliographies and of Library Science* and treatises on the theory of bibliography.

Studies in library theory, history, and practice developed intensively. An important role was played by the *Librarian's Handy Dictionary*, 1955, compiled by Helena Więckowska and Hanna Pliszczyńska. It contains about 3,000 entries with definitions and equivalent terms in English, French, German, and Russian. This dictionary was the first attempt to introduce order in Polish library terminology. Worth particular concern is the scientific activity pursued at the Wrocław University. Extensive studies on the methodological bases of library science have developed there; Karol Głombiowski, publisher of the treatises *Library Science as a University Discipline* (1962), and *A Contribution to a Functional Concept of Library Science* (1970), was the chief initiator and organizer until 1970. An important role in library science investigations is played by research libraries. A collective work on *Research Librarianship* appeared in 1956 under the editorship of Maria Dembowska, Helena Hleb-Koszańska, and Jan Kossonoga; and several works on particular aspects of the subject were published. The problems of public libraries were the subject of interest in particular of the Books and Readers Institute of the National Library, the employees of which have published several items

of interest. Jadwiga Kołodziejska has published, among other issues, *Public Libraries: Main Trends of Development* (1972).

Investigations of reading habits are widely developed, their main center being the Books and Readers Institute of the National Library, which has made progress both in readership surveys and methodological work: *Reading Habits against the Background of Cultural Activities and Social Structure of Small Towns*, by Janusz Ankudowicz, 1967; *The Reading of Belles-Lettres in Villages*, by Stanisław Siekierski, 1968; and *The Reading Habits of the Country Youth*, by several authors, 1971. Outside of the institute, valuable works have been published by Anna Pawełczyńska *(Studies in Reading,* 1969) and by Maria Walentynowicz *(Fundamentals of Public Reading,* 1970). Studies on the book trade have also developed among other works by Radosław Cybulski.

Library science is effectively developed, too, by periodical publications. The Polish Library Association continues to publish its scientific quarterly, founded in 1907, *Library Review*, edited by Maria Dembowska, and containing mainly articles on library problems and policy. Since 1965 the *National Library Yearbook* has appeared under the editorship of Witold Stankiewicz, publishing studies and dissertations on librarianship, scientific information, editorship, the history of the book, etc. The *Library Yearbooks* edited by Antoni Knot, issued since 1956—in which are published historical treatises, articles on libraries of higher schools, and lists of doctoral and master's theses prepared at university institutes of library science—constitute the scientific organ of the Ministry of Science, Higher Education, and Technology. *Studies on the Book*, edited by Karol Głombiowski, have been published yearly since 1971. They mainly contain treatises on the methodology of analytical bibliography.

The Kórnik Library publishes irregularly *Memoirs of the Kórnik Library*, edited by Stefan Weyman, including studies on the collection of this particular library. The bulletin of the Ossolineum Library, *From the Cultural Treasury*, has appeared since 1951 under the editorship of Józef Szczepaniec. It publishes mainly historical articles prepared on the basis of source materials belonging to the library. The *Yearbook of the Library of the Polish Academy of Science in Kraków* has been appearing since 1950. Edited by Zbigniew Jabłoński, it presents dissertations on the history of the book and of science.

And finally, worth mentioning is the popular scientific series *Books on Books* issued by Ossolineum. Since 1960 it has published several dozens of interesting articles aimed at general readership.

INFORMATION SCIENCE

The widespread development of information service in Poland is accompanied by scientific research in the field of scientific information. The subject of information science, in which the document in its primary and secondary form is one of the essential constituents, partly overlaps with the subject of library science, especially with respect to bibliographical theory and some problems of libraries and

archives. For this reason, as is the case with other countries, in Poland research concerned with information is conducted in scientific centers dealing exclusively with scientific, technical, and economic information, and also in research libraries and archives. An external manifestation of this pattern was the fact that at the Second Congress of Polish Science held in Warsaw in 1973, the problems of scientific information, of library science, archival science, and editorship were discussed jointly in one of the sections on the basis of a lecture "Present-day Conditions and Future Prospects of Development of Scientific Information and Documentation," by Witold Stankiewicz. Owing to the processes of automation activities, information science is concerned with several problems on the borderline of informatics. Hence the program of scientific research on information covers problems and topics for the solution of which information engineers contribute great effort. Finally, the scope of information science extends over problems bordering on linguistics, inasmuch as formalization of the natural language requires knowledge of the structure and functioning of natural languages. Therefore, in Poland, too, the participation of linguists in studies contributing to information science can be observed.

Investigations in the field of information science are being conducted by the following chief centers: the Institute for Scientific, Technical, and Economic Information, closely associated with the supreme state organ for dealing with information, the National Center for Scientific, Technical, and Economic Information; the Institute for Organization and Management of the Polish Academy of Sciences; the Ministry of Science, Higher Education, and Technology; the Center for Scientific Information of the Polish Academy of Sciences (until 1974 known as the Center for Scientific Documentation and Information of the Polish Academy of Sciences); the National Library; the Main Medical Library; the Main Library and Center for Scientific-Technical Information of the Higher Technical School in Wrocław; other research libraries; university institutes of library and information science (mainly in Warsaw); and the Department of Formal Linguistics of the University of Warsaw. On account of the borderline problems of information science and informatics, investigations within this field are being conducted likewise by the Computation Center of the Polish Academy of Sciences, the Research and Development Center of Informatics, the Institute of Mathematical Machines, and chairs and institutes of informatics at higher technical schools.

So far there has been published a single, rather extensive monograph of a synthetic type, *Scientific Documentation and Information* (1965). The author, Maria Dembowska, outlined the problems and directions of development. This work, both theoretical and historical in character, has not only unraveled the future trends of development but has played an important role in the scientific and practical activities of Polish information services. It has been translated into such foreign languages as English, 1968; Slovak, 1969; and Bulgarian, 1971. Valuable materials have been published in the review of *Information Activities of Polish Libraries in 1945–1971*, by Halina Chamerska.

In Poland, the system for planning scientific investigations comprises three hier-

archically distinguished categories of problems: crucial problems approved by the Cabinet Council and granted special protection, departmental problems recognized by the given department as being most important, and the remaining problems planned by the different scientific institutions. Basic research problems in the field of scientific information have been included in the crucial problem: organizational and administrative systems with the application of informatics in the national economy. Research conducted by the scientific institutions is coordinated by the Institute of Organization and Management.

As in other countries, investigations in the field of information science in Poland are mainly concerned with the fundamental problems associated with building up a national system of information and with its participation in international systems. While working out the earliest projects of a national information system, investigations of the structure of the system and of its subsystems were carried out, attempts to recognize the present-day and future requirements of the users were undertaken, an analysis of the information efficiency was accomplished, and much concern was given to the conditions under which electronic data processing is to be introduced within individual agencies of the system.

The First Polish Conference on the subject, "Systems of Information Retrieval," was organized in 1973 by the Computation Center of the Polish Academy of Sciences, with the participation of representatives of various disciplines of science such as mathematicians, information engineers, documentalists, and library scientists. All the 34 lectures and communications were concerned with such problems as mathematical models for information retrieval systems, efficiency of information retrieval, information languages, automation of library activities, and patent systems. The conference proceedings were published in 1974.

Among the theoretical research into the problems of information retrieval languages, mention should be made of the study by Mirosław Dąbrowski, *Analysis of Information Retrieval Systems* (1974); Olgierd Ungurian's *Typology of Informational Languages* (1974) and *Theory and Practice of Ranganathan's Faceted Classification* (1975); Tadeusz Wójcik's *Praxeological Concept of an International Orthophonic Transcription for Use in the Theory and Practice of Scientific Information* (1974); Józef Robowski's *Descriptor Languages: A Comparative Analysis of Descriptor Languages and of Other Informational Languages* (1974); and Eugeniusz Ścibor's *Development of Classification Systems on the Background of the Development of Literature, Library Service, and Documentation Activities* (1975).

Along with the preparation of thesauri in various disciplines and specialties, studies on their structure are being conducted. Mikołaj Poletyło has published *Principles of the Structure of a Thesaurus* (1968) and *Methods for Indexing and Information Retrieval Based on the Use of Thesauri* (1970). Olgierd Ungurian discussed the controversies regarding the national thesaurus system at the above-mentioned conference of 1973. In 1972 there appeared a *Thesaurus of Scientific Information* compiled by Maria Leska and Kazimierz Leski. Though several critical remarks had been raised during discussions of it, yet as the very first undertaking of this kind in Poland, it certainly has many values.

Much attention is being given to the problems of automation of information processes. In 1973 a collective work edited by Zdzisław Hellwig, *Automatic Information Processing*, was published. The same subject was taken up by authors of another collective work, edited by Romuald Marczynski, *Problems of Information Processing* (Vol. 1, 1970; Vol. 2, 1974). Juliusz J. Kulikowski is the author of *Problems of Automation of Processes in the Scientific, Technical, and Economic Information System* (1974). Intensive studies are being pursued in the milieu of librarians. Anna Sitarska is the author of *New Bibliographical Methods and Technologies* (1971) and *Effects of New Technologies on Reference Publications* (1972). Under the guidance of Anna Sitarska, work on introducing automation of library and bibliographic activities at the National Library in Warsaw has been started. Some publications on this subject are: Anna Sitarska, *Program for the Development of Automation in the National Library* (1973); and collective works, *Systems Analysis of the National Library in Warsaw* (1975) and *General Principles of the Complex System of the National Library* (1974). A survey entitled *Automation of Libraries* (1975) has been written by Radosław Cybulski, Wanda Gryziecka, and Anna Sitarska. At the National Library, since 1975, studies on the typology of documents have been carried out under the direction of Radosław Cybulski. Research on the automation of information processes conducted at the library of the Wrocław Higher Technical School are much advanced. Czesław Daniłowicz is the author of *Organization and Methods of Work of the Library and Information Center of the Wrocław Higher Technical School* (1973). Feliks Widy-Wirski has described the modernization of activities of the Main Medical Library: *The Success of a Model: Present-day Situation and the Directions of Development of Scientific Medical Information (NIM) at the Main Medical Library in the National System of Information and in Cooperation with Abroad* (1974).

The monthly review *Present-day Problems of Information and Documentation*, issued since 1955 under varying titles (at present the organ of the National Center for Scientific, Technical, and Economic Information), is the chief theoretical publication in the field of information science, including many valuable treatises and materials. The Institute for Scientific and Technical Information is the publisher of the series *Articles, Studies, Contributions*, in which mainly works of the institute are printed. The Information Center of the Polish Academy of Sciences has been publishing since 1962 *Problems of Scientific Information* (until 1972, under the title *Bulletin of the Center for Scientific Documentation and Information of the Polish Academy of Sciences*), in which valuable articles on information science have been printed.

Finally, the following scientific-didactic studies in the field of scientific information should be mentioned: *Problems in Scientific Information and Documentation*, by Wojciech Piróg (1972); *Application of Computers in Processes of Information Retrieval and Data Processing*, by Krzysztof Szul-Skjoeldkron (1972); *New Forms of Bibliographical Information*, by Anna Sitarska (1973); *Fundamentals of Information*, by Adam Górski (1974); and *Elements of Linguistics for Information Officers*, by Bożena Bojar (1973).

Of an outstanding informative value is the work by Juliusz L. Kulikowski, *The Scientific, Technical, and Organizational Information System (SINTO)—an Outline of the Concept and Future Prospects of Realization* (1975).

The Polish Library Association

The Polish Library Association is a social organization of a professional and scientific type, founded in 1917. Thirteen thousand librarians and bibliographers from all library networks belong to this association. Its members are also persons professionally or scientifically connected with librarianship, bibliography, and scientific information.

The basic task of the association is to represent the interests of librarians, to give additional training, and to develop the theory and practice of librarianship and bibliography.

The association cooperates with political and social institutions and organizations in solving the basic problems of libraries and librarians and in arranging new organizational forms of librarianship.

Publishing activities belong to the more important spheres of work of the association. It has issued periodicals: *The Librarian* since 1929, *The Librarian's Guidebook* since 1949, *The Library Review* since 1927, and books on the theory and practice of librarianship and bibliography, including professional textbooks and handbooks indispensable in everyday library work. Between the years 1950 and 1975, the association published about 200 printed titles.

The supreme body of the association is the All-Country Convocation of Delegates, which elects, for a 3-year tenure, the authorities of the association. At the present moment, Docent Dr. hab. Witold Stankiewicz acts as president.

Activities of the association are based on the performance of sections and problem-solving teams; districts are the organizational units of the association, voivodships constituting their areas of activities. The Polish Library Association is one of the largest organizations of this type.

For many years financial resources have been gained from publishing activities and membership fees. By fulfillment of assignments from the Ministry of Culture and Arts, the association receives grants-in-aid.

The contribution to the newly worked out statute on libraries is regarded as an achievement of the association. Besides, the association protected the interests of librarians, participated in the elaboration of a new system of wages, and filed applications for special state rewards and anniversary prizes granted every year for work in librarianship.

The Polish Library Association has been a member of the International Federation of Library Associations since its very beginning in 1929. In 1936 and 1959, the association organized in Warsaw the annual sessions of the IFLA Council. In 1947 A. Birkenmajer, the representative of Poland, was appointed honorary vice-chairman of the federation; while in the years 1959–1964, Prof. Dr. Helena Więckowska of the Polish Library Association represented the countries of Eastern Europe on the IFLA Executive Board.

The Polish Library Association initiated the organizing within the IFLA (in 1960) of the Committee of Library Buildings; it is also the initiator of other projects, taking an active part in the IFLA work on the unification of cataloging rules, standardization of international library statistics, readership, research, and library training.

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POOLE, WILLIAM FREDERICK

William Frederick Poole (December 24, 1821–March 1, 1894) was an important pioneer of librarianship in the United States. His career of 47 years paralleled the development of American librarianship during the 19th century. Beginning his work in the social library, the dominant form at the time, he turned to the public library during the years following the Civil War, as that agency rapidly emerged in the burgeoning society. After a career as the chief administrator of pioneering public libraries in two major cities, he moved, late in his life, to head an outstanding research library in a period when scholarship was completing its transfer from the private study rooms of aristocrats to the formal institutions of professors. In this last position of his career, he had the opportunity to plan a building embodying ideas of architecture and services that he had been advocating for many years. As administrator of libraries and as leader of the new profession, he introduced principles and practices that left their mark on individual institutions and on librarianship as a whole.

Will Poole was born in Salem, Massachusetts, the second son of Ward and Eliza Wilder Poole. The family traced its ancestry back through seven generations to the pioneer days of the Massachusetts colony, but, far from being a wealthy gentleman of leisure, Ward Poole was a tanner in an outlying section called Poole's, or Blubber, Hollow. This area was soon transferred to the adjoining town of Danvers, in whose schools the youngster obtained his early education. As was usual at the time, Will left school at the age of 12 and went to work. For the next 5 years, he held a variety of jobs. After a year's apprenticeship to his cousin Edward Poole, a jeweler in Keene, New Hampshire (where Will's grandfather Abel Wilder still lived), the young man rejoined his family when it moved to a farm near Worcester in central Massachusetts. A year later, he returned to Danvers to work in a grain and provision store and, later, as a teamster for a tannery.

These years in different occupations trained the young man in a practical approach to problems as well as in knowledge and skills that served him well during his library career. By the time he was 17, however, he was ready to listen to his mother's urging that he return to school to prepare himself to rise above a place as a laborer. After 3 years of study at Leicester Academy near Worcester, he entered Yale College in 1842. Although already older than most of his fellow freshmen, he was able to remain for only 1 year before lack of money forced him to go back to work. Only after 3 more years could he afford to return to Yale, in 1846, joining the Class of 1849.

Yale College at that time was a conservative institution emphasizing the classical curriculum and requiring of its students intimate knowledge of the contents of their textbooks rather than wide-ranging independent study. The college library was more a showplace than a scholar's workshop and, indeed, was open to upperclassmen only under severe restriction and entirely forbidden to freshmen and sophomores. Just as local communities felt no obligation to provide their citizens with books, so the college undertook no such responsibilities for its students. In significant parallel

William Frederick Poole.

with the social libraries that existed in most New England communities, the three student societies of Yale College established libraries for their own members. Poole's introduction to librarianship came at the library of the Brothers in Unity in 1847, when he was appointed assistant librarian for his junior year. This work, which he later called the most profitable of his career, shaped the rest of his life by turning his attention to the opportunities of librarianship and by providing him with practical experience in solving many of its problems.

Of the many challenges that Poole's duties as librarian brought to him, the one that most attracted him came from his realization that the valuable periodicals of the day, in the absence of any systematic method of discovering what they contained, were virtually closed books. For the debates that comprised a leading activity of the student societies, the fresh information in periodicals could be especially useful if only some key to it were available. Other than individual indexes to a few periodicals, no such key existed. Poole set for himself the task of preparing a consolidated index to the periodicals in the society's collection. The result, achieved at the cost of many sleepless nights, was published by the new firm of G. P. Putnam in 1848. This first general index to periodicals pioneered a bibliographical form that came to be a foundation stone of library service throughout the world.

Poole's small volume, published under the title *An Alphabetical Index to Subjects Treated in the Reviews and Other Periodicals to Which No Indexes Have Been Published,* proved as valuable as he had expected, and the whole edition was soon sold. Poole decided to prepare an expanded edition, work that he began during his senior year when he served as the society's librarian.

Despite these demanding tasks, Poole was sufficiently successful in his classroom studies that he was elected, among other honors, to Phi Beta Kappa. In 1849, when he was graduated, he was not yet ready to set librarianship as his goal. He expected, he said, to enter the practice of law. In fact, however, he devoted more than a year following his graduation to expanding his index. Set back by the theft of his manuscript, he did not complete the task for several years. And in 1851 his indexing work took second place to a new responsibility when he was appointed assistant librarian of the Boston Athenaeum. The appointment was for a 1-year term as substitute for the ailing incumbent. Poole, as assistant librarian working under Charles Folsom, the Athenaeum's venerable librarian, took care of the library's day-to-day operation, leaving the librarian himself free for his own scholarly pursuits and for consultation and assistance to the well-educated members of the Athenaeum, many of them noted writers of the time. As "the business man" of the library, Poole earned a good reputation with the patrons. He found himself sufficiently satisfied with the experience to decide to "pursue bibliography as a profession" (*1*). Consequently, as his year's term neared an end, he considered seeking appointment at the new Boston Public Library or at the Astor Library in New York. At the crucial moment, however, a position opened as librarian of the Mercantile Library Association of Boston. Although the position attracted many applicants, Poole's experience was manifestly so superior to that of the others that he was promptly and unanimously elected to the position on May 31, 1852.

In taking positions at the Athenaeum and at the Mercantile Library, Poole was entering social agencies analogous to the Brothers in Unity. These privately supported institutions exemplified the two major types of social libraries: the proprietary library, in which the members purchased shares of stock, and the association library, in which they simply paid an annual subscription fee. In the aggregate, the social libraries of the late 18th and early 19th centuries served the function, later undertaken by the tax-supported, free public library, of providing popular access to information and reading. Poole's experience in these years led naturally to his later career in public libraries.

Of the two sorts of social libraries, the association library was by far the more popular and democratic. Poole's new responsibilities were to serve the young clerks of the shipping offices and other business houses of Boston who comprised the majority of the association's membership. These young men paid a modest $2 annual fee that provided basic income, which was further supplemented by profits from an annual lecture series and by donations from merchants and philanthropists of the city who felt it their paternalistic duty to help to support an agency that provided wholesome activities for their employees.

The young men themselves were soberly determined to make good use of their opportunities to rise in the world by improving their business skills and by acquiring

a cultural background befitting the social position to which they aspired. Membership in the association entitled them to special reduced tuition rates for courses in bookkeeping, letter-writing, penmanship, and foreign languages—skills directly useful in a seaboard commercial community. The lecture series gave them an opportunity to hear leading orators and literary men of the day. And the association's own weekly meetings provided the young members with experience that helped them to acquire poise and skill as public speakers. Undergirding all of the activities of the association was its library, which Poole undertook to administer.

The library was growing at a healthy rate in 1852. A collection of more than 11,000 volumes was increasing by about 2,500 annually. Its books were supplemented by the major periodicals of the time and by daily newspapers from the principal cities of the East and from communities as distant as Mobile, Alabama, and Pittsburgh, Pennsylvania. In accordance with the serious purposes of its members, the association sought to build a permanent collection of standard works, but it also responded to the desires for popular literature by acquiring multiple copies of new books.

Even in those early years of Poole's career, he was already unusually well prepared for his responsibilities. His experience at Yale and at the Boston Athenaeum equipped him not only to administer the library effectively but also to provide continuity to all the affairs of the association. Although building the collection and providing the day-to-day services of the library were his principal tasks, he served the association in many other ways, and he also—as he had at the Brothers in Unity—prepared and published a new key to its collections, this time in the form of a much-needed new printed catalog.

Just as Poole's periodical index pioneered a new instrument of bibliographical control, so his catalog became a model for succeeding librarians of the United States. In characteristically pragmatic fashion, he settled upon a simple compilation of brief author, title, and subject entries, all arranged in alphabetical order as in a dictionary. He used no set list of subject headings but relied mainly, as he had in making the periodical index, upon the wording in the title being listed. Often he inverted the order of words in a title so as to emphasize a key word and to allow one entry to serve for both title and subject. A simple work without high bibliographical pretensions, the catalog was well adapted to its single purpose of providing readers quickly with information about the contents of the library. Poole's new book represented the last step in an evolution from the systematic, classified catalog with author and title indexes to the triple-entry dictionary catalog. Its simplicity of form and ease of preparation made it a favorite model for the librarians of similar institutions across the country. Its use of the alphabetical, dictionary arrangement helped to establish a practice that, though resisted by the advocates of classed catalogs, has dominated American cataloging ever since.

Poole's work in preparing a new printed catalog was only one aspect of his responsibilities as head of an active library. The association was at a peak of its development, stimulated in part by competition from the new Boston Public Library, which opened its doors on May 2, 1854. The association responded to the challenge by moving to new quarters and expanding its services. Although the new efforts

succeeded only for a short period of years and the association eventually succumbed, as did most of the 19th century's social libraries, to the competition of the public library, it flourished during Poole's time there.

During these prosperous years, the library grew substantially. Poole became an accomplished member of a new profession whose standing was affirmed in 1853 by the holding of the world's first conference of librarians, in New York City in conjunction with the Crystal Palace Exposition. Poole was one of those who attended. An advance copy of the second edition of his periodical index was displayed at the meeting. Published by Charles B. Norton, the principal sponsor of the conference, under the title *An Index to Periodical Literature,* the volume was a much more substantial work than the first edition. It established Poole's reputation as a librarian throughout the country. Not only did he become confirmed in his new profession, but also he settled down in his personal life. On November 22, 1854, he was married to Fanny Maria Gleason, daughter of Dr. Ezra Gleason, a physician of Boston. She was 20 years old and he, 33. In September 1855 twin daughters, Alice and Helen, were born. Now an established family man, Poole was receptive to a new opportunity when it came.

The following April, when Charles Folsom's retirement vacated the position of librarian of the Boston Athenaeum, the trustees turned to the man who had served them as assistant librarian earlier. Poole, in accepting this new responsibility, became immediately one of the leading librarians of the United States. The Boston Athenaeum's 60,000-volume collection was described in C. C. Jewett's authoritative *Notices of Public Libraries in the United States of America* as "hardly surpassed, either in size or in value, by any other in the country." Not only was it four times larger than the collection of the Mercantile Library Association, but it was many times richer in quality, containing works of great rarity and scholarly importance, a number of them brought back from Europe as donations by the Athenaeum's members. The Athenaeum had financial resources, including endowed funds for book purchases, that enabled it to buy freely the standard works of scholarship desired by its members. Among the proprietors and patrons were such leaders of the intellectual life of the time as Richard Hildreth, Ralph Waldo Emerson, Oliver Wendell Holmes, Edward Everett, and George Ticknor. The reading room of the Beacon Street building was a place of quiet reading and scholarly study.

The opportunity to head the library of such an institution enabled Poole to broaden and deepen the scope of his qualifications. He became involved for the first time with an extensive collection that included not only works of sound scholarship but also volumes of considerable rarity. He dealt with trustees and a clientele of learned men who were pursuing scholarly studies and were sympathetic to his own interest in research and writing. During the 13 years of his administration, the collection increased only moderately, from 60 to 80 thousand volumes, but the works added were carefully considered in terms of their permanent contribution. The most notable new collection acquired under his administration was begun in the late years of the Civil War, when the Athenaeum began to assemble the publications of the Confederacy. Poole carried on extensive correspondence with Federal officers stationed in the South; with Southerners who sold their books, pamphlets, and news-

papers following the war; and with agents whom he recruited to gather publications in the region. On one notable occasion just at the end of the war, the historian and Athenaeum member Francis Parkman made it his business, during a journey to see the Civil War battlefields, to buy newspapers and books for the library. All of these efforts, directed and planned by Poole, produced for the Athenaeum the finest Confederate collection in the country.

Important though the new acquisitions were, they simply followed the Athenaeum's long tradition. In another way, Poole's 13-year tenure marked a time of considerable change. He administered an agency that transformed itself from only a larger version of a private gentleman's library to an operating institutional collection with the specialized staff and the physical arrangements appropriate to such an organization. The staff grew from one assistant librarian to seven. The library, which had occupied only one floor in 1856, expanded into most of three floors connected by new internal staircases. Work began on a monumental new printed catalog, which was finally completed under the hands of Poole's successor. Administration of this enlarged institution posed problems for Poole that few librarians had faced before. No longer could the librarian of such an organization undertake personally the whole range of duties that his predecessors had performed, nor could he spend virtually all of his time, as had Folsom, for example, on assistance to the scholarly patrons or on scholarly work of his own. In fact, Poole, as he did throughout his life, wrote for publication a considerable number of works that earned him scholarly respect and reputation. These writings, however, were largely produced outside regular library hours and at some cost in time spent with his family. The daily operating and administrative duties kept him busy indeed. He was one of the first librarians of the United States to be forced to acquire skills of supervision of a staff that was large for its time. As mentor of young librarians, Poole was notably successful, training assistants who, after serving the Athenaeum well, went on to occupy leading positions in other libraries. Poole himself earned and kept throughout his tenure the approval of the shareholders and trustees.

Successful though he was in the administration of the Athenaeum's library, Poole seems to have become restless in the later years of his stay, as the solution of major problems of quarters and staff made his daily work routine and repetitive. Never without some kind of outside study, he had written, among other things, articles concerning the great debate between the proponents of the two major English-language dictionaries then popular in New England, Worcester's and Webster's. In 1865 he undertook to prepare a new edition of an early Massachusetts chronicle, Edward Johnson's *Wonder-Working Providence of Sion's Saviour in New England* (Warren F. Draper, Andover, Mass., 1867). As a part of the new edition, he prepared an extended introduction and a new index to Johnson. The work involved him in controversy with other students of the history of Massachusetts and Maine, which produced another volume of collected essays regarding the historical issues under debate, published under the title *The Popham Colony*.

These historical studies seem to have grown, in part, from Poole's need to expand and vary his interests. With the affairs of the Athenaeum in good order, he enlarged the scope of his activities by undertaking these investigations and writings,

and then he took a decisive step that changed his life. Early in 1868 he asked the trustees of the Athenaeum to find a successor whose appointment would free him to leave his post. Resigning from one of the most influential library positions in the United States was a major decision indeed. Students of his career have found it a puzzling one, particularly in light of the considerable evidence of the continuing satisfaction of the trustees and patrons with his work. The most plausible explanation appears to be that Poole deliberately decided, perhaps motivated especially by the birth in 1868 of his seventh child and only son, to wrest the course of his career from the comfortable quiet of the Athenaeum and to turn his attention to the new libraries being established in considerable numbers in the nation's energetic revival following the Civil War. Although the trustees moved slowly and with apparent reluctance for 11 months after Poole's initial request to them, they finally appointed Charles Ammi Cutter as the successor, to take office on January 1, 1869. Poole established himself in an office in nearby Pemberton Square as a "library agent" and shortly began work as adviser in the formation of the Silas Bronson Library of Waterbury, Connecticut.

During the years between 1869 and 1873, Poole served as consultant to at least 10 libraries. His income, far from suffering, reached a new high. He served the following: two academic institutions, the Naval Academy at Annapolis and Mount Holyoke Seminary (later College); one private collection, that of Henry Probasco of Cincinnati; three endowed public libraries, the Bronson of Waterbury, the Fairbanks of St. Johnsbury (Vermont), and the Grosvenor of Buffalo; and tax-supported public libraries in four communities, Newton and Easthampton (Massachusetts), Cincinnati (Ohio), and Indianapolis (Indiana). The scope of his duties ranged from simply preparing lists of books for purchase to supervising all of the work of establishing a new library. In several instances, he recruited, from among former employees of the Athenaeum, qualified librarians to catalog and administer the individual libraries.

Although Poole's bold action in resigning his secure place at the Athenaeum attests to his awareness that new institutions were likely to need services that he could offer, probably even he did not see as clearly as became apparent in later perspective how numerous were the libraries springing up all over the settled part of the nation. Whether the outcome of new enabling tax laws passed by the state legislature or of endowments growing out of commercial and industrial fortunes, these new libraries put upon their governing boards heavy responsibilities that often overwhelmed the trustees. Typically, the boards were composed of the educated leaders of their communities, but these men, faced with practical problems of planning and administration and, in particular, duties of assembling judiciously selected book collections, felt themselves in need of competent assistance. Poole's years of experience prepared him to respond readily to these demands. His very appearance and manner inspired confidence. Well over 6 feet tall, he made a commanding figure. His full head of hair was complemented by bushy Dundreary whiskers bristling from the sides of his face and lying down even to his collar but leaving exposed his strong, smooth-shaven chin. Not shy or bookish in manner, he was, rather, a bluff, hearty man who could hold his own in discussion or argument. The business-

men on the boards must have found it comforting to have at their side a man who could talk hard facts and figures and yet speak with equal positiveness about the mysteries of cataloging, the best leathers for binding, or the most important works of literature. Poole was not known for his delicacy and tact; he could be warm, friendly, and kind, but plain talk was his trademark. When he made a recommendation, it was delivered in a tone of finality. Board members found him a man they could trust. In Cincinnati, that trust extended so far that the board offered him appointment as their librarian.

Poole's acceptance of the position in Cincinnati in November 1869 was not a commitment of his full time to the responsibility but rather the result of a technicality under which the board could pay a salary only to a man on the regular payroll. He explained that his commitments to other libraries required him to leave Cincinnati frequently but that he would pledge to spend at least half of his time there. Even after December 1870, when he did undertake full-time responsibility for the library, he did not commit himself so completely as to move his family from Massachusetts. Nevertheless, he gave his enthusiastic effort to building up Cincinnati's library and made a secure place for himself in the community.

Cincinnati was fertile ground for a library. Its 200,000 people shared a rich economic and cultural life exemplified by its literary club, founded in 1849 and thus the oldest in the nation. A public library, started in 1853 as part of the school system but opposed from the outset by burdened taxpayers, had struggled through lean years until 1867, when a new state law permitted Cincinnati and other large cities of Ohio to levy a tax specifically to support a library. Even then the transformation was not immediate. The library remained in dirty and crowded quarters with its haphazardly acquired collection recorded only in an accession book and its staff inadequate in number and in training. Despite these poor conditions, Cincinnati's library was already second in size among public libraries of the United States. This position of leadership, of course, was less a reflection of its quality than of the primitive state of the public library movement. With new tax support and newly zealous library advocates in Cincinnati, Poole had the opportunity to shape the largest municipal library outside of New England, unconstrained by eastern conservatism.

One of Poole's first duties was to advise the library's Board of Managers on plans for a new building. In 1868 the Board of Education, under whose aegis the library's board served, purchased for the purpose an unfinished structure known as Handy's Opera House. Truman Handy had planned the building as a theater, but he fell into financial difficulties that forced him to sell before construction was completed. With some modifications worked out by Poole and the architect, the new building, Poole advised, would serve the library quite well. When completed, the building was to consist of three sections, a four-story front structure, a two-story connecting area, and at the rear, a great open hall that would house the bulk of the collection in five tiers of alcoves around the perimeter. This plan, which followed a long tradition of patterning libraries on the open nave of church architecture, produced a building form that Poole came in later years to disapprove, but it met the needs of the time. For the period that he was librarian, Cincinnati's library occupied only

the front building, serving its patrons with a reading room on the first floor and the book storage and delivery desk on the second. This section of the building was opened in December 1870.

With the opening of the new quarters, Cincinnati's library began a period of great prosperity. The collection grew at the rate of 2,000 new books per month. The building, with its 200 seats for readers and 300 current periodicals, served more than 10,000 registered borrowers, who soon virtually quadrupled the 1,000 volumes per week previously borrowed. In March 1871 the library became the first in a large municipality to open on Sundays. The new Sunday service, coupled with Poole's practice of taking the annual inventory without the customary closing for the purpose, made it possible for the library to be open every day in the year.

Cincinnati's enthusiastic response to its new library grew from the character of the book collection as well as from the extended periods of opening. Although Poole recommended the acquisition of works of substantial scholarship, he also advocated strongly the provision of prose fiction to meet the demands for popular reading. Members of the library's board shared with others of the time a fear that fiction might serve immoral tastes, but they acquiesced in Poole's policy of supplying popular reading, even though they were concerned about the increase of staff from 8 to 13 assistants required by the expanding use of the library. Soon, a separate room was set aside for the large and valuable art books, perhaps the first subject department in an American public library. One aim of this new service was to assist the manufacturers of the city in designing products that would be not merely serviceable, but also attractive and salable. In pointing out this practical advantage, Poole was appealing to the businessmen of the city in addition to the general readers served by popular books. Another group that came soon to form more than one-fifth of the registrants were the juvenile borrowers, whom Poole, in contrast with some other librarians of the time, welcomed to the library. All in all, Cincinnati's library under his administration became a popular and much-used part of the community.

After the major tasks of organization began to be settled, Poole's energy turned again to the scholarly writing that was never far from his attention. Elected to membership in the Cincinnati Literary Club in 1871, he became an enthusiastic participant in its meetings. Already the author of several works dealing with early American history, he read a paper before the club maintaining that, before 1800, antislavery opinions had been strongly held in all parts of the United States and that the divisive sectional controversy came later. In another paper, he advanced the claim made for his fellow New Englander, Manasseh Cutler, to be prime mover behind the enlightened provisions of the Ordinance of 1787 for public support of education and prohibition of slavery in the Northwest Territory. The paper, published several years later in the *North American Review*, was a sophisticated analysis identifying the economic motives behind the ostensibly altruistic provisions of the ordinance and was Poole's most impressive historical study.

Both personally and professionally, Poole established himself soundly in Cincinnati. Although there were some problems from time to time, he was so well regarded in the community that, when in 1873 he announced his acceptance of the librarianship of the Chicago Public Library, a public movement was started to

persuade him to change his decision by raising his salary substantially. Poole replied that, having already committed himself to Chicago, he was in no position to reconsider. He thus ended the most successful single period of his whole career. Starting with a poorly organized collection, inadequately staffed and ill-housed, he had more than tripled its size to 60,000 volumes, employed and trained a new staff, planned a new building and occupied a portion of it, and, all in all, introduced the people of Cincinnati to the services of a large and active public library. When, at the end of December 1873, he set off to Chicago, all this might have been difficult to leave behind had not the future promised even more.

Chicago's future in 1874 was the subject of exuberant confidence. The city's prompt reconstruction after the Great Fire of 1871 encouraged Chicagoans to feel sure it would soon be the principal metropolis of the nation, an expectation well supported by its location at the center of the nation's growing transportation network, with the rich Middle West pouring in natural resources for processing and trade. A city of such stature must have cultural institutions befitting its position, among them a public library.

A city that expected to be first in the nation quite naturally sought the best librarian of the country to serve it. In terms of reputation, two men were the obvious possibilities: Justin Winsor of the Boston Public Library and William F. Poole of the Cincinnati Public Library. Although some brash Chicagoans thought Winsor might join them in leading Chicago to a destined place as Boston's successor in cultural as in commercial affairs, there was no real possibility that he could be lured from Boston by Chicago's offer. On the other hand, Poole was much attracted by the prospects. At first reluctant to make a full commitment to the Middle West, he soon became enthusiastic about the opportunities and the expansive spirit of the region. Personally accepted by the scholarly aristocrats of Massachusetts, he nevertheless lacked the wealth and security of an old Boston family, and he found the egalitarian democracy of the Middle West both much to his liking and well suited to his naturally hearty manner. Besides all the advantages of the Middle West and Chicago in particular, the new beginning appealed to him. He had, he told the president of Chicago's Library Board, "a special taste for the organization of a library, in preference to administering it when it is in running order. The work indeed is more laborious and exacting, and perhaps I like it for that reason" (*2*).

Poole's involvement with organizing the libraries of Cincinnati and Chicago came to have great importance in shaping the nation's patterns of library organization and service. As new libraries were formed in many municipalities, the model at first was Boston. Soon, however, the patterns initiated by Poole in the two midwestern cities became a leading alternative. He himself had served officially as consultant in the formation of a number of libraries, he had recommended protégés to those and other libraries, and he was, over the years, the librarian most accessible to those in the Middle West who undertook responsibility for establishing new libraries. His article, "The Organization and Management of Public Libraries," published in 1876 in the U.S. Bureau of Education's great compendium on libraries, became virtually a handbook on library management for the next quarter century, both in its original form and in reprints that he sent off in response to the inquiries that

flowed to his office from communities throughout the Middle West. The patterns of organization that he recommended were an outcome of his long experience, and the place in Chicago gave him an opportunity to begin anew to work out the plans in whatever ways seemed best to him. In large part, the arrangements recommended in Poole's paper described what he had done in Chicago.

The library in Chicago had begun officially on April 1, 1872, with the adoption of a city ordinance that, on the basis of recent state legislation, established the new institution legally. A board of directors was appointed and employees hired to prepare and open a temporary reading room. Active procurement of a popular book collection and provision of full library services awaited the appointment of a librarian.

When Poole arrived in January 1874, the library was ready for his attention. Library accounts had been swelled by 2 years of generous appropriations, and new quarters had been rented in a building at the corner of Wabash and Madison streets. Already in possession of more than 7,000 volumes, many of them substantial works of reference that had come to Chicago as gifts in the wake of the fire, the library was ready to begin to acquire its popular collection and Poole placed orders for thousands of books. By May 1, the new quarters were opened with a substantial collection ready for loan. The people of Chicago flocked to the new library. More than 5,000 citizens registered within the first 2 months, and the loans soon rose to more than 800 per day, a figure that immediately exceeded the borrowing from either of the established libraries in Boston or Cincinnati. For a brief time, the future of the Chicago Public Library looked as bright as the predictions for it.

The bright promise was soon clouded by a political turn that brought to power in the city a faction with little interest in cultural ornaments such as a public library. A nationwide economic crisis soon added to difficulties that produced 5 lean years for the library. Total disaster was averted by the use of funds remaining from the first 2 years of prosperity supplemented by small and hard-won appropriations each year. Some continuing progress was possible and, for Poole himself, the troubles were lightened somewhat by the support of a faithful library board, with whose encouragement Poole was able to use those years to lay the foundations for the later years of prosperity.

In 1876, as affairs in Chicago began to improve, Poole joined other leaders of the library profession in a convention of librarians held in Philadelphia during the great Centennial Exhibition of that year. A myth of American librarianship, fostered by Melvil Dewey, relates that Poole opposed the conference and the American Library Association that was formed at its conclusion. The fact used to support this myth is that Poole, as a prudent man, insisted before endorsing the conference upon having full information about the identity of the 25-year-old Dewey and the motivations that lay behind his efforts and those of the publishers, Frederick Leypoldt and R. R. Bowker, in promoting the meeting. Although a number of librarians gave their endorsement simply on the basis of a telegraphed request, Poole was not to be thus stampeded. In later years, Dewey used the example of Poole's prudence on that occasion as an argument to counter objections that Poole came to have rather regularly, to Dewey's efforts to mechanize and routinize the profes-

sion of librarianship. The story of Poole's opposition to the formation of the American Library Association is, however, not well founded. The error is attested both by Poole's active and enthusiastic membership in the association and by his hearty participation in the 1876 conference that preceded it.

The Philadelphia Conference of Librarians was an important reflection of the new place of librarianship in the American society. Although the conference of 1853 had attracted an able body of librarians, the profession had neither the numbers nor the fundamental identity of interest needed to support a continuing association. By 1876, led principally by the public librarians of the nation, a worthwhile conference could be held and a sound continuing association formed. Justin Winsor was immediately elected from among those public librarians to serve as president of the conference, and then of the association that grew from it. Poole was the principal vice-president who, when Winsor finally declined reelection after 10 years, was promptly elected as the logical successor. These years of close and warm association were rich parts of Poole's professional life. He faithfully attended each annual conference and valued highly the professional and personal friendships he formed at these meetings. In 1877 he was one of the group of American librarians who journeyed to London to attend the international conference at which the British Library Association was founded. These conventions became an influential part of the library movement. They developed feelings of identity among American librarians, afforded them the opportunity to consult among each other about their common problems, and helped to establish librarians and librarianship as an accepted part of American life. Among the leaders, Poole was always prominent and, quite often, the spokesman who helped to bring librarianship to favorable public notice.

The organization that began in 1876 served to put librarianship on a sound basis, to publicize it to the larger society, and to provide a basis for cooperative actions, the most significant of which in the early years was to prepare a new, enlarged edition of Poole's periodical index. Although the edition of 1853 was still useful, it provided no access to the periodical literature of almost a quarter century, and the librarians of the time had been seeking to do the work for their libraries individually.

The librarians at Philadelphia declared that they wanted and needed a new and up-to-date index to periodicals. Poole had been considering the problem for years and was ready with a proposal that the librarians cooperate by dividing among themselves the periodicals to be indexed. They were to supply to him entries that he could then consolidate into a single work and publish. Others, then and in the years to come, proposed to organize the project along lines that differed from Poole's proposal, but his ideas prevailed, principally because it was clearly his bailiwick, but also because he undertook to do the work of coordination and guaranteed the publication financially. In the face of Poole's forceful control, it was not possible for others to change the organization of the work so as to have one person employed to do all of the indexing, or to adopt a standard list of subject headings, or to arrange the publication in classified order rather than in an alphabetical order using keyword subjects as Poole had done in his previous editions. A Committee on Co-

operation, consisting of Poole, Winsor, and Charles Ammi Cutter, was elected, but soon it became clear that Poole was the effective director and planner. He enlisted as associate editor his former Athenaeum protégé, William Isaac Fletcher.

The large project got under way almost immediately after the Philadelphia meeting, but it took a number of years to complete. Finally, in December of 1882, the great third edition of *Poole's Index to Periodical Literature* was published. In almost 1,500 pages, it provided references to 6,205 volumes of 232 different periodicals published between 1800 and 1881. At last, after more than a quarter of a century, the libraries of the United States had available a single key to the contents of the major periodical literature of the century. In later years, five supplements carried the work forward to 1887, 1893, 1897, 1903, and 1908. An abridged edition for small libraries was published in 1901 and supplemented in 1905. Poole himself contributed heavily only to the 1887 supplement, leaving the later works largely to Fletcher. Finally, the commercial competition of the H. W. Wilson Company and its *Readers' Guide to Periodical Literature* displaced the pioneering *Poole's Index* on a current basis. The experience of preparing the *Index* under American Library Association auspices led to other cooperative bibliographic ventures, though most had greater difficulties than those experienced with the *Index* under Poole's "autocratic sway" (*3*) and his personal financial underwriting of the work. The association's sponsorship was, however, an important element in the success of the *Index,* just as its success was an encouragement to other cooperative ventures.

The establishment of the American Library Association and its continuing activities both reflected and contributed to the development of librarianship in the United States during the last quarter of the 19th century. During 1876 also, the *Library Journal* began publication and thereafter provided a reliable and regular channel for printed communication among librarians; and the U.S. Bureau of Education's great manual of statistics, history, and procedures, *Public Libraries in the United States of America,* became the handbook needed by librarians and others interested in founding libraries.

Poole returned with renewed energy to his duties at Chicago after the meeting in Philadelphia. Already, the economic situation of the country had improved and the reactionary government of Chicago had been replaced by forces favorable to the public library. During the next 10 years, the library grew and expanded. Deposit stations were established in local neighborhoods around the city to carry the library's books to citizens far from the main library. After years in rented space, the library finally occupied spacious quarters in the new City Hall building and began plans for constructing a library building of its own.

The occupancy of new quarters in the City Hall in 1886 symbolized a period of high success in Poole's career. During this year he was serving as president of the American Library Association, whose members journeyed that summer to Milwaukee to attend the annual meeting. On the way, the contingent of delegates stopped off in Chicago to see the city and the newly opened library. The Chicago Public Library was fulfilling its early promise. It was lending more than 600,000 volumes each year through the central library and eight delivery stations located throughout the city. After the conventional services of the public library had been estab-

lished, Poole began in 1883 a planned program seeking to make the library a regular part of the educational resources available to schoolchildren. Classes were brought to the library for instruction and tours by their teachers, who were then given special borrowing privileges that enabled them to borrow substantial numbers of books to establish collections in their classrooms. Ultimately, the demonstration of the usefulness of the book collections led to the establishment of libraries by the schools themselves. This effort to expand and widen the service of the public library by including education of all the people was one that librarians around the nation were beginning to pursue, and Poole showed in his early adoption of the program the imagination and energy that kept him a vigorous and creative leader throughout his career. Poole's leadership had substance that justified his position but it also became somewhat symbolic. After 1877, when Winsor moved from the Boston Public Library to Harvard University, Poole was the unquestioned first public librarian of the land. In 1882 he was honored by Northwestern University with the LL.D. degree. By 1887, when he was president of the American Library Association again, at its annual meeting at the Thousand Islands, he was riding a crest of achievement and prestige. Already more than 65 years old, the head of a leading and highly successful institution, leader of his professional association, and president-designate of the American Historical Association, he might very well have expected to complete his career in the position he had occupied for 13 years at the Chicago Public Library. It was a surprise to his associates and perhaps also to him that he was offered, at that juncture, an opportunity to begin once more to organize a new library from the very beginning, one of the most challenging opportunities of its sort ever to arise in the United States.

On August 1, 1887, Poole assumed office as the first librarian of The Newberry Library, an institution embodied at that moment principally in two trustees responsible for administering a bequest from the estate of a pioneer Chicago banker and real estate investor. Of the few books that had accumulated during the previous years before the library's formation was begun in earnest, the first had been obtained by Poole himself 10 years before in England. It was an edition of the Bible printed especially to celebrate the fourth centennial of printing in England. At Poole's suggestion, one of the 20 copies of this Caxton Memorial Bible set aside for the United States was given to the trustees of the Newberry estate, who held it in a bank vault until the library was formed.

The peculiar situation of a library that existed only in prospect for a decade was the consequence of the unusual terms of the will of Walter Loomis Newberry. The library bequest had been included in the will as a seemingly remote contingency, which would operate only in the unlikely case that neither of Newberry's daughters should marry and have children. In 1876, however, the unlikely had occurred when the second daughter died without children, and the formation of the library became assured, though it must await the death of Newberry's widow. By 1887, the time had come to form the library, and the trustees chose Poole to head it.

Although the days of Carnegie gifts to communities for public libraries were yet to come, philanthropy to found libraries had a long tradition, beginning in America no later than the early days of Massachusetts when John Harvard's bequest of all

of his books and half of his modest fortune brought his name a bonanza of immortality. As recipients of such philanthropy, libraries often were favored because they guaranteed to preserve the names of benefactors with dignity and seemliness. No library in the United States previously had been the beneficiary of a fund so large as that from the Newberry estate. In 1876, when Poole first heard that the library would eventually be formed, he had greeted the news with enthusiasm. Some in Chicago at the time suggested that the taxpayers could be relieved by the Newberry fund of the burden of supporting a public library, a view that Poole as the municipal library's chief could not allow to go unchallenged. His response, however, was framed in positive terms that bore no sign of selfish interest. Rather, Poole asserted, the Newberry bequest would offer Chicago an opportunity to create an institution to complement the municipal library in something of the way the Boston Athenaeum complemented that city's tax-supported public library. "No one library, however large its resources," he said, "can meet the many sided wants of a metropolitan community with a population of half a million" (*4*). When he expressed his large vision of the future of the new institution, he had no reason to expect he might be the one called upon to head it, but when he was offered the opportunity, he allowed neither his age nor any other obstacle to stand in his way. With a sincerity attested by the infrequency of such religious protestations, he expressed privately his feeling that "in the Providence of God I have been called to these duties" (*5*). Dutifully, he set to work.

In those early days, the Newberry occupied a small suite of offices in downtown Chicago. There, after only a week, Poole sent off lists of bibliographical works to two noted book dealers, B. F. Stevens in London and Otto Harrassowitz in Leipzig. The lists reflected the richness and delight of the task that Poole had before him. These bibliographical works, familiar to him throughout his long career, would be the basis for the selection of the great scholarly collection to be assembled. A large proportion of that collection would consist of European books, the fruits of centuries of scholarship. And for a time, until the institution's quarters and staff could be prepared, the emphasis would be upon acquiring the bibliographical tools of acquisition and cataloging, not the substantive quantities of books that would eventually be the heart of the collection. The pleasures and opportunities of the task were unprecedented at the time and perhaps have never since been equaled. As it seemed then, the funds amounting to more than $2 million provided an almost limitless wealth of resource. Never before had anyone had the opportunity to start at the very beginning to assemble a scholarly collection of such depth and breadth and to do so as quickly as the work could be managed. Even with the discipline imposed by the severely limited space, Poole had difficulty in restraining himself for very long. During the first autumn he went off to Boston, where he bought three-fifths of the books offered in the sale of the important Charles H. Guild collection of Americana. Soon, for all his best efforts at holding back, publications began to arrive by the thousands, requiring an early move to new rented quarters on Ontario Street to house the books and the librarians who began to catalog them.

Books came to the Newberry in a variety of ways. Learned societies, governments, and individuals sent their publications as gifts. Libraries and other institutions soon

inaugurated exchange arrangements. Individuals with books to sell from their private collections wrote and visited the library. The major purchases, however, were made from established dealers, both American and European.

The goal from the outset was to assemble a working collection for scholars. A task of this sort posed no great difficulty to Poole for the first few years. Working with the great bibliographies that soon arrived from Stevens and from Harrassowitz, he had only to be reminded of titles to know of thousands of books that the collection must include. In those early days before the burgeoning universities of America began to exhaust the supply, dealers had little difficulty in finding copies of the standard works of the past. Besides the classics of scholarship and literature, long runs of periodicals and publications of the leading learned societies of the world were soon made a part of the collection.

Even with an enterprise that started at the very beginning, the collecting effort soon reached a stage that made it difficult to buy complete private libraries without duplicating works already in hand. In two especially notable instances, however, the Newberry took advantage of the opportunity to acquire at a stroke the fruits of a collector's years of painstaking efforts. The purchase of the music library assembled by Count Pio Resse gave it a fine collection, which included as its prize the music and the libretto of Jacopo Peri's *Euridice* (1600), the first opera performed in public, and which made the Newberry at once a leading music library of the country. Then, in 1890, Poole's long-time friendship with the wealthy Cincinnati collector, Henry Probasco, brought the library the opportunity to acquire a sparkling collection of bibliographical rarities. Poole knew the collection very well, for he had advised Probasco more than 20 years earlier on its organization and had arranged for a member of the Boston Athenaeum's staff to catalog it. In the negotiations, Poole had his hands full to satisfy the anxieties of the Newberry trustees about spending more than $50,000 for works that a Chicago newspaper later called "antique lard cans," while being careful to protect the sensitive feelings of Probasco, who knew that the works he was offering were great treasures and that, even on a cold business basis, the collection was a bargain—the elephant-folio edition of Audubon's *Birds* at $733.33, for example.

This collection of 2,500 volumes included most of the standard rarities of the book world at the time, such as three of the four Shakespeare folios, both 1611 editions of the King James Bible, the early Aldine classics, and more than 400 fine bindings including two autographed Groliers. Impressive though it was, the Probasco collection was for the Newberry only the ornamental crown of a library designed to serve working scholars. After the creation in 1890 of a companion library, endowed by John Crerar, that took responsibility for science and technology, the Newberry was able to concentrate its major attention upon the social sciences and the humanities. Even with this sort of division of responsibility, however, the Newberry eventually focused its interests more narrowly than Poole intended. In a report for the trustees, he listed almost 70 topics, concentrated upon bibliography, history, language and literature, fine arts, and political science, as subjects of special interest; more than 200 other topics as subjects of general interest, in which the Newberry must provide working coverage for the sophisticated student; and only

three, law, patents, and popular fiction, as subjects left entirely to other Chicago libraries. Poole's conception called for the Newberry to be a library of great scope and depth in many subjects, rather than the narrowly shaped institution it became under the guidance of the financially knowledgeable and realistic trustees. Yet the collection he assembled during his 7 years provided an appropriate and sound basis for its growth in the future.

The quarters to house this collection were the focus of the second major task of the years of Poole's librarianship. Making the plans for such a building, he had said some years before, would be "one of the most interesting problems in library construction which have occurred in this country" (*6*). Plans of such complexity and magnitude were not the work of a short time. Though the organization needed space for its growing collection and staff, it was still not a working library. Beginnings of regular library service waited until April 1890, when the library moved to the building especially erected for it at the corner of Oak and State streets. This structure, reflecting the hardheaded business sense of E. W. Blatchford, the senior trustee, was designed to be converted into an income-producing apartment house as soon as the library's permanent building was ready. Poole had little interest in the plans for that building, but he was deeply involved with the permanent structure. His background and experience had been preparing him for this task for many years, but this was the only opportunity of his career to plan a library building from start to finish. The ideas that lay behind his plans had logical consequences in the pattern of library service to be offered within the building and in the character of the staff to provide it. All in all, these ideas were a remarkably consistent and creative body of thought.

Poole's approach seems to have originated in a reaction to the faults of traditional library architecture. Library buildings took their principal inspiration from church architecture, most notably the Gothic style with a central nave surrounded by alcoves. When constructed on a small scale, as in Yale's 1846 library, the plan occasioned no great difficulty; when done on a large scale, as at Boston or Cincinnati, the problems were serious indeed. The great open hall was noisy, wasteful of space, dangerous in case of fire, and, in its upper reaches, so warm as literally to consume by heat the paper and the leather of the volumes. "Books," said Poole, "cannot live where men cannot live" (*7*). The plan required heavy walls that were inflexible and expensive to construct. Often, insufficient light reached the reading tables. In virtually every way, the large library buildings of the time were unsatisfactory. Libraries must be freed, Poole maintained, from the yoke of church-inspired architecture.

Liberation from the past was a goal that many librarians supported. Poole's functional approach, however, was early among the librarians and even among the architects, only a few of whom had begun to go beyond a process of merely adapting classical structures to one of deriving a building's shape from the uses to be made of it. As early as 1881, Poole commented that "the same secular commonsense and the same adaptation of means to ends which have built the modern grain-elevator and reaper are needed for the reform of library architecture" (*8*). This sort of fundamental rethinking of library buildings, however, was not the basis of the

most widely accepted alternative to the plans of the past. Most librarians who expressed their opinions on the subject supported the alternative plan adopted by Winsor in the planning for Harvard's Gore Hall, in which a low-ceilinged bookstack permitted separate housing for books within a building that, in its reading rooms, could preserve much of the architectural display dear to the hearts of architects and donors of building funds. The bookstack did indeed represent an improvement over the traditional building, permitting use of a large percentage of the cubic footage for books in quarters that could be kept at a lower temperature than was comfortable for seated readers and that could be arranged for considerable ease of access to the shelves. Although it was an advance, the bookstack only responded to some of the difficulties. Poole proposed a plan that represented a fundamental change.

Many of the basic ideas of Poole's plan were included in suggestions that he outlined briefly as early as 1876, but he had adapted and expanded them over the years. His proposal was remarkable not only in its functional origins, but also in its derivation from practical considerations of new methods and materials of construction, which freed builders from earlier constraints and produced libraries that could work in new ways. Traditional buildings had been provided with thick, heavy walls not merely to conform to accepted architectural styles, but also to provide the needed strength and support. With a practicality that was characteristic of him, Poole understood early the lesson of the engineering innovations that were shaping the buildings of Chicago, particularly the promise arising from the use of iron girders. His selection of the key dimension of 50 feet for a reading room was based upon the conclusion that this span was the widest supportable without intervening columns and upon the opinion that satisfactory light for reading would penetrate only 25 feet from windows on either side. Entrance of adequate light and the necessary space for dissipation of heat dictated that the ceilings, though low indeed for that time, must be 15 feet high.

In its fundamentals, Poole's plan represented a revolutionary change. Freed from dependence upon interior weight-bearing walls, a library could be planned for flexible use of space. Books and readers could be interspersed within the rooms, with the bookshelves themselves serving as interior dividers. In distinct contrast to the practice in the municipal public libraries, the readers were to be permitted to go directly to the shelves to find and consult the books they needed. The Newberry Library was intended to provide for the free and flexible interaction of books and readers. These new sorts of surroundings were to provide as well for another innovation in the plan of service.

This new service organization may have evolved in part from a need to put to use the unusual building that Poole's plans called for. The multiplicity of low-ceilinged rooms posed a problem of administration not encountered in the older buildings, where the book collection was ranged around a single large room. Whatever the disadvantages of the old libraries, service to readers could be administered from a single desk at the center. If the collection was to be dispersed among a number of separate rooms, the expense of providing a corresponding number of attendants raised difficulties. Poole, however, spoke not of difficulties but of opportu-

nities. Each of the rooms would be devoted to a single subject with the books on that subject brought together under the supervision of an experienced and well-educated specialist in that field.

In sum, Poole's long experience and contemplation of problems of library architecture and library service led him to propose for the Newberry a plan that would provide a flexible building with the collection divided among subject departments under the care of specialists in the appropriate subjects. His proposals for the building were by no means adopted without argument, for the trustees had employed an architect with a mind of his own very soon after Poole's appointment. Henry Ives Cobb was a young man but already a successful architect. He added to his background by traveling both in the United States and in Europe to see library buildings and to talk to librarians, architects, and educators. At one point in the planning, he drew up sketches that even envisioned the use of a bookstack. In a vigorous campaign of persuasion and debate, Poole moved to counter Cobb's proposals and to win the trustees' approval for his own ideas. The controversy was carried through with a seemliness that kept it, for the most part, within the boundaries of the Newberry, and the outcome was a virtually complete victory for Poole's ideas, a victory he was careful to discuss only in quiet tones of mutual congratulation for an outcome in the interests of the library. The Newberry Library, as it was constructed, was essentially the building that Poole had outlined in considerable detail as early as 1881. The architect, however, had free rein both in the technical details and in the exterior design. Poole was interested in the structure only as a working library and was entirely content that "the creature" have whatever "artistic dress" the architect preferred (9). In gracefully accepting this outcome, Cobb surely earned for himself great credit.

Within this building, the work of the library was to be carried forward by a staff of considerable size. The recruitment, organization, and direction of the work of the staff of The Newberry Library was the third major task of Poole's librarianship. For a time, only clerical and secretarial help was needed, but the work of a specialized and scholarly library would soon require staff with appropriate preparation. Following Poole's arrival in August of 1887, the first staff member came in November. By April 1888 there were five and, at the end of the year, seven. By the middle of 1892, after regular services were offered in the temporary building at Oak and State and while preparations were being made for occupation of the permanent building less than 2 years later, the staff had grown to include about 30 people.

These people included, of course, those whose work was clerical or routine; such capacities could be easily found among applicants in Chicago. The librarians who were to select, to classify, and to catalog the collection and to provide specialized subject services might be found only in part from among those on the scene. The staff selected included an unusual proportion of highly qualified members, among them the former head cataloger from Columbia University, one of the earliest recipients of the Doctor of Philosophy degree from The Johns Hopkins University, a holder of a Doctor of Medicine degree, and others of long experience and impressive background. Many of those employed in positions of considerable responsi-

bility were only beginning their careers, but they already had university background. Their quality is reflected in the large proportion who later occupied positions of eminence such as the chief librarianship of the Huntington Library, the Chicago Historical Society Library, the main library at the Cleveland Public Library, and the New York Public Library. Others became noted in classification, such as the author of a standard manual and the two men who are given chief credit for devising the Library of Congress classification. One other, Haakon Nyhuus, after working both at the Newberry and at the Chicago Public Library, returned to his native Norway where his leadership earned him the name of father of librarianship. In one of the most clearly documented instances of direct cultural borrowing on record, he carried with him from Chicago detailed library practices instituted by Poole. The extraordinary quality of the staff of The Newberry Library reflected the conception of the breadth and depth of the institution's mission.

As the appointment of the staff progressed, formal organization and supervision became increasingly necessary. In an early manifestation of a difficulty that later became acute, Poole delayed until 1890 proposing a detailed plan for staff relationships and responsibilities. In previous positions, he had begun with a small staff that he supervised himself. As a supervisor, his style was characterized by a friendly interest in the assistants, a genial, avuncular manner, and an instructive example of hard work. His tendency to trust his assistants to do well without detailed supervision had great advantage so long as he was closely enough involved with the work to detect problems as they arose. In Cincinnati and in Chicago, as the size and complexity increased, young employees emerged to undertake the detailed and purposeful supervision that became necessary. At the Newberry, in part perhaps because the staff included a large proportion of highly qualified members, it seemed necessary to bring in supervisors of established position and background, most notably Charles Evans, who brought with him years of experience beginning under Poole at the Athenaeum and then as the founding librarian at Indianapolis, and C. Alexander Nelson, who had a considerable reputation as compiler of the noteworthy catalog of the Astor Library and who came from the librarianship of the Howard Memorial Library of New Orleans. In contrast to the naturally evolving situations of the public libraries, the importing of supervisors with high credentials required payment of large salaries and produced resentments and jealousies, both circumstances that led to later difficulties.

Another change that became a source of problems for Poole's administration was the transformation of the governing body. Under authority of a newly enacted state law, the two trustees decided to incorporate the library and to expand the board of trustees to 13 members. The change was designed to provide greater assurance of continuity than could be obtained with two men of advanced years and also, in a purpose that reflected the active direction conceived as appropriate for the trustees, it was designed to spread the burden of decision making. The force of the argument for continuity was dramatically illustrated in the midst of the process of incorporation by the unexpected death of the junior trustee, William H. Bradley, in March 1892. For 6 weeks the thread of control lay precariously in the hands of Blatchford. Then, in April, he took office as president of the new board.

The reorganization of the legal government of The Newberry Library was symbolic of a substantial change. After 5 years, the affairs and the future of the library appeared differently than at the start. Large collections had been acquired, a sizable and costly staff had been employed, and an elaborate and impressive building was rising in the block fronting on the north of Washington Square. Seen against the realistic financial demands of an operating institution, the $2 million of the endowment no longer appeared limitless. Soon the new trustees began to look with the hardbitten coldness of 19th-century businessmen and financiers at the operation of the library. They began to demand a closely defined scope of collecting goals that would permit reducing the openhanded purchases of the past. Poole resisted their efforts to narrow the spectrum of coverage of what he still conceived to be a wide-ranging research library. More seriously, he failed to realize that he was not dealing with board members having only marginal interest in the affairs of a library that they felt themselves inadequate to understand. The Newberry board members took their responsibilities very seriously, and though they might bow to his knowledge and reputation as a long-experienced and internationally renowned librarian, they would not for long tolerate a level of expenditure that they deemed beyond the financial capacity of the endowment. Even so, they were hesitant to be cavalier in overriding Poole's recommendations about additions to the book collection. When decisions involved administration and staffing, they were quite confident of their own judgments.

Before the end of the first year, the new board had begun to conclude that the fund could not continue to support a staff of 30 people. Moreover, they concluded, the best means to achieve economies was for Poole to take in his own hands the day-to-day supervision of the work of the library and to reduce the number of intervening supervisors. Though warned quite explicitly by a friend on the board, Poole did not comprehend the depth of the dissatisfaction even when, in mid-1893, the trustees abolished Nelson's position as assistant librarian. Before the end of the year, after seeking unsuccessfully to recruit a new assistant librarian and then to find a person to become executive librarian under Poole's continuing librarianship, they decided to appoint him to a consultancy at half salary and to employ a new chief librarian.

This decision came as a shocking blow to Poole. He had come to the Newberry as one of the most highly respected librarians of the world. In the 6 years after that time, he directed the assembling of a collection of more than 150,000 carefully chosen volumes, he recruited a highly qualified staff, and he planned a pioneering building to house services to be provided in a radically new way. At the very time of the trustees' decision, he was proudly presiding over the move to the handsome new quarters.

Although the accomplishments demonstrate his continuing and conscientious attention to his responsibilities, he had felt for some years that more was being put upon him than was proper. He wrote to a friend in 1890, "I am very hard at work, and too much so; for a man of my age ought to take things easier. Everything about the institution (except the librarian and the Trustees) is new. The Trustees are a bit stingy about employing experienced persons, and so more work comes

upon me than ought to. But I am in uniformly good health, and hard work is not a novelty to me" (*10*). The tone was jocular, but the sentiments were sincere. Although the old trustees had relented and allowed him to employ Nelson to fill the void for 2 years, the new board, by abolishing Nelson's position, had put the whole burden on Poole's shoulders. Now, they had decided to replace him.

The decision awoke him, seemingly for the first time, to the depth of their displeasure. As a man of courage and pride, he set himself to regain their confidence by a demonstration of the vigor with which he would take control of the administration. The trustees, having maneuvered for months before summoning the courage to make the drastic decision, were unlikely to have changed their minds, but with the end-of-the-year distractions and the prospect of new committee assignments, they voted in December of 1893 to suspend any further search for a new librarian until the beginning of the new official year in April. By that time, Poole's displacement had become a moot question.

Poole, over the years, had experienced displeasure and dissatisfaction from trustees, patrons, politicans, and taxpayers. He was not dismayed by opposition, being able to reply forcefully when appropriate and self-confident enough to make changes when he deemed them appropriate or to continue calmly along a course that satisfied his own standards. In this case, too, he sought to correct some of the sources of disapproval and he remained outwardly calm and assured. Already in his 73rd year, however, he had less physical reserves than in his younger days. After a time he began to have headaches and to lose sleep, and then contracted a respiratory infection that kept him at home. Finally, his illness worsened and he sank into a coma, dying in the early morning of March 1, 1894.

The sadnesses of Poole's last days, painful though they were, were the reverse side of the satisfactions of undertaking a new challenge at an age when most men retire or, at the least, slow the pace of their lives. He himself was compensated for the difficulties by the accomplishments of those very times. Members of his family, distressed and somewhat bitter, perhaps were consoled by the unprecedentedly large and distinguished attendance at the funeral services, with honorary pallbearers representing the cream of Chicago's business and scholarly world, including President Henry Wade Rogers of Northwestern University and President William Rainey Harper of the University of Chicago. Poole's classmate at Yale, President Franklin W. Fisk of the Chicago Theological Seminary, assisted the minister of Evanston's First Congregational Church, who preached the funeral sermon based on the text, "Know ye not that there is a prince and a great man fallen this day in Israel?"

Unquestionably one of librarianship's great men, William Frederick Poole played a role of extraordinary accomplishment and influence during his 47 years as a librarian. Though his professional longevity is unmatched among the leading librarians of the 19th century, his career is notable also for the variety of his contributions. In only two libraries, the Athenaeum and the Chicago Public, did he remain as long as 13 years. His last assignment, at the Newberry, covered 7 years. The stays at the Boston Mercantile Library and the Cincinnati Public Library lasted only 4 years. Two of these institutions were social libraries, two were public libraries, and one was a sophisticated research library. Including the Brothers in

Unity at Yale, six different libraries were under his direct administration. In addition, at least nine other libraries officially contracted with him for his services, and an uncounted number had the benefit of his advice rendered in person, by correspondence, and through his published writings. Scores of librarians learned their tasks under his supervision and others benefited by association with him in other circumstances. All in all, Poole made a lasting mark upon libraries and librarians.

The librarians who were his colleagues in the American Library Association spoke especially of Poole's contribution in giving the larger society a view of the librarian as a knowledgeable and important member of the community. One recalled Poole's visit to his library and "the new impression that was made upon me at that time—the revelation, as it were, that the librarian was something more than we had been accustomed to consider him. It was just as though in a country town an architect had been called in to take part in the discussion of plans for a new church, and had given to the people for the first time the idea that the village carpenter was not sufficient for all that ought to be done" (*11*).

Poole's knowledge and his bearing brought him respect and honor not only as a librarian but also as a scholar and as a man of affairs in the world of learned men. His index to periodicals pioneered a new bibliographical tool and made his name a familiar part of the vocabulary of scholars and students. He served as a trustee of Northwestern University from 1891 until his death. High in the councils of the American Historical Association, he served as its president for the customary term. With credentials of this sort from the scholarly world, earned by the merits of his bibliographical and bibliothecal accomplishments and also by the contributions of his own historical writings, Poole gave an example to librarians of his own time and later years of the importance of substantive learning. In a profession that has always been characterized by two wings, one emphasizing the tools and techniques of practice and the other the ideas and theory of scholarship, Poole, in his day, represented the scholarly.

For all his learning, Poole was a hearty man of affairs. Particularly in relation to the public libraries that he served, he was able to deal successfully with politicians and businessmen who were among the library's constituency and, usually, dominant among the board members who officially decided the matters of policy. Much as he valued substantive scholarship as a component part of librarianship, he was also well able to deal with the practical problems of library operation and management. All in all, he was a librarian of balance and accomplishment, who achieved much in his own libraries and who set an example for his colleagues and his successors.

Poole was able to earn his place of high respect not only because of his talents as a librarian but also because of his character as a man. A vigorous, positive, and forthright man, he brought to his work and to his relationships a warmth and humor, a strength and courage, and a knowledge and competence that well merit the reputation that he enjoyed in his own day and that survives to the present. Librarians even to the present day build upon foundations that he laid and may profitably follow his example.

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The fundamental investigation on which this sketch is based is reported in my doctoral dissertation submitted to the University of Chicago in 1959 and published in a shortened revision by Columbia University Press in 1963, both under the title "William Frederick Poole and the Modern Library Movement." Exhaustive documentation appears in the dissertation. A sketch that is briefer and somewhat different is to appear in the forthcoming *Dictionary of American Library Biography.* A study of one of Poole's excursions into historical and bibliographical matters is reported in my "An Early Use of Running Title and Signature Evidence in Analytical Bibliography" [*Lib. Quart.*, **40,** 245–249 (April 1970)].

Although no other comprehensive treatment of Poole's career has appeared, Carl Bismarck Roden published a sketch in the *Dictionary of American Biography* and an article entitled "The Boston Years of Dr. W. F. Poole," included in William Warner Bishop and Andrew Keogh, eds., *Essays Offered to Herbert Putnam* (Yale Univ. Press, New Haven, 1929, pp. 388–394). Two other source works of particular importance are Chicago Literary Club, *In Memoriam William Frederick Poole,* published by the Club in 1894; and Newberry Library, Board of Trustees, *Memorial Sketch of Dr. William Frederick Poole,* published by the Library in 1895.

WILLIAM LANDRAM WILLIAMSON

POPULAR CULTURE AND THE LIBRARY

The first and, therefore, foremost problem confronting the proposed acceptance of popular culture into the institutional framework of contemporary society as a first-class citizen (i.e., the formal teaching of this discipline in the nation's secondary schools and higher institutions of learning in addition to the development of comprehensive and well-balanced collections in libraries and archives) is the necessity of lucidly defining the boundaries of this area. Most people on the streets will profess to have an idea of what popular culture represents, the more articulate ones usually venturing forth an example or two of what falls within the discipline. However, few individuals can state in succinct terms precisely what ground the entire field covers.

Ray Browne, who heads the only existing archive devoted entirely to popular culture materials (at Bowling Green State University in Ohio), posits that popular culture means, roughly, "all the experiences in life shared by people in common, generally, though not necessarily disseminated by the mass media" (*1*). Browne expands upon this definition at a further point in the narrative, hypothesizing that popular culture is:

> . . . all those elements of life which are not narrowly intellectual or creatively elitist. . . . Popular Culture consists of the spoken and printed word, sounds, pictures, objects and artifacts. "Popular culture" thus embraces all levels of our society and culture other than the elite—the "popular," "mass" and "folk" (*2*).

Susan Sontag states that the primary feature of popular culture is that:

> . . . its model product is not the literary work, above all, the novel. A new non-literary culture exists today, of whose very existence, not to mention significance, most literary intellectuals are entirely unaware. This new establishment includes certain painters, sculptors, architects, social planners, film-makers, TV technicians, neurologists, musicians, electronics engineers, dancers, philosophers, and sociologists (*3*).

Marshall Fishwick has written a clever article based upon the personal evolution of one man from his tower at "Ivy U" to a more enlightened view of contemporary culture, entitled "Confessions of an Ex-Elitist." Its lesson should perhaps be taken to heart by greater numbers of the intelligentsia. Fishwick gives his conceptualization of the discipline a strong sociopolitical slant:

> Contemporary democracy and mass culture are two sides of the same coin, H. Stuart Hughes [see Ref. *4*] observes. The real meaning of popular culture lies not in some definable area or method, but in an attempt to find new apparatus to study and understand the world we inhabit and relish (*5*).

He goes on to state: "More and more scholars have come to recognize popular culture as a barometer, mirror, and monument of the world around them" (*6*). Fish-

wick cited Black culture courses as a clear-cut example of the ultilization of popular culture studies to better understand the nature of society:

> Recently, however, a quite different kind of course has developed which is more humanistic in its approach and tries to define the uniquely positive values of Black culture by studying the creative ways in which Black people have responded to their cultural predicament (7).

The majority of studies—in both periodicals and books—dealing with the topic of popular culture, particularly those published previous to the mid-1960s, are for the most part characterized by: (*a*) a preoccupation with the construction of aesthetic contrasts between "elite" and popular art; (*b*) a preoccupation with a moralizing stance in respect to the questionable educational value of popular culture due to its almost universal acknowledgment of the lowest common denominator; (*c*) a general lack of sensitivity to the sociological significance of popular culture; and (*d*) inaccuracy and/or a lack of careful attention to the employment of terms such as "elite art," "mass culture," "folk culture," and "popular art."

Typical of the treatment popular culture has received at the hands of well-respected scholars is that given by Leo Lowenthal in his book *Literature, Popular Culture, and Society*. He suggests that the differences between popular culture and art are those differences:

> . . . between spurious gratification and a genuine experience as a spur to greater individual fulfillment. . . . Art lives on the threshold of action. Men free themselves truly from the mythical relation to things by stepping back, so to speak, from that which they once worshipped and they now discover as the Beautiful. To experience beauty is to be liberated from the overpowering domination of nature over men. In popular culture, men free themselves from mythical powers by discarding everything, even reverence for the Beautiful. They deny anything that transcends the given reality. . . . From the realm of beauty man walks into the realm of entertainment, which is, in turn, integrated with the necessities of society and denies the right to individual fulfillment. Men no longer surrender to illusions (8).

Perhaps the depiction of this discipline in graphic form as a series of all-embracing concentric circles might best summarize the essence of popular culture. See Figure 1: (A) Outer circle: Popular culture, in its most general form, traces its roots back to the evolution of an industrial society in which people were first bound together in "mass" numbers. (B) Second outermost circle: "Folk" culture—that is, the enculturated elements of an essentially nonliterate society (in which the transmission of ideas is based upon oral communication) which have achieved a widespread level of acceptance. (C) Second innermost circle: Popular culture as disseminated via the mass media—"mass culture" would represent a more precise descriptor for this category. The "nonliterary" qualities of this culture render it a kind of "folk" culture of modern industrialized society. Unique art forms often evolve out of the particular potentialities inherent in these media—for example, electronic rock music and visual "light shows." It is important to realize that not all information and art transmitted by means of the mass media falls within the area of popular

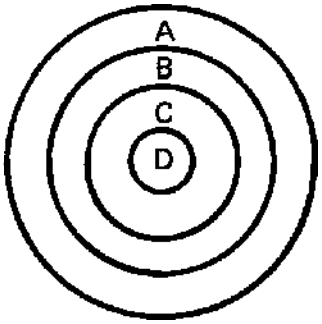

FIGURE 1. *The realm of popular culture.*

culture. Examples of this would be a "serious" or "classical" music work presented in its original form on an open-reel tape and a Berlitz Spanish-speaking lesson on a phonorecord. Likewise, if Beethoven's *Fifth Symphony* sells a million records it remains a piece of elitist art/culture. (D) Inner circle: Popular art—a sphere constituting the core of popular culture. Many of the more peripheral/less tangible elements of popular culture relate in some way to this core—for example, the hero worship of popular music personalities, spectacles and rituals such as rock concerts, and fads like the twist dance craze.

In reflecting upon the all-pervasiveness of popular culture, it might be well to keep in mind the words of Abraham Kaplan: "Popular art is usually said to stem from about the beginning of the eighteenth century, but in its essence it is not, I think, a particularity of our time and place. It is as universal as art itself" (9).

E. K. Dortmund has compiled a random list of subjects which fall under the heading of popular culture. They serve admirably as a means of communicating the extremely wide scope and variety characteristic of this area.

1. Organized crime
2. The cult of efficiency
3. The 19th-century newspaper
4. Popular magazines (the Horatio Alger stories right up through *Time, Playboy,* and *Mad)*
5. The university and Black athletes
6. The automobile
7. Women's rights
8. Drinking habits
9. Sports
10. Patent medicine
11. Popular fiction
12. Movies
13. Sex
14. Popular music
15. Gambling
16. Lyceum circuit and vaudeville
17. Urban violence
18. Popular entertainers
19. Unpopular entertainers

20. Radio and television: fads and cliches (e.g., soap operas, quiz programs, and the disc jockey)
21. The evangelist tradition
22. Popular drama
23. The circus, minstrel shows, etc.
24. A hatful of fads (e.g., beaver hats, goldfish swallowing) (*10*)
25. Travel
26. Sport oddities
27. Eating habits
28. Nativist, Populist, and Klan views of Jews, Asians, and Catholics
29. The melting pot (its vocabulary, its mythology, and its reality)
30. Popular views of the West in 19th- and 20th-century fiction and films
31. Popular architecture
32. The cult of business
33. Hobos and bums
34. Political hoopla
35. Cartoons
36. Public education
37. The white romance with jazz
38. College life
39. The myth of Western marshals and gunmen
40. "Funny" Negroes
41. Working conditions
42. Political corruption
43. Vigilantes, terror, and revolution
44. Clubs and organizations
45. The changing notions of Manifest Destiny
46. Popular pictures of ordinary life (e.g., the Old Fishin' Hole, the boy next door, Norman Rockwell illustrations)
47. Curious holidays and festivities (*11*)

In addition to noting random lists such as the above collection of subject headings, it is my view that a comprehensive analysis of one or more popular culture phenomena in a context separate from the parent discipline represents perhaps the best means of arriving at a lucid picture of popular culture. A useful exercise facilitating an increased awareness of the parameters of popular culture would be for individual students to develop their own list of areas which might be classified as popular culture.

The Social Function of Public Libraries

Libraries have long taken an elitist stance with respect to collection building and services rendered, precisely because they remain closely attuned to the nuances of past attitudes toward libraries held on behalf of Western society. The elitist-minded establishment, in Europe as well as in the United States, has, until recently, been the predominant supplier of funds and influencer of policy as far as libraries were concerned. This is no longer the case. Larger amounts of political, cultural, and economic clout now reside in the hands of heretofore disfranchised minorities. Bart Landheer's message in the opening of Chapter 7 in his book *Social Functions*

of Libraries ought to form the basis of any philosophy of public service undertaken by libraries: If the library remains a passive institution while other agencies such as those merchandising food, clothing, and hard goods are active, it will tend to lose importance as a vital organ of society (*12*). Harking back to a long tradition of vigorous service to the American public and the carrying out of a piecemeal assortment of hand-to-mouth programs aimed at "safely" converted sectors of the library-user population, such as the elderly and educated middle class, will be of little use in rendering the public library a truly dynamic element in contemporary society, let alone in laying a solid foundation for service in the future. (I am using "public" in a generic sense to mean any book-lending agency serving a clientele with "varied" interests and needs. Most college and university as well as many special libraries fit this description.)

Much has been said in the past few years within the field of librarianship about the need for a redefining of objectives. At the root of this dilemma seems to be the age-old question of whether to concentrate on materials and activities of a "light," recreational nature or those of a "serious" educational bent (while recognizing the role respective libraries are best fitted to play within their institutional scheme of public services). This problem is embedded within the matrix of a modern-day society which is constantly changing both in its degree of technological complexity and in its corpus of values, mores, and behavioral patterns. However, libraries haven't contributed much to ease the situation. Most of the proposed "solutions" have been little more than flowery and vague—impractical in their approaches to implementing needed changes, citing, among other things, the long-standing success of libraries (particularly free, public-supported institutions—taken here to mean "public libraries" in its narrowest sense) in living up to the ideals of democracy in America and the desire to reach and serve each and every citizen in each and every nook and cranny of the nation.

Relevance of Popular Culture to Public Libraries

The increasing need to develop popular culture collections can be as easily justified from an educational viewpoint as from a recreational approach. E. K. Dortmund, who is a professor of history at Oregon State College of Education, takes an uncompromising stance with regard to this question:

> . . . such information as we do have argues this: a case can be made for the serious study of popular culture in the United States. Moreover, examination of this information indicates that the case rests upon the following condition: the element most often missing in the typical, over-crowded classroom is a sense of the energy, turmoil, and vitality which the American people have displayed in their daily, non-working lives (*13*).

Despite their autonomous position with respect to the classroom, as well as the objective of serving all elements of society, the raison d'etre of American public libraries has been closely linked with formal education since its conceptualization

in the mid-19th century. Whether viewed as an open-university for all or a dynamic change agent interacting with society in a multitude of environmental settings, the public library stands to learn much from an observation of the growing pains being undergone by instructors in primary and secondary schools and institutions of higher learning. Perhaps because they have always been number two in the education business due to the inability to formulate their own clear-cut philosophy of continuing education, the lack of truant officers to coerce patronage, and the virtual absence of official certification and/or degree-granting powers, public libraries have always been faced with the proposition of having to "try harder" with regard to the educative function.

Public libraries also need to pay close attention to the preservative function in the popular culture area. Research and information retrieval are two very important activities which rely upon relatively comprehensive and well-balanced collections. Because of the incredible mass of materials available in this particular field and the problems inherent in assessing the ultimate value of an item before it becomes lost to libraries (and society) forever, extreme care and objectivity are preconditions in the development of a truly representative collection.

History receives the major emphasis in Dortmund's scheme of bringing popular culture into the classroom. However, he feels that a course in this area "must be interdisciplinary," consisting of teachers in literature, art, sociology, and library resources as well as history (*14*). A rapid scanning of his listing of subject headings reveals that political science, government, economics, business, folklore, psychology, women's studies, American studies, anthropology, cultural geography, urban studies, religion, sex education, journalism, criminal science, physical education, nutrition, and various ethnic and regional studies would all profit from the perspectives which could be derived from the integration of popular culture materials into their overall framework—whether in a forum witnessing the dynamic exchange of ideas or in the more intimate and introspective setting characteristic of reading a book or listening to a phonorecord. The fascinating implication for libraries is the approach to be taken in organizing their collections so as to obtain the most efficient method possible for disseminating and interpreting popular culture materials to the public.

Jack Clarke, in the May 1973 issue of *College and Research Libraries*, provides some guidelines for the selection and preservation of popular culture items thus far lacking in the area of public libraries. He calls for interinstitutional cooperation between libraries in selecting and classifying the primary sources of popular culture so as to make them available to students working in this field on American university campuses (*15*). Clarke's article stresses the value of popular culture collections for "the scholarly interpretation of what a society reads and writes so that we can better understand the taste of the mass of the people and what influences it" (*16*). Related to this idea is his observation that unless the physical deterioration of these materials isn't counteracted, many of them will be of minimal value for serious researchers (*17*). Clarke doesn't take into account the potential value of popular culture items as ultimately disposable objects generating widely based community interest for a relatively short period following their initial appearance in the social mainstream—a situation comparable to the phenomenon of the best-selling book.

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FRANK HOFFMANN

PORTLAND PUBLIC LIBRARY (OREGON)

The Library Association of Portland (Oregon), founded as a private subscription library in 1864, provides free public library service for Portland and Multnomah County. The association has operated the Multnomah County Library, as it is known locally, since first signing a contract with the county in 1903.

The Multnomah County Library is a system composed of the Central Library in downtown Portland, 16 branch libraries, and mobile services including four bookmobiles. Extension agencies provide service to hospitals, nursing and retirement homes, community centers, and county institutions. Home delivery service is provided for shut-ins as well.

The following persons have served as librarian for the Library Association of Portland: Harvey W. Scott (1864–1865), W. B. Cardwell (1865), Curtis C. Strong (1865–1866), J. H. Stinson (1866), J. A. Waymire (1866–1867), Lyle W. Gilliland (1867–1870), James S. Read (1870–1871), Henry A. Oxer (1871–1893), D. F. W. Bursch (1893–1897), Davis P. Leach (1897–1902), Mary Frances Isom (1902–1920), Anne M. Mulheron (1920–1937), Nell Avery Unger (1937–1953), Bernard Van Horne (1953–1959), Mary E. Phillips (1959–1960, acting librarian), William B. Wood (1961–1964), Mary E. Phillips (1964–1972), and James H. Burghardt (1972–).

Portland's Subscription Library (1864–1900)

Portland in 1864 was a frontier town of 5,000 inhabitants. Incorporated in 1851, it had become a busy commercial center in the 20 years since the first house was constructed in 1844. Many of its citizens were determined to bring to their new home the same cultural advantages to be found in their native New England states. Among them was Leland H. Wakefield, a pioneer merchant from Vermont.

In late 1863 Wakefield began a house-to-house canvass to raise funds for a reading room and library. By January of the following year, $2,500 had been pledged to support the new venture. A meeting was held in the U.S. district courtroom of Judge Matthew P. Deady. Elected temporary president of the newly formed organization, Deady became one of the library's strongest supporters until his death 30 years later.

The adoption of a constitution and bylaws by the subscribers on February 15 was followed by the election of officers for a permanent Board of Directors. William S. Ladd, president of the Ladd and Tilton Bank and the first to subscribe to the library movement, was elected president of the board. He was followed in the early years by Wakefield, Deady, C. H. Lewis, Henry Failing, and Cyrus A. Dolph.

Ladd presented the association with a 3-year lease to quarters in the new Ladd and Tilton Bank on the corner of First and Stark Streets in 1869. When the first lease expired, Ladd renewed it with the understanding that the association should raise $6,000 to benefit the library. Judge Deady responded by personally soliciting donations exceeding $9,000. The library was to occupy these quarters rent-free for 24 years.

In 1883 the library received its first bequest, in the amount of $5,000, from the will of Stephen G. Skidmore, a philanthropist for whom the Skidmore Fountain in Portland is named. His gift and those of others were used in 1885 to purchase a half block on Stark Street between Broadway and Park.

The library was named as beneficiary in 1889 under the will of Miss Ella M. Smith, who bequeathed a residuary estate valued at $127,500. Original plans for a separate library facility were enlarged, and a new library building on Stark Street was constructed and dedicated in 1893. This facility also housed the Portland Art Association during the first 12 years of the library's 20-year occupancy.

D. F. W. Bursch, the ninth librarian to be appointed and the first trained in librarianship, installed new and improved methods during his tenure, including the Dewey Decimal system of classification.

Transition to a Public Library Role (1900–1950)

The year 1900 marked a turning point for the Library Association of Portland in the transition from a private subscription library to a public library serving the citizens of Portland. In a general sense, the concept of free public library service had taken hold across the country. On a more practical level, subscription memberships were becoming increasingly inadequate to meet operating costs. In comparison to the city's total population, the number of memberships in the association was small. By 1898, for example, when Portland's population exceeded 90,000, only an estimated 600 people held full memberships in the association at a cost of $5.00 annually. Students, admitted to membership that year upon payment of $1.00 per year, joined in numbers that created additional strain on the library's resources.

A major development occurred upon the death in 1900 of John Wilson, a pioneer merchant and business partner of Wakefield in their general merchandise and dry-goods store. His will stipulated that his personal library of over 8,000 volumes be left to the association as a "Free Reference Library" for use by the citizens of Portland. He also left the sum of $2,500 to go toward maintenance of this collection.

Acceptance of the Wilson gift meant opening at least part of the library to the public and securing additional funding to maintain the collection. While the Board of Directors wrestled with this problem, there were two other developments to be considered as well. One was the "Portland Public Library" housed in City Hall. The other was important statewide legislation.

Founded by prominent citizens in 1891, the Portland Public Library had a collection numbering less than 3,000 volumes in 1901, as compared to 38,000 held by the association. Nevertheless, this other public library, with a circulation half as large as the association's, had the potential of displacing the association as the eventual city library.

When the Oregon State Legislature passed "an act to authorize the establishment and maintenance of public libraries" in 1901, Dr. T. L. Eliot, W. M. Ladd, and W. B. Ayer of the association's Board of Directors succeeded in having the following provision inserted:

> If there exist in any incorporated city a secular or non-sectarian library owned and controlled by a society or corporation, the council of such incorporated city may, when deemed best for the interest of the city, levy the tax hereinbefore provided for, and, in lieu of supporting and maintaining a public library, enter into a contract with such society or corporation for the purpose of providing the inhabitants of such city with the free use of the library upon such terms and conditions as may be agreed upon between the council and the society or corporation.

Eliot, Ladd, and Ayer convinced other members of the association's board to make the change from a subscription to a free public library, to meet the conditions of the Wilson bequest and to provide adequate financial support. A contract was drawn up between the city and the association effective August 14, 1901. A few months later the Portland Public Library transferred its assets to the association and was dissolved. On March 10, 1902, the library opened to the public for the first time as a free public library.

The Wilson collection was to exert, in an indirect way, a still greater influence. Mary Frances Isom, who served as librarian from 1902 to 1920, came to Portland in 1901 to catalog the Wilson collection. She and board member W. B. Ayer were to play key roles in the development of a countywide library system.

Circulation in the first year of operation as the city library almost tripled over the preceding year. It became apparent soon that the city's tax support would not be sufficient to provide for an expansion of services, so support from the county was necessary. Mr. Ayer persuaded the legislature in 1903 to enact the first county library law, which provided for a tax of one-fifth of a mill, and the association signed its first contract with Multnomah County.

Miss Isom and Mr. Ayer spearheaded efforts to carry library service to outlying areas of the county. Eleven deposit stations were established in Grange halls, fire stations, and general stores in such communities as Bridal Veil, Linnton, and Hillsdale.

By 1906, when a County Department was formed, extension activities were well underway. The first three branch libraries, Albina, East Portland, and Sellwood, were opened in 1907. Five reading rooms, replacing existing deposit stations, were also opened.

In 1911 the association's contract with the county was amended, increasing the level of support to one-half mill, and the county assumed full support for the library from the city. The county also levied a special 2-year tax at this time for construction of a new Central Library facility. Branch library development received a boost in 1911 and 1912 when Andrew Carnegie donated funds totaling $165,000 for the construction of seven new facilities.

The building on Southwest Tenth Avenue, which still houses the Central Library today, was dedicated in September 1913. Designed by Portland architect Albert E. Doyle and constructed at a cost of $480,000, it was considered at that time an outstanding example of a handsome and functional building and today remains warmly inviting.

World War I brought significant changes in the library's patterns of service, with book drives and special collections for army posts, troop trains, and hospitals the order of the day. Miss Isom took a 6-month leave of absence at the request of the War Library Service of the American Library Association to take charge of its hospital work in France. She died only 1 year after returning from this assignment and was succeeded by Miss Anne M. Mulheron.

During the 1920s, when no money was available to the association for building new facilities, neighborhood movements led to construction of new branches

in four Portland communities. Plans were drawn up by the library's architects for sites approved by the Board of Directors, and the association either leased or assumed the mortgages on the new buildings.

Bookmobile service in the West had its beginnings in 1920 when the association established a summer "book wagon" over two rural routes in eastern and western Multnomah County. Carrying capacity for this vehicle was only 150 books. By 1924 the service had proven so popular that the Library Association had its first Rural Service Truck, with an 800-volume capacity, custom-built for service 9 months out of the year. Service to hospitals was also begun at this time.

Other developments during the 1920s included the adult education movement then sweeping the country. A bequest from Mrs. Elizabeth H. Harmon established a fund for the purpose of securing free lectures and courses by well-known speakers.

During the Depression years of the 1930s, the expansion of library service in Multnomah County was limited, as elsewhere across the country. Public works programs did allow renovation of the Central Library and several branches in 1934, as well as construction of one new branch. A new music room was opened at the Central Library in 1935.

In 1941 the association's contract with Multnomah County was amended to remove the mill limitation for tax support. Library services were oriented to war activities during the Second World War, with special efforts in the areas of book drives, a war information desk, and service to the merchant marine. Branches were established at the Portland Air Base and Vanport City, a war housing project. The latter facility was destroyed by the Vanport Flood of 1948.

The postwar period of the late 1940s was notable for the introduction of special collections of nonbook materials at the Central Library. These included a collection of circulating phonograph records for the Music Department, a gift from Mrs. Edith Neilson Hoyt, and a collection of 16-mm films from funds provided by Walter M. and Louise Hoyt Cook. In 1950 the Henry Failing Art Library was opened. This room, the present location of the Art and Music Department, was named in honor of the former pioneer merchant, banker, and mayor who served on the association's Board of Directors during 1864–1867 and 1872–1898. Funds for a special collection of books in his memory were given to the library by his daughter, Mary Forbush Failing, who also served on the board from 1900 to 1918.

1950 to the Present

The 1950s were marked by reorganization and expansion programs which launched the library into the modern era. Bernard Van Horne, who followed Miss Nell Unger as librarian in 1953, first succeeded in having the county tax base increased by the County Commissioners. During his tenure, he laid the groundwork for extensive renovation of facilities, construction of new agencies, and expansion of services continued by his successors.

The Central Library was reorganized in 1956. Functional divisions were re-

placed by subject departments such as Art, Literature and History, Music, and Social Science and Science. The Popular Library Department, housing current issues of popular periodicals, duplicate copies of popular nonfiction titles arranged in reader interest categories, and the fiction collection, was established at this time. An Education and Psychology Department was opened in 1959.

The Central Library underwent extensive remodeling in 1970 to accommodate an enlarged card catalog, a more efficient location for the Stack Call Desk, and a new Telephone Information Desk.

A new, expanded Telephone Information Service was established when Central Library departments were reorganized in 1974. The Education and Psychology Department was replaced by the Education and Documents Room at this time.

New extension agencies were constructed in the fifties and sixties as the branch development program got underway. In 1954 the old Albina Branch building on N.E. Knott Street was converted into an Extension Center as headquarters for branch and bookmobile services. Support services were transferred from the Central Library to the new center, which helped alleviate the problem of lack of space at Central. In 1955 two bookmobiles for service to suburban Portland were added to supplement service to schools and rural areas.

The years 1957 through 1960 saw the construction of four strategically located branches to replace smaller, inadequate subbranches. A survey of extension services conducted in 1962 led to the construction of five additional branches during the period from 1963 through 1972.

A Library Service Center was built in 1966 adjacent to the Extension Center to house additional support services and service to institutions and the homebound.

A number of new services were added in the 1960s and 1970s during the administrations of William B. Wood, Mary E. Phillips, and the present librarian, James H. Burghardt. Collections of Adult Basic Education materials were established at the Central Library and branches in 1966. Work with community groups and social agencies led to collections for the underprivileged at community drop-in centers the same year. A collection of large-print titles for the visually handicapped was also begun at this time. Paperback book collections were added in 1968, and 8-mm films in 1970.

In 1973 the Central Library became a regional depository for materials disseminated by the Foundation Center in New York.

Innovations in services in 1974 included the introduction of McNaughton book lease plans at the Central Library and branches. Patrons at the Central Library and branches were offered voter registration and crime prevention services at this time. In the latter case, the library cooperates with the Crime Prevention Bureau of Portland to circulate electric engravers for identifying personal property. A Van Service project to provide reading materials to senior citizens in inner-city areas was also begun in 1974, with the aid of federal funding.

Additional information is contained in annual reports issued by the Library Association of Portland, including a historical sketch in the report for 1938. A basic history, written to commemorate the library's centennial year, is the *His-*

torical Sketch of the Library Association of Portland, 1864–1964, by Katherine E. Anderson (Library Association of Portland, 1964). Brief entries on the library and individuals prominent in its history may be found in the *Dictionary of Oregon History*, edited by Howard McKinley Corning (Binfords and Mort, Portland, 1956).

RONALD V. CARVER

POSTAL RATES: DOMESTIC AND FOREIGN

From the earliest days of the Republic until 1970 the Postal Service of the United States was conducted by the Post Office Department, and the head of the department, the postmaster general, was a member of the president's cabinet. In 1970 the United States entered an entirely new era with respect to its postal service. With the passage of the Postal Reorganization Act of 1970, the former Post Office Department was transformed into an independent government organization—the United States Postal Service. The setting of wage and salary rates for postal employees, which had been a matter of congressional legislation, became a collective bargaining function between the Postal Service and postal employee unions. The establishment of postal rates for the various classes and subclasses of mail was also relinquished by the Congress and turned over to a Postal Rate Commission appointed by the president.

Past Preferential Rates on Publications

Although there were other policy issues presented by the reorganization bill, the most important such issue faced by the Congress involved the role of postal service in the dissemination of published materials and other educational materials. For over a century it had been the national policy to provide especially favorable rates to newspapers and magazines (second-class matter) on the theory that the encouragement of these publications was in the national interest. These publications provided the information and opinions necessary to the citizen in carrying out his responsibilities in a democracy, and were also a principal vehicle for the nationwide dissemination of scientific, technical, educational, and cultural materials. The rate structure for the second-class mail category reflected this philosophy: rates on the editorial content of newspapers and magazines were set particularly low and were uniform for the entire country at a flat rate per pound, while rates for advertising material were not only higher but were graduated upward with distance.

Until 1938 books were not included in this deliberate policy of providing favorable rates to published materials, although books served purposes substantially similar to those of newspapers and magazines and were also heavily dependent

on the postal service for distribution, not only to individual consumers but to bookstores, schools, colleges, and libraries. In 1938 President Roosevelt, under temporary emergency powers granted him during the Depression, established a new and separate nationwide book rate at the same flat rate of 1½ cents per pound which was then applicable to the editorial content of second-class newspapers and magazines. Beginning in 1942, this nationwide book rate was continued by acts of Congress, but at higher levels than the rates for second-class newspapers and with a higher rate for the first pound than for succeeding pounds. In the late 1950s, this book rate was expanded to include various other educational and cultural materials such as printed music, educational tests, audiovisual materials, and recordings. It came to be known as the "educational rate" or the "special fourth-class rate."

These preferential rates for newspapers and magazines and for books undoubtedly required some subsidy of public funds, and this subsidy was clearly recognized and considered as justified by many presidents and many Congresses. The extent of this subsidy was, however, a matter on which opinions differed. If one considered that the Post Office Department existed primarily to transport letters (first-class mail) it could be, and was, argued that the general overhead of the Post Office (representing about half of the total cost) should be carried entirely by first-class rates and that auxiliary services, such as the distribution of newspapers, magazines, and books, should be charged only with the additional cost directly attributable to these auxiliary services. On this basis newspapers and magazines were provided with a relatively modest subsidy, and books none at all. On the other hand, if the general overhead of the Post Office was charged pro rata to auxiliary services such as the distribution of newspapers, magazines, and books, the subsidies for newspapers and magazines were large and for books substantial.

The Congress had before it in 1970 a variety of proposals for dealing with the policy question of how postal rates for published materials should be set. One proposal, for example, was that for certain of these rates recognized to have public interest components, including those on educational matter, the Congress itself should continue to legislate the level of rates and appropriate subsidies if such rates were set at levels below cost. This view did not prevail and as the act was finally passed, this policy question of setting rates for published materials was left for the most part to the five-man Postal Rate Commission appointed by the president but not subject to Senate confirmation. Only a limited number of policy questions were settled in the legislation itself rather than being left to the discretion of the Rate Commission. For example, certain rates for nonprofit organizations, including the rates on their publications, were not required to share any overhead costs and were to be increased over a ten-year period rather than the normal five; and rates for first-class matter and rates on educational and library materials could not be zoned by distance. The general rates for newspapers and magazines (regular second class) and for books and other educational and cultural materials (special fourth class) were included in the general category of rates to be set by the Postal Rate Commission at a level which at least covered directly

attributable cost plus such part of the overhead cost as the commission decided was appropriate. Certain standards were provided in the statute to guide the commission in the all-important question as to how much of the overhead should be assigned to the various classes and subclasses of mail. These standards, however, were of such a general nature that they did not inhibit the commission very much in making these policy decisions.

It should be noted that in considering the Postal Reorganization Act in 1969 and 1970, the Congress did not have before it any detailed estimates of future costs, or any guide to the magnitude of rate increases which would result from making the Postal Service essentially a self-supporting operation over a 10-year period. It seems fair to say that the Congress did not anticipate rate increases of the magnitude which developed out of the first proceeding before the Rate Commission. In introducing a bill on March 28, 1973, to moderate the rate increases scheduled for published materials, Senator Humphrey of Minnesota, a former member of the Post Office Committee, reflected the view of many senators when he said in looking back to 1970:

> Many members of the Senate were concerned in 1970 about what would happen to the distribution of informational, educational, and cultural materials through the mails under the Postal Reorganization Act. However, there was no indication 3 years ago that the rate increases under the new system would be of such incredible magnitudes. For example, in the Senate Committee report on the reorganization bill the following passage occurs as an illustration of rate increases which the committee thought might be expected under the new legislation.
>
> "Notwithstanding its rejection of a proposal to impose its views on the new Postal Service by law, the committee agreed that this report should specifically express committee concern over the rates to be established for certain classes of mail. Accordingly the committee alerts the Rate Commission established by this bill to the public service which certain preferred rates have historically performed.
>
> "Reduced rates for within-county newspapers, for libraries, for books, and for associations of rural electrification co-ops were enacted for very good reason—that the public generally benefits from such rates. Additionally, the Rate Commission should take into account the preferential rates for the mailings of authorized non-profit organizations . . . and the rates of classroom publications. . . .
>
> "The Committee does not believe that small incremental increases in rates spread out over 5 and 10 year periods will be detrimental to mail matter allowed preferential rates because they contribute to the public welfare. But the Rate Commission should be aware of this special problem as it assembles its schedules of rates and fees."
>
> Despite this assurance, there was enough uneasiness in the Senate on the potential impact of the legislation on the distribution of these materials that the Senate by unanimous vote agreed to a floor amendment by the majority and minority leaders, MR. MANSFIELD and MR. SCOTT. This amendment, now in the law, requires that the rates on books, educational films, and other materials in the so-called special fourth-class rate and the library rate be uniform for the entire country. As the sponsors of the amendment stated, the amendment at last guaranteed equal access by the American public to these materials regardless of how far they might live from publishing centers, largely in the East.

> We now have had enough experience with postal operations under the reorganization act to realize that the Congress must face once more, in the light of present facts, its responsibilities relating to the impact of increased postal rates on the educational, scientific, cultural, and political life of this country.

Not only did the Congress and its post office committees in 1970 not have before them any realistic projections of future rates from the Post Office Department, but several of the important groups and firms concerned with published materials did not fill this gap with their own projections of cost and rates. Certain associations of magazine publishers actually supported the Postal Reorganization Act on the grounds that service would greatly improve and increases in efficiency would hold down costs and rates. (The library and book associations on the other hand did raise warning signals about the effect of the bill on the distribution of published materials.) In the Senate, the bill which emerged out of the Post Office Committee was not even subject to the normal process of open public hearings and debate on a bill or bills, but was developed entirely in camera and subject to discussion for the first time on the Senate floor.

The First Commission Rate Increases: 1972

Some 6 months after the passage of the Postal Reorganization Act in the summer of 1970, a very elaborate proceeding to establish new rate schedules was commenced before the newly created Postal Rate Commission. This proceeding began in February 1971, and was concluded in June 1972. The Postal Service proposed a schedule of rates, and by and large this schedule, with relatively minor variations, was approved by the Postal Rate Commission and subsequently ratified by the Board of Governors of the Postal Service to take effect on July 6, 1972. The rates established for regular second-class mail (newspapers and magazines) provided for a 126% increase evenly spaced in annual increments over 5 years, and a 70% increase was scheduled for special fourth-class mail (books and other educational materials) over the same period. Regular second class was assigned a share of general postal service overhead in a sum amounting to 29% of the actual cost attributable to that class of mail. Books were assigned an overhead of roughly twice as much proportionately, or 57% of the attributable cost. The so-called library rate (interlibrary loan rate) was increased by 129%, stretched out over a 10-year phasing period, and in accordance with the Postal Reorganization Act, not burdened with any institutional or overhead costs of the postal service.

Congress Intervenes to Stretch Out the Transition Provisions: 1974

With a second round of rate increases in prospect because of a request for higher rates filed by the Postal Service on September 25, 1973, the Congress intervened to moderate these increases by extending the transition period to higher

rates, with the difference between cost and revenue being provided by federal appropriations.

On July 1, 1974, the president signed a bill, S.411 (Public Law 93–328), which extended the stretch-out, or phasing, period of years for increases in rates for certain classes and subclasses of mail which had been established in the original Postal Reorganization Act of 1970. The enactment of Public Law 93–328 came in time to eliminate or reduce increases in postal rates which were to take effect on July 6, 1974. The classes and subclasses of mail affected by these extensions of the phasing schedule and the periods of time involved were: special fourth-class mail (books, etc.), regular second-class mail (periodicals), and controlled circulation (periodicals with no subscription charge)—from the original period of 5 years, to 8 years; and the library materials rate, nonprofit second-class, and nonprofit third-class mail—from 10 years, to 16 years.

The realization of the reduced rates resulting from the signing of this act depended, however, on congressional appropriation of funds to make up the difference between revenues from postal rates and postal costs. The Office of Management and Budget (OMB) did not include additional phasing appropriations, made necessary by the enactment of S.411, in the last 1974 supplemental appropriation bill submitted to Congress. However, OMB agreed to incorporate these appropriations in the first supplemental appropriation request in 1975; and the Postal Service agreed not to increase the rates for classes and subclasses of mail affected by Public Law 93–328, until Congress had had an opportunity to act upon the request. The appropriation was made in 1975.

The total cost in additional federal appropriations—which also represents an equivalent reduction in postal charges, and of the various extensions of the phasing periods in the bill—was estimated by the Postal Service to be $753.7 million. However, this figure consisted of two components: (*a*) a reduction in postal charges on the basis of the rates established in the first postal rate case, and (*b*) the reduction in the higher rates proposed by the Postal Service in the still undecided second postal rate case. The dollar amounts of the two components were $417.8 million and $335.9 million, respectively.

The estimated reduction in postage charges resulting from this legislation was distributed as follows: special fourth-class mail, $76.7 million over the 5 years affected; regular second class, $310.5 million over 5 years; controlled circulation, $21.8 million over 5 years. For the so-called preferred or nonprofit classes, reductions in postage over the 13 years affected would be $221.4 million for nonprofit second class and $111 million for nonprofit third class. For the library rate the total saving was originally estimated at $18 million, but $6.8 million of this amount was based on the increase in the library rate requested by the Postal Service in the second rate case. In August 1974, however, the Postal Service withdrew this proposed increase in the library rate, and the estimated net saving in the library rate over the 13-year period was therefore reduced to $11.2 million.

Another provision of Public Law 93–328 removed appropriations for the Postal Service from the jurisdiction of the Office of Management and Budget, which had

effectively eliminated the phasing of third-class rates provided in the 1970 statute by refusing to include the phasing appropriations in the president's budgets. The Congress was concerned that the OMB might by similar action prevent the gradual adjustment to higher rates provided in the basic law of 1970 and the 1974 amendment by refusal to request phasing appropriations.

The Second Commission Rate Increases: 1975

These increases were the result of a Postal Service request for new and higher rates filed with the Postal Rate Commission on September 25, 1973. At the same time, the Postal Service announced its intention of placing the first year's schedule of these higher rates into effect on January 9, 1974, as temporary rates, pending a decision by the Postal Rate Commission, and these temporary rates were put into effect on that date. The increased rates requested for special fourth class amounted to 16.7%. For the library rate, the Postal Service proposed no increase. The Association of American Publishers (AAP) took the position that no increase in the then existing schedule of rates was justified because the Postal Service had in various ways overstated the cost of the service for special fourth-class mail. The Postal Rate Commission in its recommended decision explicitly refused to accept the AAP argument on some points, and in other cases did not concur in the AAP position, without elaborating its reasoning. The Board of Governors of the Postal Service accepted the recommendation of the Postal Rate Commission, and the new rates came into effect on September 14, 1975.

The Third Commission Rate Increases: 1976

The third increase in postal rates under the reorganization act of 1970 became effective on July 7, 1976. These increases resulted from a Postal Service request for increased rates filed with the Postal Rate Commission on September 18, 1975. As in the two earlier rate cases the Postal Rate Commission granted most of the increased revenue and higher rates requested by the Postal Service. The Postal Service had asked for rates which would produce revenue of $14,170,770,000; the Rate Commission approved rates which would produce revenue of $13,097,000,000.

Postal Classification: 1973–1976

The Postal Reorganization Act of 1970 contained a provision for modifying postal classifications—the structure of mail classes and subclasses on which postal rates are set. This proceeding got under way before the Postal Rate Commission in January 1973. The proposals of the Postal Service were of a relatively minor nature rather than a complete overhauling of the classification system. Some six re-

classification proposals were put forth by the Postal Service, including two involving discounts on mail presorted to certain specifications, one for first-class mail and one for special fourth-class mail. The proposal for special fourth-class mail was to provide a discount of 15% for packages in a minimum volume presorted by the mailer to the fifth digit of the zip code and a 10% discount for packages presorted to the third digit.

Because priority was given by the Postal Rate Commission to the second postal rate case, the postal classification case was not actively pursued during 1973, 1974, and 1975. In the spring of 1975, however, the Postal Service and the interested parties proposed an agreed settlement on the six proposals of the Postal Service, but this settlement was not finalized and submitted to the commission until a year later. Under terms of the proposed settlement, the discount from regular rates for presorted special fourth-class mail was reduced and changed from a percentage basis to a flat number of cents per presorted package, namely, 4 cents for packages presorted in a certain volume to the fifth digit of the zip code and 3 cents for packages presorted in a certain volume to the third digit of the zip code. These discounts for special fourth-class mail were approved by the Postal Rate Commission and came into effect on June 2, 1976.

United States International Postal Rates: 1958–1976

The United States Postal Service, like its predecessor the Post Office Department, has wide discretion in setting United States Postal charges for shipments of mail to other countries. Within rather broad ranges of charges set every 5 years in revisions of the Universal Postal Convention, the department, and since 1971, the new Postal Service have been authorized to establish United States international rates with the approval of the president.

In large part due to the active intervention of UNESCO, progress has been made in the period since World War II in facilitating the international transmission of books, magazines, newspapers, and music through the mails. At the urging of UNESCO, the Universal Postal Union (UPU) in the early 1950s provided in the Universal Postal Convention (which is revised every 5 years) that national postal administrations might grant reductions in the international rates they charged for published materials, including music, up to 50% of their general rates for printed matter. (The Universal Postal Convention provides that national postal administrations must keep their international rates for the various specified classes of mail within a designated broad band or bracket.) The United States Post Office Department took advantage of this option, in response to the urgent recommendations of publishing organizations, library groups, and certain federal agencies in 1958, setting international postal rates for books, magazines, and music at 50% of the general printed matter rate when sent to Canada and Mexico and at 66% of the general printed matter rate for the rest of the world.

There was also a liberalization in the Universal Postal Convention, again at the urging of UNESCO, in the weight limits on book packages in the international

mails. This has been done by raising the limit on individual packages, and also by permitting the inclusion in mail sacks to one foreign address of numerous individually wrapped packages.

Since 1958 there have been periodic increases in United States international postal rates on published materials, usually at times when domestic rates on these materials were raised, but the structure of more favorable rates for published materials under the UPU option has been maintained. The United States international rates on books, periodicals, and music have in recent years been among the lowest of any major country.

Summary of Operations under the Reorganization Act: 1971–1976

The United States Postal Service took over from the Post Office Department on July 1, 1971. According to a report by the General Accounting Office prepared for the Senate Post Office and Civil Service Committee, the Postal Service had assets which it took over from the department valued at $1.7 billion. The same report stated that as of December 31, 1975, the Postal Service had an excess of liabilities over assets of $831 million and that ". . . in the private sector, an excess of liabilities over assets, coupled with revenues that regularly fail to cover expenses, strongly suggest that the entity is bankrupt." The Postal Service borrowed to make up the deficit in its operating expenditures. These developments occurred despite the fact that the postal revenues from increased rates had increased 41% from 1971 to 1976. Individual postal rates have increased even more. Examples are rates for special fourth-class materials (books, audiovisual materials, etc.) and the library rate. Table 1 shows the last congressionally set rates in force in 1971 and the ultimate rates in 1979 and 1987 (after the interim phasing period is over) which were set in the third postal rate case in 1976.

The Postal Reorganization Act Amendments of 1976: Public Law 94–421

As early as 1975 it became apparent that the Postal Service was heading for a financial breakdown despite the two increases in postal rates which had been put

TABLE 1

	Special fourth-class rate, cents			Library rate, cents	
Year	First pound	Per pound, 2–7 pounds	Per pound, over 7 pounds	First pound	Succeeding pounds
1971	12	—	6*	5	2
1979	40	14	8	—	—
1987	—	—	—	29	9

*Until the third rate decision in 1976, the special fourth-class rate had only two brackets, the first pound and succeeding pounds.

into effect since 1971 and the third increase then under consideration. Extensive hearings were held by the House Post Office and Civil Service Committee and a bill (H.R. 8603) to substantially amend the Postal Reorganization Act of 1970 was passed by the House of Representatives on October 31, 1975.

In 1976 the Senate amended the House bill drastically to eliminate any attempt at long-run solutions to postal problems. The Senate amendments, which had the approval of the White House, were strictly stop-gap legislation. They provided for two $500-million appropriations to reduce the accumulated deficit of the Postal Service, which was by then estimated at $3 billion, and set up a temporary commission to make recommendations with respect to permanent legislation by February 5, 1977.

In the conference between the two houses, many of the provisions of the original House bill were added to the Senate version of the bill. The bill was signed by the president on September 24, 1976 (Public Law 94–421), and before the adjournment of the 94th Congress on October 1 the Congress had also appropriated $500 million to reduce the accumulated deficit of the Postal Service. The principal provisions of Public Law 94–421 were:

1. An authorization for two $500-million appropriations to reduce the accumulated Postal Service deficit, one for the fiscal year ending September 30, 1976, and one for the following fiscal year.
2. A prohibition against reductions in delivery services prior to March 15, 1977.
3. A prohibition against the elimination of Post Offices prior to March 15, 1977.
4. A prohibition against additional rate increases prior to March 15, 1977.
5. A clarification and limitation on the imposition of increased postal rates by administrative action in the event that the president fails to request appropriation of funds for the statutory phasing provisions.
6. A requirement that the Senate confirm appointments to the Postal Rate Commission.
7. A requirement that postal rate cases before the Postal Rate Commission be completed within 10 months.
8. An addition to the criteria to be considered by the Postal Rate Commission in setting rates, requiring the commission to consider the "educational, cultural, scientific and informal value to the recipient of mail matter."
9. An extension of the lower and more favorable library rate to books sent to educational institutions and libraries by publishers and book distributors.
10. The establishment of procedures for the consideration of closing or consolidating Post Offices.
11. The establishment of a commission on postal service problems consisting of two members appointed by the Speaker of the House, two members appointed by the president of the Senate and three members appointed by the president. This commission was given a list of policy questions to study and was required to make its recommendations to the president and the Congress no later than March 15, 1977.

The two provisions of Public Law 94–421 of special interest to librarians and others interested in the effective distribution of educational and cultural materials were those extending the library rates to books sent to libraries and educational institutions, and the adding of the new rate-setting criterion relating to the educa-

tional, cultural, scientific, and informal value of materials. Aside from these two provisions the postal amendments of 1976 were for the most part stop-gap legislation providing an immediate financial blood transfusion to the Postal Service to stave off bankruptcy, and turning over to a temporary commission the task of trying to find long-run solutions for postal problems. The president coming into office in January 1977 and the 95th Congress beginning at the same time would be faced with the necessity of seeking and agreeing on more fundamental changes in postal legislation. It seemed likely that whatever changes may be made will involve some combination of reduced postal services—such as five-day- or even three-day-a-week deliveries, higher rates, and increased federal appropriations. For purchasers of published and audiovisual materials, libraries included, the prospect was for higher costs—whether in postal charges or charges by private carriers—and reduced postal services.

ROBERT W. FRASE

THE PRATT INSTITUTE GRADUATE SCHOOL OF LIBRARY AND INFORMATION SCIENCE

Early History

Pratt Institute, devoted to public service, was founded in 1887 by Charles Pratt, a partner of John D. Rockefeller. Mr. Pratt had started life with few advantages and had decided that if he became successful he would create a school that would prepare both boys and girls for "practical" life. After studying existing schools in this country and in Europe and finding none that he wished to pattern his after, he decided to let the school grow naturally as a result of demands that emerged from the community. The school opened without a rigid curriculum and the people of the community were invited to make their wants known. His aim was to give "all classes of workers, both artists and artisans, definite practical skill along some one line of work, and at the same time reveal . . . the possibilities of development, service and culture offered by the most commonplace tasks." The work of the institute began with 12 students in two classes (*1*).

One of the first needs that was recognized by the institute was for a library that would not only serve the students and faculty, but which would also function as a public library for all Brooklyn residents. At that time, the only public library in all of Brooklyn was the Long Island Free Library established on February 1, 1881, at 260 Atlantic Avenue. The Pratt Institute Library began service on January 4, 1888, with about 20,000 volumes, and for 12 years was the only library of any size in the city serving the general public. It operated two branches which were discontinued when the Brooklyn Public Library was established in June 1903. The need for trained staff to operate the library became obvious immedi-

ately. Thus what is now the nation's oldest library school in continuous operation was established in June 1890 to prepare workers for the Pratt Institute Free Library. In the fall of 1890, Mary Wright Plummer, a graduate of Melvil Dewey's first Columbia Library School class of 1888, came to Pratt to develop "skilled assistants," for the lack of which "scholarly workers were much hampered" in their use of the new library's facilities. In contrast to Melvil Dewey's controversial relationships with Columbia University, the Pratt Institute provided a hospitable environment for the growth and development of the fledgling school.

The collections in the library and the circulation reflected the institution's rapid growth. In 1896 a new, separate library building was opened; 225,000 circulations were recorded from a collection of 50,000 volumes. It was soon organized into art reference and science reference departments, in addition to the circulation department. The Free Library, under the leadership of its children's librarian, Anne Carroll Moore, in 1891 pioneered in developing special services for children under 14.

This new and growing library created a need for trained people to staff its varied services and, at the same time, it provided a laboratory for the "practice work" which then formed such an important part of training for librarianship. At first the library staff, under the direction of Miss Plummer, constituted the faculty. The school year was divided into three terms: two of instruction, followed by a final term of "apprenticeship." Instruction was grouped into the two broad areas of "library economy" and cataloging. The earliest catalogs of the school carefully point out that the teaching of library economy subjects was based on Pratt Free Library practice. As part of library economy, students studied such subjects as the following: Library Handwriting, Registration of Borrowers, Order-department Work, Accession Work, Classification, Finding-list Rules, Alphabeting, Shelf-listing, Mechanical Preparation of Books for the Shelves, Stock-taking, Practical Charging-system Work, Binding and Rebinding, English Composition, General Literature, Reference Work, Bibliography (trade), Statistics and Care of Supplies, and Typewriting. Cataloging practice, as a distinct area of emphasis, was based on rules established by the American Library Association.

The final three-month "apprenticeship" term, stressing practice work in the library, also featured special lectures; visits to libraries, auction houses, and book dealers; and sightseeing in Brooklyn and Manhattan. A list of "lunchrooms and restaurants that may be visited by ladies without escort" smoothed the sightseers' path.

In accordance with the institute's policy, a college degree was not required for admission to the library school. The first year's class was recruited chiefly from the Free Library staff. By 1892 other requests for admission were numerous enough to justify the establishment of a formal entrance examination. This entrance examination, designed to test an applicant's knowledge of history, current events, and general literature, as well as a reading ability in French and German, became an effective annual screening device until it was discontinued in 1938. Graduates received an institute certificate, which cost $15.00, based on the rate of $5.00 tuition per term.

The intitial goals were consistent with those of the parent institution: "The School is planned to prepare young men and women for the charge of small libraries, or to fit them for competent assistants in large ones." Although the library remained the training ground for the School of Library Training and its staff continued to provide most of the instruction, the catalog for 1895–96 showed a faculty separate from the staff of the library. The Library Economy and Cataloging courses were combined into one. "Current Topics" soon took the place of Oriental, Classical, and Modern Continental Literature; Accounts and German increased the range of subjects taught. At the same time, a policy of limiting enrollment to 25 was adopted because of the limited number of people who could effectively be given practice in the library. No summer or evening courses were then offered to those unable to devote full consecutive months to their training.

The interval between the second and third terms was used to conduct an out-of-town field trip. Every spring the director or vice-director would personally lead the class through the libraries of the Boston, Philadelphia, or Washington areas. Suggestive of period flavor is an 1897 Brooklyn newspaper clipping announcing the departure of Miss Josephine Adams Rathbone, Miss Plummer's assistant, and 20 students on the Fall River boat to Boston. There they visited Melvil Dewey's Library Bureau, were entertained at the Boston Book Company, had tea at the Boston Public Library, and toured libraries at Harvard, Cambridge, Wellesley, and the Museum of Fine Arts. The spring trips became a notable feature of the year's work until World War II, and the catalog advised students to be financially prepared for them.

These field trips were designed to broaden the social and cultural as well as the library backgrounds of the students. The personal guidance of the director or vice-director was a form of parentalism which expressed concern with such matters as the dress, manners, recreation, and health of each student. Both Mary Wright Plummer and her successor, Josephine Adams Rathbone, were cultivated women of strong character; their personalities color the image of the school's first half century.

In addition to the annual tour, weekly visits to libraries, museums, binderies, and bookstores of the metropolitan area formed an important part of the last, or "apprenticeship," term. An attempt was made to cover all types of collections—specialized, academic, and public. At the then private Morgan Library, Belle da Costa Greene acted as guide and allowed students to handle some of John Pierpont Morgan's most priceless manuscripts and incunabula. Dr. A. S. W. Rosenbach often conducted the group into the book vault where he kept so many of the treasures destined to adorn the Huntington and other great collections.

All students were required to attend special lectures sponsored by the library school, and Miss Rathbone "took attendance." Many of the notable names in late 19th- and early 20th-century librarianship appeared annually as Pratt lecturers: Charles Ammi Cutter, Helen Haines, Lutie Sterns, Caroline Hewins, William Warner Bishop, Herbert Putnam, John Cotton Dana, William H. Brett, E. C. Richardson, Arthur E. Bostwick, James I. Wyer, and Isadore G. Mudge. Publishers were represented by R. R. Bowker and Frederic Melcher. Such authors as Amy Lowell,

Christopher Morley, and Alfred Noyes were frequent lecturers during this period.

The early leaders of the school extended their attention to students after their graduation. As early as 1897, the Graduates' Association was formed, to which all students were expected to belong. The association initiated the tradition of an annual fall reception for new students, a spring luncheon, and a commencement dinner. Loan and scholarship funds soon became an important part of the association's activities. Miss Rathbone was especially active in alumni affairs until her retirement in 1938. She guided the association, made frequent visits to alumni groups all over the country, and conducted a triennial survey of graduates to compile data on placement, salaries, and types of work being performed.

Although surveys revealed that the majority of students entered general public library work, in 1898–99 a second-year course was offered to meet a need for catalogers and bibliographers of the old and rare books then being acquired by private collectors and the larger libraries of the time. The prospectus pointed out that this was to be "only partly an extension of the first year course . . . a development of the historical and bibliographical phase of it," that is, a specialization in cataloging and bibliography. Advanced courses in cataloging, bibliography, library administration, and the history of libraries formed the core. Collateral courses were devoted to the history of the printed word, including the development of books, binding, engraving, and other early reproductive processes. Italian (for catalogers) and stenography completed this part of the curriculum. The Lenox Library served as a laboratory where specialists prepared and graded the students' work. Later, Latin paleography, advanced reference work, and the cataloging of incunabula were added. Only four students elected this "historical course" in its first year and there were not always enough applicants for it to be given, but it remained in the school's catalog until 1911.

A measure of the new school's success is attested by the statistic for 1898 that 104 applications had been received. The entrance examination eliminated all but 35. Of those accepted for the class of 20, 12 had some college training; and 6, some experience. Eleven states were represented.

In the same year, the general first-year course added an hour a week for the study of fiction, presumably in response to the increasing use of the library by the public. Miss Plummer felt that experience in the Pratt Library had shown how greatly the reading of fiction could be influenced for the "better" by assistants who had a wide and sympathetic knowledge of novels and novelists. Experience in revising entrance examinations had also shown that such knowledge was seldom to be found in the average student fresh from school or college. Accordingly, when literature was dropped, a course was planned for the study of modern fiction, English, American, and Continental, from the library point of view. About 100 authors were studied to assess the qualities shown in their work, their influence, the "class of people" to whom they would appeal, and to identify similar authors for whom they could be substituted or who might be substituted for them.

The next year, 1899, another curriculum innovation appeared as a special, second-year Course for Training of Children's Librarians. Given in connection with the Kindergarten Department of the institute, "the practical work of the

course [was] assigned wholly in the Children's Department of the Library" and consisted of "the study of children's books, of methods to be used in libraries for children, of the personal relations of the librarian to children, the selection of pictures and making of picture bulletins. . . ." Methods included the techniques of dealing with delinquents and with parents. A few lectures were given, but most of the instruction was individual, and not more than three students were accepted. The dynamic Anne Carroll Moore, head of the Children's Department, was a member of the faculty.

By 1903 it seemed advisable to sound some warning notes to prospective applicants. "We urge it upon well-meaning friends of the profession . . . not to advise young girls who are still under parental discipline to enter. . . ." Many of the students at this time came from outside the New York area; evidently freedom and the big city had led to some casualties. Those without high school diplomas were urged not to attempt the entrance examination, as were those under 20 or over 35. Moreover, all new students were required to take a 2-week practice session in the Pratt Institute Free Library before they began their first term.

In 1904–1905 the school was reorganized. Miss Plummer gave up the librarianship of the Free Library to devote full attention to the school. General course subjects now became grouped into areas more closely corresponding to modern curricula: administration, classification, cataloging, bibliography, reference work, literature, and language. Procedures were treated together under the headings "Technical Library Economy" and "Business Methods." Indexing, book selection and publishing, library history, and children's work now received attention; typewriting became optional.

The objectives of the school were broadened "to give technical training in methods of library management to carefully selected candidates, with a view to fitting them for positions as the librarians of small libraries, as heads of departments, or assistants in large libraries, as organizers or reorganizers of libraries, and as instructors of library staffs, or in library schools." However, the basic trimester pattern, with emphasis on practice and field work, remained unchanged. The general course continued to be "shaped largely toward meeting the requirements of public circulating libraries."

From 1905 to Mary Wright Plummer's resignation in 1911, the only substantial change was the redesignation of the school as the School of Library Science, which was made in 1909–1910. Mary Wright Plummer had successfully guided the school through its first 21 years. In addition to outstanding abilities as administrator and teacher, her wide, discriminating literary interests helped to balance the vocationally oriented curriculum. She wrote a textbook on library economy and several children's books; her *Seven Joys of Reading* is still used by library school students. While not a children's librarian, her enthusiasm for this area of librarianship assured its inclusion in the Pratt curriculum.

Miss Plummer's departure in 1911 to become head of the New York Public Library training school led to other changes. Her successor as director of the library school, Edward Francis Stevens, also resumed the directorship of the library. Josephine Adams Rathbone, who had been chief administrative and chief

teaching assistant since 1895, became vice-director. As vice-director, Miss Rathbone interviewed and selected students, reviewed all of their work, conducted the annual tour, and generally kept a firm grip and an eagle eye on all of the school's affairs. During her 27 years as vice-director, she administered the School of Library Science while Mr. Stevens concentrated on the library and the historical bibliographical part of the curriculum.

Josephine Adams Rathbone was a notable example of leaders of the American library movement of her era—capable, dynamic, a feminist; a bit autocratic and intimidating; anecdote inspiring. A product of the Albany School, she took an active role in professional associations, becoming president of the American Library Association in 1930–31. This election throws some light on her character and influence. When asked to become a candidate for that high office, she at first declined to become a party to what she termed a "popularity contest." The nominating committee then eliminated the other candidates, and Josephine Adams Rathbone became president without opposition. Even before the votes had been counted, she was busily organizing committees and outlining policies.

Under the Stevens–Rathbone administration, the curriculum returned to a basic 1-year course, with "advanced historical" and children's librarianship eliminated as distinct, second-year programs. Opportunity for practice work was extended beyond Pratt to other libraries. Practice assignments were carefully made, and written reports were required.

Partly to replace the dropped second-year curriculum, and partly to compete with the new school at the New York Public Library, the School of Library Science offered in 1912–13 an experimental "Normal Course," designed to prepare a limited number of graduates "to teach in library schools, to take charge of training classes or school departments in public library systems, and for librarianship in normal schools and other educational systems where courses in library science are given." The Brooklyn Public Library served as the laboratory. Visits to other library schools and training classes formed one part of the experiment. The Normal Course expired after 1 year from lack of applicants, but it had lasting results in strengthening cooperative relationships with the Brooklyn Public Library.

In the remaining pre-World War I years the importance of "practical work" continued to be emphasized. The 1914–1915 catalog advises: "Previous experience in library work is so great an advantage to those taking the course that all applicants are urged to secure an opportunity to do practical work in some library before they begin school." By 1918 the Cutter Classification was dropped as a separate subject of instruction, and courses were regrouped into administrative, book, and technical categories. In 1922 this regrouping presented the following overall curriculum picture in terms of hours of instruction, for a total of 482 hours: administrative, 67 hours; book, 158 hours; technical, 257 hours, of which 164 hours were devoted to cataloging. "Practical work" accounted for another 396 hours, and field work for 45. The laboratory work was distributed over the year as follows: 2 weeks at the beginning of the course; 3–5 hours a week in the first and second terms; and all but 3 half-days a week in the final term.

World War I and its aftermath caused some disruption in the school. The annual report for 1918–1919 speaks of an "off year," both for class performance and applications. The administration had to resist pressure to eliminate German as a requirement. The class of 1920 was the smallest in 25 years, with what Miss Rathbone considered to be a large proportion of "mature and experienced women."

With evident satisfaction, the vice-director described 1922–1923 as a normal year. Exactly 25 students received certificates. Fifteen of these were college graduates; the other ten had previous experience—a ratio which Miss Rathbone considered ideal for Pratt. All sections of the country were represented in the class, and three men were included in the number. A count revealed 651 graduates to date. Visiting lecturers for the year included Arthur E. Bostwick, R. R. Bowker, May Massee, Christopher Morley, Isadore G. Mudge, and James I. Wyer. The annual spring trip to Philadelphia and vicinity proved a great success.

But the halcyon days of normalcy were not to last. Publication of the Williamson Report in 1923, and the establishment of what was to become the ALA Board of Education for Librarianship spelled trouble for the Pratt pattern. Pratt Institute was not a university in the accepted sense of the term. Adaptation of the School of Library Science to university standards involved changes which Miss Rathbone, for one, was determined to resist.

Part of the history of the next 7 years reflects the difficulties created by attempts to force the school to conform to the new pattern of education for librarianship. In her report for 1923–1924 the vice-director felt the need to defend Pratt's visiting lecturer custom, citing the distinction of the speakers and the benefits received by the students. The catalogs began to translate instruction hours into units of academic credit. The Board of Education for Librarianship exerted pressure to increase the class size, to reduce practice hours, and to add those hours to instructional time. Laboratory work for the third term was reduced to 20 hours a week, and in 1925–1926 the school was accredited as a Junior Undergraduate Library School, along with eight others which still accepted noncollege graduates as students.

With the adoption of New York State certification standards, the Junior Undergraduate rating meant, in effect, that Pratt graduates could not be employed in New York public libraries at a professional level. Josephine Adams Rathbone, strongly supported by the Graduates' Association which she had done so much to develop, went into action. For changing the ruinous accreditation classification rating, Miss Rathbone could point to the school's highly selective admissions policy. Her close contacts with graduates, combined with the triennial survey, furnished ammunition helpful in proving that Pratt students were welcomed as employees, and had gone on to fill increasingly responsible posts throughout the nation. The Board of Education for Librarianship finally agreed, in the period 1929–1939, to designate the school "accredited, unclassified, but with high and acceptable standards." It is worth noting that of the 27 members of the class of 1932, 21 were college graduates. The Depression brought new problems. In 1932, for example, only 55% of the graduating class had jobs by the end of

June. The annual spring trip had to be curtailed. The Student Loan Fund, established by the Graduates' Association in 1917, was heavily used during this economic crisis.

In 1938 William Wayne Shirley, who had been head of Science Reference and a faculty member since September 1934, became director of the library and library school. Agnes Camilla Hansen, a cataloging professor since 1934, became associate director. She had initiated a number of curriculum changes, especially for the cataloging and book courses, and had begun the development of the old "classroom library" into the present School of Library Science Library. Her annual reports as associate director differ markedly from those of her predecessor by showing a more impersonal concern for research activities and the organization of the school.

In 1939 Pratt began to grant the degree of Bachelor of Science in Library Science, changed the following year into the Bachelor of Library Science degree. In 1940 the school was registered as a graduate school by the State of New York and reclassified by the American Library Association from a Type III to a Type II school. The same year saw the reorganization of the Free Library into a collection serving students and faculty only. A Carnegie Corporation grant of $50,000 converted the former public children's library into a laboratory room for the study of materials and services for children.

The institute's certificate continued to be granted until 1948 to those few students not possessing college degrees. A school libraries course appeared for the first time, as a third-term elective. Cataloging and classification courses were supported by a practice collection. Tests were introduced to assess needs and to evaluate teaching effectiveness.

In 1950 the school began granting the Master of Library Science degree.

The retirement of Josephine Adams Rathbone and Edward Francis Stevens marked the end of an era. Under their successors—Agnes Camilla Hansen, William Wayne Shirley (1938–1955), Rice Estes (acting, 1955–1956), Louis D. Sass (1956–1968), and Nasser Sharify (1968–)—took place the transformation of Pratt into the institution which it is today. As a charter member of the Association of American Library Schools and one of the 13 schools originally accredited by the American Library Association, Pratt pioneered in creating a program to meet the needs of a rapidly expanding library world; and today the school continues to respond to the demands of a far different, and even more progressive and challenging, profession.

The Present

The earlier history of Pratt's program of education for librarianship provides a stage for the understanding of the performance, mission, and aspirations of the school today. This article does not attempt to give a complete historical account. Rather, its purpose is to introduce the school's spirit, aims and commitments, its

program of studies, its activities, and its philosophy of education for the last decade (*2*).

During its long life as the oldest library school in continuous existence in the country, Pratt has made significant contributions both to the profession and to education for librarianship. It has been brave enough to venture along new roads and yet prudent enough to respect tradition. Melding the old and the new has been the essence of Pratt's educational program. It has pioneered new programs, new methods, and in the words of Mary Wright Plummer, "the School has tried to adapt itself to its surroundings, in the spirit of Pratt Institute, to develop along the lines of demand, to experiment, to modify, always keeping in view the ideal of the founder, to render service through good work" (*3*).

In order to understand and fully appreciate the soul of the Pratt program today, let us briefly review the development of the changing mission of "the library" and the role that librarians have played to this date. As every educational institution should constantly be ahead of the profession it serves, an understanding of the future role of the librarian also becomes essential.

THE CHANGING MISSION OF THE "LIBRARY"

The earlier view of the library was that of a repository. Recorded knowledge was rare and quite precious, and if the library's holdings were rich, it was considered a treasure house. The librarian was its guardian, proud to keep the collection out of reach; proud to protect it from damage caused by man, insects, and the elements; and indeed proud of his distinguished title of "conservator," a title which is still honored in certain European countries. Every day before he left for home to rest, he also made sure that every book was also resting safely on its shelf. The next morning brought another happy day of conservation and safekeeping. He was a scholar himself and in love with books and often jealous of the users. He rarely shared his knowledge of the library's possessions with others, in the fear that once he had disclosed all he knew about his treasury, he would no longer be needed or respected. Knowledge was the monopoly of certain privileged people: those who had, themselves, the necessary means of acquiring it; those who were under the protection and sponsorship of rich and powerful people, such as nobles and kings; and those who sought knowledge in the course of their religious studies.

As is evident from the early history of Pratt, its education for librarianship was never intended or designed to provide jealous, scholarly guardians for libraries, although it did pay due attention to the handling of manuscripts and rare items, respected their place in libraries, and recognized their invaluable contributions to research and scholarship.

The advent of printing made it possible for many more people to have access to books. The rapid spread of literacy, accompanied by compulsory education in many countries, created still more readers. Soon after World War II, UNESCO promoted the concept of "Education for All." Thus library users were no longer limited to the clergy and certain privileged people. UNESCO published

its *Public Library Manifesto* and encouraged the whole concept of free access to information. The public library movement in the United States was based on the conviction that only an informed electorate could assure the success of the democratic form of government.

During this period, librarianship was defined as a bridge between recorded knowledge and the seeker of knowledge, and the librarian left his post as a jealous guardian and became a bridge maker or matchmaker:

> For a moment let us picture in our minds a concrete and steel bridge skillfully fashioned by the hands of the architect-librarian: cataloger, indexer, bibliographer. On one side is the seeker of knowledge, on the other, knowledge. Sitting on the bridge is the reference librarian with many road signs in his hands to show and interpret various roads to various towns of knowledge (*4*).

The librarian tried to match the needs of users with the recorded knowledge that the library possessed. He developed book catalogs, card catalogs, general bibliographies, subject bibliographies, indexes, reading lists; he encouraged and facilitated readings; and he developed special programs for children and interpreted the library collection to those who came to its door.

Attention to the user became a prime concern. Catalog-use studies were conducted. Users' habits in searching for information were studied. Separate attention was also paid to the special and differing needs of scientists, social scientists, and those devoted to the field of humanities. Pratt Institute, following the main objective and the wishes of its founder, provided practical training and prepared its graduates to assist users in their search for knowledge and information. The atmosphere at Pratt was filled with the spirit of service. Its curricula were inspired by it, its faculty was committed to it, and its graduates carried this spirit to the institutions which they served.

But, generally speaking, the role of the librarians still remained passive. They were bridge makers, sitting and waiting on the lonely bridge, waiting for someone to need and discover the bridge—once there, he was served splendidly. But the bridge still remained, unknown or unused by the majority of the public. Perhaps those who stayed away either did not have the time or the means of getting to it, or they did not feel that libraries could possibly help them to enjoy a better life. The librarian did not come off his bridge to discover what was truly happening in the society he was serving, and he did not have the initiative or the courage to join the producers of knowledge. The shaping and reshaping of knowledge was not his domain, and living in the heart of the society he was serving was not for him. He was living on the fringes of society, and, on the bridge, he was sitting at his desk anxiously waiting to serve those who came and asked for his help.

The recorded knowledge kept on the bridge was indeed well organized. Pratt taught its students all the housekeeping operations and cataloging in such a practical manner that its graduates could perform the tasks quite satisfactorily from the first day on their jobs. Pratt provided its students with the knowledge of reference tools which were used in different types of libraries and taught them how to handle reference inquiries and serve library users with respect and understanding. The

reference librarian's "manner" in dealing with the public was important. Students were taken on field trips to visit various types of libraries. Each type of library had a separate course in the curriculum, and each student was trained in only one type. For instance, students who were trained for public library work could not function satisfactorily in a university library. Thus librarianship was based on an institutional concept.

Although the bridge-making function was far more satisfactory than custodianship, to many it still remained unchallenging.

Technology has had an amazing impact on human lives, behavior, and needs. On one hand, it has brought millions of people and countless numbers of cultures closer together through the transportation of man and communication of his ideas, his emotions, his sentiments, his feelings, and even his image. On the other hand it has created psychological barriers between individuals. It has made man lonelier. In the streets of New York City, one sees more and more people talking to themselves while walking among literally thousands of others who are rushing to thousands of different destinations, each absorbed in his own individual and troubled world. Societies themselves have grown to a frightful level of complexity. They are like a forest with thousands of paths and little roads leading to thousands of unknown destinations, and man is lost among them. He does not know which path is his path. He is confused, frightened, isolated, and lonely. He needs guidance; he needs a detailed road map; he needs information—information about the entire forest. He needs information and help to find the shortest road for him to happiness. He has to survive. And there are millions like him, lost in the same forest. He needs to know all he can about them, because at times he has to compete, and at times he has to communicate with friendship and compassion. Man requires information about his fellowman in order to relate to him. There are also hundreds, all with different motivations, who have appointed themselves as leaders in that forest and are striving for followers. The complexity of the society of leaders in that forest makes it even more difficult for the lonely pedestrian to choose his leader. In large, urban forests, these are government officials and those who seek public offices. Technology, through mass media, brings the face of the leader and his ideas to every pedestrian. But the nature of the man and the nature of the media are such that the truth can easily be hidden, and the man in the forest has only himself to depend on. He has to struggle to separate unreliable assertions from reliable facts, falsehood from truth, wrong from right. He has to know the government and leadership systems and their machinery. He has to discover the true intentions of every leader in order to make his own judgment. He needs information and lots of it, but the information he needs has to be selected for him. He cannot possibly do this by himself.

He also has to develop his mind. He has to acquire knowledge and skills, but what knowledge and what skills? The expansion of specialized knowledge has added another confusion to that forest.

Setting aside such creative work as poetry, drama, and the like, other authors deal with facts rather than emotion. They reorganize the old facts, at times add new facts, and present them in the fashion they like according to their individual

taste; they divide them logically into chapters and sections of a book for a large group of possible readers, with the hope that someone will find some information useful to him after reading the entire book.

If that is authorship, then librarians are also authors in today's society. They repackage knowledge and facts and present—in a more effective manner, to individuals or very small groups—knowledge and facts which are truly needed by them.

Technology and the wide range of media have made the authorship role of the librarian possible. The librarians today have joined the producers of knowledge and work far more effectively than those who prepare a text for a large audience.

The librarian of today who has grasped his new function has taken two major steps beyond the bridge. On the one hand he has left his desk on the bridge and moved into the forest in order to understand its true nature and to sense, to feel, to identify, and to comprehend the needs of those living in it. On the other hand he has joined the authors and producers of knowledge and information to meet the individual needs of all people: young or old, rich or poor, advantaged or disadvantaged, able or disabled, newly literate or scholars, students or teachers, followers or leaders.

THE CHARACTER OF THE CURRICULUM, MASTER'S AND POST-MASTER'S LEVELS

The character of every curriculum is shaped by the objectives and the aspirations of the educational institution of which it is a part, by the movement within the discipline or profession it serves, by the leadership and innovation provided by the faculty and administration, by the nature of the society it serves, by its geographic location, by the nature of its students, and by the career opportunities of its graduates, etc.

For a number of years Pratt's Board of Trustees had to deal with a question which was often brought to its attention: "Should the institute remain in Brooklyn, or should it move to another location?" When the board in 1970 decided that Pratt should remain permanently in Brooklyn, its spirit of service took on a deeper commitment to the inner-city resident. The curriculum in library and information science reflected that deeper commitment without delay.

Pratt's library school was already known for its contribution to public librarianship, but soon after 1970 new courses such as Materials for Ethnic Minority Groups, Urban Public Library Services, Academic Libraries in Urban Areas, Issues for Community Change and Development, and Literature of Minority Groups were added. In 1973 a major faculty appointment was made in urban librarianship.

The firm and permanent commitment to its location brought yet another facet to the Pratt curriculum. New York City is a miniature of the world's cultures. Serving New York is serving a multicultural society, a society which is founded on diversity rather than on the homogeneity of its people. People of all colors and races, people of all cultures and ethnic backgrounds, people who communicate

literally in all languages, make New York City a truly international society. The international character of New York is also reflected in the rich and multilingual research collections of hundreds of libraries and information centers. New York is the home of the United Nations, consulates, and cultural and information centers from almost all the countries of the world. New York is the major international sea- and airport of entry into the United States. New York is the home of major industry and trade centers of the United States, many with international interests and involvement.

Because of all these unique characteristics and the post-World War leadership of the United States in science and technology, and in trade and in foreign affairs, the Pratt curriculum has included a strong international element. Librarianship, by its very nature, is international and its theory and principles are practiced around the world. It is an obvious fact that wisdom, knowledge, and information produced by man are not recorded in only one language and are not produced only by one nation. Technology has caused the world to shrink rapidly and mass communication has made more and more people, in all corners of the world, interested in each other's accomplishments.

The curriculum offers such courses as: Foreign Languages for Librarians and Information Scientists, International Comparative Librarianship, Foreign National Bibliographies, Documentary Services of International Organizations, Comparative International Book Production, and Planning Libraries and Information Centers in Developing Communities. The faculty at Pratt is multinational and multilingual. Together they can work with about a dozen different languages. The school has had foreign students from some 20 countries.

The technological advances have provided the librarian with new tools for, and methods and techniques in identifying, storing, analyzing, interpreting, and disseminating information. The administrators of libraries also employ modern management techniques.

In 1968 the school changed its name from the Graduate Library School to the Graduate School of Library and Information Science (GSLIS). This action went far beyond a mere change in nomenclature. Rather, the new designation gave recognition to an emerging and important new discipline which would prepare students to deal professionally with the science and art of acquiring, recording, organizing, processing, and disseminating recorded data in all its varied and sophisticated forms.

As a result of this change, the basic information science course became compulsory, and an existing elective, Indexing and Abstracting, was returned. The following electives were added: Information Storage and Retrieval Systems, Automated Library Operations, Modern Document Access Systems, Specialized Information Centers, Systems Analysis, Telecommunications in Information Dissemination, Appraisal of Mathematical Techniques for Management, Computers in the Management Process, Social and Behavioral Implications of Information, Information Theory, Information Networks, and Systems Design and Evaluation.

Until 1970 the school offered only one course on media. Since the supremacy of books as the conveyors of knowledge and information gradually lessened and

libraries came to depend on other types of media, Pratt, in addition to the traditional course in Multimedia Materials and Services, now offers such courses as Film and the Library, Television and the Library, and Organization and Administration of Nonprint Programs and Services. Another course on Media Packaging was taught twice as part of a series called Open Seminar in Library and Information Science. The title of the course on school libraries was changed to School Media Centers and its content was completely revised to encompass the further utilization of media. Other courses dealing with nonprint media are Organization and Use of Pictures as Documents, and Special Problems in Cataloging and Classification.

A major change in the curriculum took place in 1968. The school was offering courses on every single type of library. Even school librarianship was divided into two courses, Elementary School Libraries and Secondary School Libraries. This institutional approach was abandoned in favor of functional, comparative, and systems approaches. On the master's level, however, School Media Centers and Specialized Information Centers were given a place in the curriculum. The type-of-library courses were given as part of the required curriculum. However, the students were permitted to select only one type. In place of these courses, the Principles of Library Administration and Systems Analysis were added as electives on the master's level and later, in 1973, on the post-master's level such management courses as Cost Budgeting and Planning, Management Techniques and Procedures, Computers in the Management Process, Systems Design and Evaluation, and Appraisal of Mathematical Techniques for Management were included in the program.

In response to political and legal problems in the administration of libraries, two courses were also added. The course on Libraries in the Social Process examines the pattern of influence and pressure affecting all types of libraries through the interaction of social, economic, political, and professional groups, with particular emphasis on public libraries. The other course on Legal Problems of Librarianship reviews criminal and civil law as it affects libraries; the legal rights and responsibilities of patrons, library staff, trustees, and the community; and problems in copyright, duplication, and censorship.

Traditional courses in Technical Services are regularly offered, as well as a course in Indexing and Abstracting and another on the Theory of Classification. The problems of Serial Publications are dealt with as one in a series of open seminars. Since 1972 this course has been offered every 2 years by Dr. Andrew Osborn, the outstanding authority on the subject. The History of Libraries and History of Books and Printing are dealt with in two electives, and traditional courses on Information Resources are offered in Humanities, Social Sciences, and Science and Technology. Students are required to choose one of these advanced reference courses or the one on Government Publications as part of the core curriculum.

The core curriculum, in addition, also includes four courses. These are Introduction to Library and Information Science, Basic Information Sources, Organization of Library Materials, and Basic Information Science.

The "turn-teaching" method has been used in the introductory course for the last 3 years, each full-time faculty member giving one lecture in the subject of his

expertise. This course provides the students with an overview of the field and at the same time affords them an opportunity to become acquainted, early in the program, with the whole full-time faculty.

The school also offers on the master's level two specialized programs, one in art and the other in medical librarianship. While Pratt's rich collection in the arts supports the two courses in Art Librarianship, the library does not have a medical collection. Therefore, the course on Medical Librarianship is given at the Downstate Medical Center Library. The resources and staff of the center have, indeed, been invaluable assets.

The current GSLIS curriculum evolved to its present state as a response to the changing needs of the library profession. This process is evident in the ways and the number of times the curriculum has changed its design and content through courses being dropped, added, merged, or significantly modified. The underlying philosophy of the present curriculum is that the function of library education is to provide the expertise required for the effective practice of contemporary librarianship. Pertinent components in the GSLIS curriculum are modified in anticipation of changes in the library profession.

The GSLIS curriculum is characterized by its functional—rather than institutional—approach to librarianship. Students are not educated to accommodate the particular service patterns of public, academic, school, or special libraries and information systems, but rather, they are provided the education and training for librarianship in its many dimensions, so they will be able to perform competently in any kind of library environment. The functional approach of the GSLIS curriculum emphasizes service to the various client groups of libraries and information systems.

The GSLIS curriculum is best described in terms of a set of unifying categories or clusters. Most of the courses cluster around the different approaches to the organization or use of information. For instance:

Library and Information Science: Fundamental Issues and Trends
Information Science and Its Implications
Organization of Information
Information Resources
Library and Information Services
Media Resources and Services
Administration and Management
Analytical and Quantitative Methods
Urban Librarianship

The 63 courses in the GSLIS curriculum are organized in three hierarchical levels: 4 required core courses at the master's level, 43 elective courses at the master's level, 17 courses at the Advanced Certificate level. The Advanced Certificate courses are distributed among the curriculum clusters because they represent an advanced study of the clusters' themes and may, under certain circumstances, be taken by the master's level students.

LABORATORY-BASED INSTRUCTION

As practical training has been, since its creation, the essence of Pratt's program, considerable attention has been paid to laboratory-based instruction.

In its new building, which it occupied in January of 1974, the school maintains three laboratories, one each for instructional materials, information science, and technical processes. These laboratories provide students with direct hands-on experience, both on an individual basis and for classroom projects. The very existence of the labs has initiated an examination of the curriculum for contrasts in the learning processes through laboratories and classrooms. Thus, the level of classroom learning is being upgraded as activities more appropriate to experiential learning are being moved into the laboratories.

Among the facilities available in connection with the laboratories are a darkroom adjoining the instructional materials lab and the on-line telecommunication facilities of the Dartmouth Time Sharing System through an ASR 33 Teletype Terminal and a Digilog Video Terminal.

Preparation for work in modern libraries and information centers must include adequate exposure to multimedia hardware and software, as well as an introduction to the nature and use of time-saving, error-reducing mechanical and electronic devices. Such experiences are provided for in the GSLIS laboratories.

CONTINUING EDUCATION

The 1-year master's program at Pratt provides a foundation education in library and information science, and the conferring of the M.L.S. provides entrance into the field at the beginning professional level.

As with all professions, however, education must be an on-going commitment on the part of the individual practitioner. Such continuing education may be in a subject-related field or, if within the area of the profession itself, may be for purposes of specialization, updating, or expansion into developing areas of the field. While a certain amount of continuing education can be accomplished through the reading of library literature and attendance at professional conferences, the library and information science profession is in agreement that more formal avenues are necessary if the information needs of today's and tomorrow's complex societies are to be met.

The Graduate School of Library and Information Science has made a serious and long-range commitment to the offering of a program of continuing education flexible enough to meet the diverse needs of practitioners.

Each January a 3-day institute is offered on the Pratt campus. The overall institute title is "Library and Information Center Up-Date 19—," and each year a different topic of current concern to the profession is featured. A second, short-term institute is generally scheduled for the summer or fall, depending on specific needs. Additionally, during January and June, short-duration courses deemed to be of particular interest to practicing librarians are offered.

The Advanced Certificate program provides another opportunity for those who are interested in continuing education.

In response to the needs of practicing librarians in the Westchester area, Pratt began in the fall of 1974 to offer one or more courses each semester at the Grinton I. Will Library in Yonkers. The practicing librarians select courses they wish to take and each semester a questionnaire is sent to them in order to identify their interests.

This is not the first time Pratt has offered off-campus courses. From 1964 to 1969 Pratt offered off-campus courses at three locations: Sarah Lawrence College, Yonkers Public Library, and Stamford, Connecticut. These programs were limited to the core curriculum. In order to complete the M.L.S. program, students had to commute to Pratt to take elective courses. Due to a variety of difficulties, these programs were discontinued.

CURRICULUM ENRICHMENT

Education for librarianship and information science at GSLIS is not confined to formal classroom teaching. It is enriched by colloquia, conferences and institutes, special interest group discussions, and field trips. For example, the school holds a weekly colloquium series of talks, demonstrations, and discussions by distinguished speakers from the profession and related fields. Speakers included such outstanding national and international librarians, educators, community leaders, and publishers as Jack Dalton, Major Owens, Curtis G. Benjamin, Harold Lancour, Russell Shank, John C. Frantz, Lev Vladimirov, Henry C. Campbell, Dorothy Collings, Charles F. Gosnell, Luther G. Evans, Natalia Tyulina, Theodore Waller, Paul Wasserman, Keith Doms, Mary V. Gaver, W. Kenneth Lowry, Maurice Tauber, John Cory, James Humphry, Richard Darling, Dan Lacy, John A. Humphry, John G. Lorenz, Carlos Penna, and Curt Wormann.

Students are also provided with opportunities to visit and observe libraries, information centers, publishing and communication centers, and other places of interest. Their participation in special institutes, which are part of the school's continuing education program, has grown. Attendance at other professional activities is encouraged, and at times has been sponsored through grants from the Alumni Association.

Students are brought together with faculty members, librarians, and Pratt alumni to discuss aspects of the profession through a variety of events such as special interest luncheons (sponsored by the Student Association every Thursday), student receptions, and alumni-day programs. Such occasions frequently afford students valuable perceptions in determining the development of their professional career and knowledge of current trends in areas of special interest.

LIBRARY RESOURCES

Pratt Institute possesses a large and growing collection in library and information science and related fields of professional study. In addition to books, reports, surveys, and catalogs, the Library Science Library includes nonprint materials and extensive holdings of library periodicals.

The Pratt Institute Library, established in 1887, has more than 225,000 volumes, 42,000 slides, 100,000 pictures and prints, and 13,500 microforms. Both the Art Reference and Science Reference collections provide strong resources for use in the library and information science program. The general reference department maintains an unusually representative collection of the periodicals indexed in *Poole's* as well as other indexes. Pratt has been a government depository since 1890.

The Anne Carroll Moore Children's Collection serves as a laboratory for that aspect of library work, while another special collection of older and fine press books provides material illustrative of the history of books and printing. The Pratt Institute Archive contains documentary material for research in the early history of library education in the United States.

Although the library, as a whole, is used as a resource center for the school, one department, which is located on the third floor of the library building, is especially devoted to the needs of the GSLIS program. Since the GSLIS's move from the library, the Library Science Department has been able to expand into an adjoining former office, permitting some group study space and better access to audio equipment.

This department, which houses only selected course-related collections for easy and frequent use of the library students, holds approximately 12,000 monographs and bound periodicals plus some 3,000 microfiche, including ERIC and other series.

It's a known fact that no library can be self-sufficient. Pratt is fortunate to be located in the New York metropolitan area with access to the largest concentration of rich resources available anywhere in the world, and students make frequent use of these resources. The Brooklyn Educational and Cultural Association has recently provided free bus service connecting major educational institutions, libraries, and museums in the Brooklyn area.

MASTER'S DEGREE PROGRAM

In keeping with its heritage and its location, the goals of the Pratt Institute Graduate School of Library and Information Science are the following:

> To provide a solid and basic foundation of knowledge and skills upon which graduates may begin their professional library careers and to instill in students recognition of their need for continuing professional education.
>
> To present a program which integrates all aspects of information processing and service in order to meet the demands of today's complex society.
>
> To effectively relate the curriculum to the rich human and material resources in the field of library and information science which are available in the metropolitan area.
>
> To encourage students to participate actively in their learning process.
>
> To encourage participation of practicing librarians and students in the shaping of the program under the leadership of a diversified faculty.

With these goals, the Graduate School of Library and Information Science serves the total library field by providing a basic foundation of knowledge and skills upon

which its graduates may begin their professional careers in a wide variety of libraries or information centers. The school, therefore, welcomes a student body varied in age and nationality, and in ethnic, cultural, social, and educational backgrounds. As part of a metropolitan institution, the school acknowledges a particular responsibility for part-time students, many of whom hold positions in the libraries and information systems of the area. This responsibility is evidenced by its scheduling of evening as well as weekend courses.

The goals of the Graduate School of Library and Information Science are in agreement with the ALA "Library Education and Manpower Policy Statement" of 1970. The emphasis on each student's involvement in the educational process is calculated not only to encourage a superior educational experience but also to produce the type of librarian who can find "original and creative solutions" to library problems. Providing the basic professional education, the school's goal of instilling in students a commitment to continuing education again reflects major concerns of the Policy Statement.

The school's goal of integrating all aspects of information not only follows the ALA Policy Statement but also the National Commission on Libraries and Information Science's *A National Program for Library and Information Services.* The NCLIS's concern for preparing personnel for a dynamic profession is clearly supported by the Graduate School of Library and Information Science's effective relating of its curriculum to the rich and varied personnel and information resources of the metropolitan area. NCLIS also emphasizes the need for continuing education —a goal which is clearly supported by the school.

An applicant for admission to the program leading to the degree of Master of Library Science must hold a baccalaureate degree from an accredited college or university representing sound, basic training in the humanities, social sciences, or sciences. He must have a superior scholastic record or otherwise give evidence of academic ability of a graduate caliber.

The Master of Library Science degree (M.L.S.) is conferred upon students who complete 36 hours of credit with an average grade of B and meet other prescribed requirements of the institute. Only courses in which the student receives a grade of A, B, or C may be counted in satisfaction of the requirements. Part-time students are required to take a minimum of six credits in the fall and spring, and the program must be completed within 4 years after enrollment.

POST-MASTER'S ADVANCED CERTIFICATE PROGRAM

In an urban society, the complexities of living impose on people a need for timely, accurate information with which to face their daily problems. The need is universal, cutting across all ethnic, economic, social, and political lines; and a major role of information specialists is to gather, organize, and disseminate the required information. This role must be filled effectively and imaginatively; selected men and women must be trained to apply their talents to the management and offering of specialized services.

In response to the increasing need for professional leadership and the high degree

of manpower specialization now required by many libraries and information centers, the Pratt Institute Graduate School of Library and Information Science has offered since fall 1973 a post-master's certificate program.

The program is especially attractive to practitioners who, in response to particular demands of their present positions, or who wish to advance into higher level positions, desire advanced training.

The two initial areas of concentration in the program are urban librarianship and information science. They represent two of the greatest challenges confronting the library profession today. Other areas of interest may also be pursued. The post-master's curriculum is tailored to the particular needs and interests of the individual student and will be generally made up of five types of educational experiences:

1. Seminar level courses expressly created for the program.
2. Selected courses from the master's program.
3. Research-oriented independent study.
4. Courses in related areas; e.g., those students specializing in urban librarianship may be particularly interested in the course offerings of the Department of City and Regional Planning.
5. Noncredit-bearing program enrichment activities such as colloquia, conferences and institutes, interest group discussions, and field trips.

The main objectives of the program are:

> To provide professional leadership that can effectively meet the information needs of society—particularly in the areas of information science and urban librarianship.
>
> To provide the highly specialized manpower needs with emphasis on managerial skills now required by many libraries and information systems.
>
> To provide opportunities for the continuing education of practicing librarians in order to meet immediate or future professional demands.

The Advanced Certificate in Library and Information Studies is conferred upon students who complete 30 credits of A- or B-grade work and meet other prescribed requirements of the institute. The program of each student must include six credits of research-oriented independent study. Within the 24 remaining credits, a student may take up to nine in subject-related areas. The post-master's program may be carried out within two semesters and must be completed within 4 years. Courses are offered in the spring, fall, and summer.

UNDERGRADUATE AND LIBRARY TECHNICIAN PROGRAMS

Pratt does not offer an undergraduate program in librarianship. In order to serve undergraduate students enrolled in other professional schools, a course on Computer Applications for the Professions was offered during the period 1972–1974. This course was dropped because of a decrease in enrollment.

Pratt also offered a library technical assistant program of 16 credits on the undergraduate level during 1973–74 as a service to a federally funded paraprofessional

program in School District 12 of the Bronx. This program was designed to train people to play supporting roles to professionals in libraries.

FACULTY

The primary goal of the Pratt faculty is excellence in teaching. Of all the activities of the full-time faculty, teaching occupies the major portion of their time, with an average of 58.5% devoted to this top priority. The school is fortunate in having a full-time faculty which is diverse in experience, abilities, and interests. They bring to the school a wide range of background, as most of them came to teaching after working experience in more than one type of library, where they carried out a wide variety of functions. The 10 full-time faculty members are: Anindya Bose, Harvey J. Coopersmith, Nathalie Frank, Rhoda Garoogian (assistant dean), Robert Karlowich, Anne Kelly, Seoud Matta, Nasser Sharify, Laurence Sherrill, and Virginia Witucke. The services of the full-time faculty are augmented by some 20 part-time faculty who hold high positions in library and information centers. These practicing librarians bring to the school specialized expertise required by the curriculum.

The faculty is also characterized by its international nature. Ten were born in foreign countries and six of them attended educational institutions in foreign countries prior to their American education. In addition to their work experience in 17 states of the United States, members of the faculty have also had opportunities to work in nine foreign countries.

The faculty is well versed in various foreign languages and some of them have working ability in many languages. Collectively, they can work in such languages as German, Russian, Serbo-Croatian, French, Spanish, Arabic, Bengali, Northern Indian languages, and Persian.

Of the 30 full- and part-time members of the faculty, eight hold doctorate degrees in library and information science.

Distribution by age covers a wide spectrum, ranging from under 34 to over 60 years of age, with 70% between the ages of 40 and 45. The faculty is composed of 18 males and 12 females.

The faculty has been generous in time and service to the institute. Three full-time faculty members have served on the Faculty Council of the parent institution and two on its Executive Board. They are frequently sought out by the administration and the faculty of other schools to develop the programs of the institute. They have made important contributions in such important areas as (*a*) the Affirmative Action Committee, (*b*) the Mellon Fund Committee, and (*c*) the first Institute Grievance Committee, etc.

Immediately after the 1970 Board of Trustees Resolutions, a Pratt-wide Research Council was founded and the dean of the Graduate School of Library and Information Science was elected as its chairman. This council was the first formal body created at Pratt with representation from all the schools to encourage and support research. Under the leadership of its chairman and distinguished members, many of the faculty received research grants from Pratt's own funds.

Most of the faculty have been active in the work of professional associations at

the local, national, and international levels and have contributed substantially to the professional literature.

Anne Kelly has served for 4 years as a member of the ALA Council. Anindya Bose, while holding office in the American Society of Information Science, serves as faculty advisor to the ASIS Student Chapter. Nathalie Frank, while holding office in the Special Library Association, serves as faculty advisor to the SLA Student Chapter. Seoud Matta, as a consultant to METRO, designed an On-Line Shared Cataloging System to serve the needs of public libraries in the New York metropolitan area. Nasser Sharify has been especially active on the international scene. For a number of years he served as chairman and member of various ALA committees dealing with reciprocity and equivalencies, and international library education, and on country resource panels and UNESCO panels. Since 1973 he has served the International Federation of Library Associations as the vice-chairman for its library school section. As UNESCO consultant in 1973–74, he helped to create Morocco's first school of information science. As chairman of the Board of Consultants in the period 1972–1974, he prepared comprehensive plans for the Teachers Training College and the National University of Iran. In 1975–76, again as chairman of the Board of Consultants, with the assistance of over 100 international consultants, he prepared a 17-volume work for the planning of the National Library of Iran. On the local scene, since 1973, he has served the Brooklyn Public Library as a member of the Board of Trustees.

STUDENTS

The student body is quite diverse, representing over 50 undergraduate subjects, with English, history, education, liberal arts, and sociology providing the greatest representation. In the fall 1974 semester, 77 students held master's degrees and two held doctorates in other subject areas, representing approximately 25% of the total student body. Twenty-six subject specialties were represented by the advanced degrees. Table 1 gives a breakdown of students' educational backgrounds by subjects.

TABLE 1

Distribution of Degrees Held, by Subject

Fields represented	B.A./B.S.	M.A./M.S.	Ph.D.
English	61	8	—
History	52	4	—
Education	28	24	1
Liberal Arts	20	3	—
Sociology	20	1	—
Psychology	14	1	—
Liberal Science	12	15	—
French	10	2	—
Philosophy	8	1	—
Social Science	8	1	—
Spanish	8	1	—
Art History	7	1	—

(continued)

TABLE 1 (Continued)

Fields represented	B.A./B.S.	M.A./M.S.	Ph.D.
Biology	7	—	—
Economics	6	—	—
Political Science	6	1	—
Anthropology	5	—	—
Chemistry	5	—	—
Fine Arts	5	—	—
Speech	4	—	—
Comparative Literature	3	—	—
Mathematics	3	—	—
Art Education	2	—	—
Communication/Education	2	—	—
Latin	2	—	—
Linguistics	2	1	—
Music	2	1	—
Religion	2	1	—
American Studies	1	—	—
Art/Liberal Science	1	—	—
Business Administration	1	—	—
Classics	1	—	—
Commercial Education	1	—	—
Community Relations	1	—	—
Electrical Engineering	1	—	—
English/Theater	1	—	—
Euthenics	1	—	—
Film and Television Media	1	—	—
Foreign Language	1	—	—
German	1	—	—
Hebrew	1	—	—
Hebrew Culture and Education	—	1	—
Hindi Folk Culture	—	1	1
Humanities	1	—	—
International Affairs	1	1	—
Jewish History	—	1	—
Journalism	1	—	—
Law	1	—	—
Law/Economics	—	1	—
Marketing/Management	1	—	—
Medical Technician	1	—	—
Personnel Administration	—	1	—
Pharmacy	1	—	—
Physics	1	—	—
Pre-Med	1	—	—
Russian	1	—	—
Science	1	—	—
Secretarial Science	1	1	—
Social Work	—	1	—
Speech Correction	1	—	—
Speech/Theater	1	1	—
Topography	1	—	—
Voice	1	1	—
Zoology	—	1	—

While the greatest percentage of students come from New York State, 29 other states are represented in the student body, as well as 16 foreign countries, as shown in Table 2.

In November 1968, the Student Association of the Graduate School of Library and Information Science was founded to foster creative thought, student interaction, and career development. The association publishes a newsletter and sponsors guest speakers, social activities, and curriculum discussions.

Elections of officers are held each semester under the procedures set forth in the Student Association Constitution. The officers are the cochairpersons (who meet weekly with the dean), the newsletter editor (the newsletter is published every 2 weeks during the fall and spring semesters), the colloquium chairperson (several colloquia are scheduled by the Student Association each semester), the special interest luncheon chairperson (each Thursday during the fall and spring semesters the

TABLE 2

Number of Students by Location of Degree-granting Institutions

United States			
State	No. of students	State	No. of students
New York	46	Ohio	3
New Jersey	11	Connecticut	2
Pennsylvania	7	Florida	2
North Carolina	6	Maine	2
Massachusetts	5	Maryland	2
Arizona	4	Minnesota	2
California	4	Oklahoma	2
Illinois	4	Washington, D.C.	2
Virginia	4	Wisconsin	2
Michigan	3	Delaware	1
West Virginia	1	Nebraska	1
Indiana	1	New Hampshire	1
Iowa	1	South Dakota	1
Kansas	1	Texas	1
Mississippi	1	Vermont	1

Foreign Countries			
Country	No. of students	Country	No. of students
India	10	Czechoslovakia	1
Canada	3	Egypt	1
Korea	3	England	1
Philippines	3	Haiti	1
Pakistan	2	Iran	1
Romania	2	Scotland	1
Taiwan	2	South Vietnam	1
China	1	Thailand	1

Student Association invites a guest to lead luncheon discussions with students and faculty on various topics of interest), the curriculum chairperson (the Student Association meets regularly with the dean and faculty on curriculum matters), and the international student chairperson (attends to the particular needs of foreign students).

A NEW HOME FOR AN OLD SCHOOL

For over 80 years the Graduate School of Library Science was housed in the library building. The space allocated to the school on the second and third floors was limited to two classrooms, two offices for the entire faculty, and one office for the secretaries. The dean, as late as 1974, shared his partially divided office with secretarial staff, and the audiovisual equipment had to be stored in cabinets in one of the classrooms.

In January 1974 the school moved into its present quarters on the Pratt campus. It is now housed in a totally renovated five-level structure which contains three classrooms, three seminar rooms, three laboratories, a darkroom, a large and a small conference room, two lounges, and administrative and faculty offices. The plans for the facilities were expressly designed to complement the school's educational program and were extremely successful in achieving this. Tastefully decorated, carpeted, and air-conditioned throughout, the building provides pleasant surroundings for the daily activities of the school.

On the first floor, the large multipurpose room serves as a focal point for programs of continuing education, the weekly colloquium series, receptions, and other gatherings. The nearby student lounge and Student Association office reflect the importance of the student body in the life of the school and provide a strong basis for student interaction and intellectual growth.

ALUMNI

In its long and rich history, the school has graduated 3,593 librarians who have contributed to the profession in significant and varied ways. The Alumni Association of the school has been in existence for almost as long as the school itself. The association, called the Graduate Association, was founded in 1897. As in the days of Plummer and Rathbone, the school today still keeps in close contact with its graduates. The Alumni Association carries out many activities yearly. These include the sponsorship of educational and social functions where graduates of the school have the opportunity of meeting with each other. The alumni also help the school by providing financial assistance in the form of partial scholarships and the participation of students in the professional associations. The school reports to its alumni regularly through the publication of a newsletter, *Pratt Perspectives*.

The Theta Chapter of Beta Phi Mu was organized at Pratt in 1962. As stated in the constitution, its objectives "are a continuing interest in and service to Pratt Institute and its Graduate School of Library and Information Science, and to the profession of librarianship." Membership in the chapter is open to all graduates

of the school who have achieved a scholastic average of 3.75 or higher and who are recommended by the faculty. Since its founding, almost 900 of our alumni have qualified for this honor; 575 have joined to date, and 136 have life memberships. Pratt's Beta Phi Mu chapter actively conducts meetings and social gatherings each year and presents a special award to the best student of the year, as selected by the faculty.

Conclusion

Although the school has attained an impressive chronological age it has remained young in spirit, receptive to new ideas, hospitable to innovation, and responsive to changing conditions. The unchanging aspect of the school is its continuing dedication to such values as excellence of instructional programs, high standards of quality in the selection of both students and faculty, and its commitment to the importance of continuing education for all library and information science practitioners. These are among the values which will continue to be applied in the future, and the Pratt Institute Graduate School of Library and Information Science looks forward with confidence and anticipation to the coming challenges of the 21st century.

BIBLIOGRAPHICAL NOTES

1. Much of the material for the section on the institute's early history was derived from an unpublished paper by John Hulton, a former associate professor at Pratt; from *The Brooklyn Public Library: A History*, written by Margaret B. Freeman in 1970; and from Mary Wright Plummer, "The Pratt Institute Library School," in *Papers and Proceedings of the 30th Annual Meeting of the ALA Held at Lake Minnetonka, Minnesota, June 22–27, 1908*, pp. 206–210.
2. Much of the material for the section on the present-day institute was derived from various publications of the school, e.g., catalogs, annual reports, and the "Self-Study Report" to the ALA Committee on Accreditation published in 1975.
3. Mary Wright Plummer, "The Pratt Institute Library School," p. 210.
4. Nasser Sharify, *Beyond the Bridge*, Pratt Institute, Brooklyn, N.Y., 1972, p. 1.

NASSER SHARIFY

PRECISION AND RECALL

See also *Artificial Questions*

The terms "precision" and "recall" refer to measures that are commonly used to evaluate the performance of a literature search, especially a search conducted in some type of information retrieval system. These measures are probably best explained in the context of the well-known 2 × 2 table of search results, as illustrated in Table 1. When a search is conducted in most information retrieval systems, the system divides up the document collection into two parts. The docu-

TABLE 1

2 × 2 Table of Results of a Literature Search

		User relevance decisions		
		Relevant	Not relevant	Total
System relevance prediction	Retrieved	a	b	$a+b$
	Not retrieved	c	d	$c+d$
	Total	$a+c$	$b+d$	$a+b+c+d$

ments that match the search strategy used to interrogate the system are *retrieved* ($a+b$), and all the documents that fail to match this strategy are *not retrieved* ($c+d$). This dichotomous partitioning of the document collection may be regarded as a form of system relevance prediction. The system, in a sense, predicts that certain documents are likely to be relevant and others are likely not to be relevant. It retrieves the former and holds back the latter.

In almost all situations the number of documents retrieved by a search will be quite small in relation to the total collection size. Put differently, in almost all searches $a+b$ will be quite small but $c+d$, the number of items not retrieved, will be very large. A search might, for example, retrieve 80 document references from a total file of 500,000 references. In this case, $a+b = 80$, while $c+d = 499{,}920$.

The other dimension of the 2 × 2 table relates to the relevance decisions of the system user (i.e., the person for whom the search is conducted). A perfect search would retrieve all the documents in the data base that the user judges to be relevant ($a+c$) and would not retrieve any that he judges not to be relevant ($b+d$). In this case, there is perfect coincidence between the user relevance assessments and the system relevance predictions. That is, $b = 0$ and $c = 0$. We would say that this search has achieved 100% recall and 100% precision.

Recall relates to the ability of the system to retrieve relevant documents and *precision* relates to its ability not to retrieve irrelevant documents. The degree of recall achieved in a search, and the degree of precision achieved in a search, may both be expressed as ratios. The *recall ratio* is defined as

$$\frac{\text{Number of relevant documents retrieved}}{\text{Total number of relevant documents in the collection}} \times 100$$

In terms of Table 1, the recall ratio is

$$\frac{a}{a+c}$$

The *precision ratio* is defined as

$$\frac{\text{Number of relevant documents retrieved}}{\text{Total number of documents retrieved}} \times 100$$

In terms of Table 1, the precision ratio is

$$\frac{a}{a+b}$$

The precision ratio and the recall ratio, used jointly, express the filtering capacity of the system: its ability to let through what we want and hold back what we don't want. Neither one on its own gives a complete picture of the success of a search because, clearly, it would always be possible to get 100% recall if we retrieved enough of the total collection; if we retrieved the entire collection $(a+b+c+d)$ we would certainly achieve 100% recall. Unfortunately, however, precision would be extremely low in this situation because, for any typical request, the great majority of the items in the collection will not be relevant.

The precision ratio may be viewed as a type of cost factor. It is a cost factor in user time—the time required to separate the relevant citations from the irrelevant ones in the output of a search. Consider, as an illustration, a search request for which there are 20 relevant documents in a particular data base. Suppose that one uses three different search strategies to interrogate the system and that each strategy retrieves 15 of the 20 relevant items (i.e., recall is 75%). In the first search, the total number of items retrieved is 30, in the second it is 60, and in the third it is 150. The precision ratio in these three searches is 50%, 25%, and 10%, respectively. In the first search the user has to examine only 30 citations to find the 15 of relevance; in the second he must examine 60; and in the third, 150. All other things being equal, it will take him longer to separate the relevant from the irrelevant in the second search, and considerably longer in the third. It is in this sense that we can regard the precision ratio as a measure of user effort or cost. A search that achieves 75% recall at 50% precision is more efficient than one that achieves 75% recall at 25% precision, and this is more efficient than one that achieves 75% recall at 10% precision.

As stated earlier, these ratios measure the degree of coincidence between the user relevance assessments and the system relevance predictions. In a perfect search these will exactly coincide. Unfortunately, such perfect searches are relatively rare. We are more likely to get a situation in which there is partial coincidence between the set $a+c$ and the set $a+b$, as shown in Figure 1. In this diagram the total collection is represented by the solid rectangle and the set of items retrieved by the dotted rectangle. The hypothetical, but very typical, search has retrieved most, but not all, of the relevant documents and has avoided retrieval of most, but not all, of the irrelevant documents.

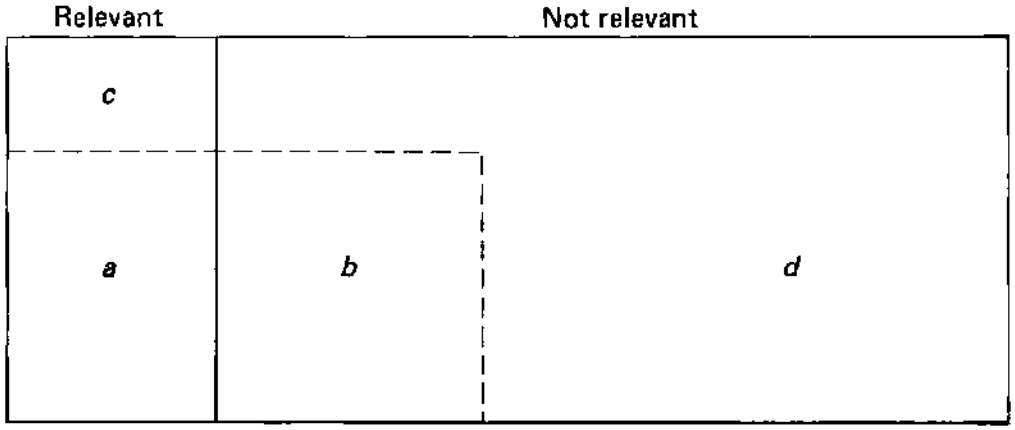

FIGURE 1. *Results of a typical search in a retrieval system.*

Recall and precision tend to be related inversely. By this we mean that when we broaden a search, to achieve better recall, precision will tend to go down. Conversely, when we narrow the scope of a search, in order to improve its precision, recall will tend to deteriorate. For a particular group of, say, 50 requests, we could conduct each search at a number of different levels, from an extremely broad search designed to get very high recall, to an extremely narrow one, designed to get high precision. If we derived recall and precision ratios for each of these search approaches we could reduce the results to a plot of recall versus precision. The resulting plot would look something like that of Figure 2. It represents the average of the recall and precision ratios for all 50 searches, with each search being conducted at four different "levels." It can be seen that when the searches are conducted very generally (point A), a very high recall of around 90% is achieved; the precision, however, is very low. When, on the other hand, the searches are

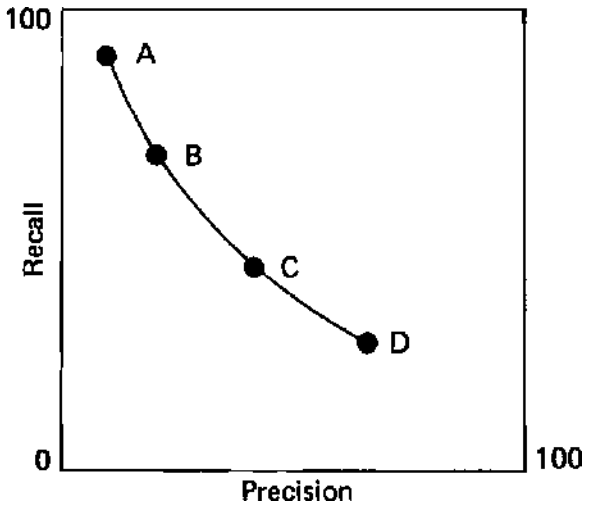

FIGURE 2. *Typical plot of recall versus precision.*

made very specific, a high-precision, low-recall result (point D) is achieved. The points B and C represent compromise strategies between these two extremes.

The curve of Figure 2 represents the *average* of the results for 50 searches when each search is deliberately conducted at four different levels. But, in this situation, as in others, averages may be quite misleading. The performance figures for the individual searches are unlikely to fall on this curve. In fact, they are likely to be widely scattered, as shown in Figure 3. Here we can see some very good results (top right-hand corner of the plot), some very poor results (bottom left-hand corner), some high recall–low precision results, some high precision–low recall results, and some completely middle-of-the-road results. When we average out all of these, we arrive at average performance figures and an average performance curve, A–D.

Recall and precision ratios are two important measures that can be used in the evaluation of an information retrieval system. Their major value lies in the fact that they can be used to determine under what conditions the system seems to operate best. Consider Figure 3 again. What we really want to know is why some searches have produced very good results and some very poor results. In other words, "what makes a good search good" and "what makes a bad search bad"? One way of approaching an answer to this question is to divide up all the searches according to various characteristics and to produce a family of curves for the various sets of searches thus created. In Figure 4 we see the average performance curves for three groups of searches. Clearly, Group 1 has produced the best results and Group 3 the worst. The curves shown in Figure 4 may represent searches conducted in different subject fields, searches conducted by different processing centers, searches conducted for different types of users, searches conducted for requests arriving in various ways (by mail, by telephone, by personal visit), and so on.

An analysis of this type might indicate weaknesses in the system and ways in

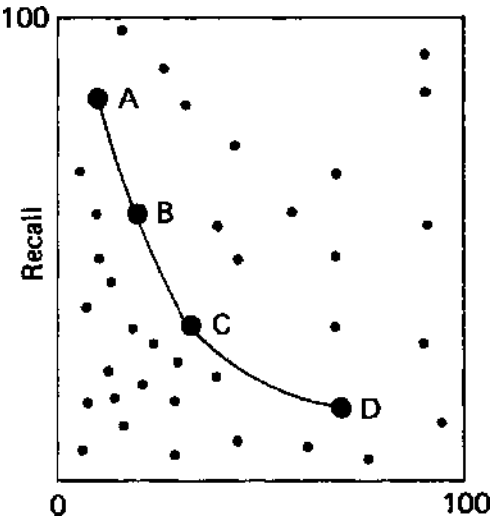

FIGURE 3. *Scatter diagram of search results.*

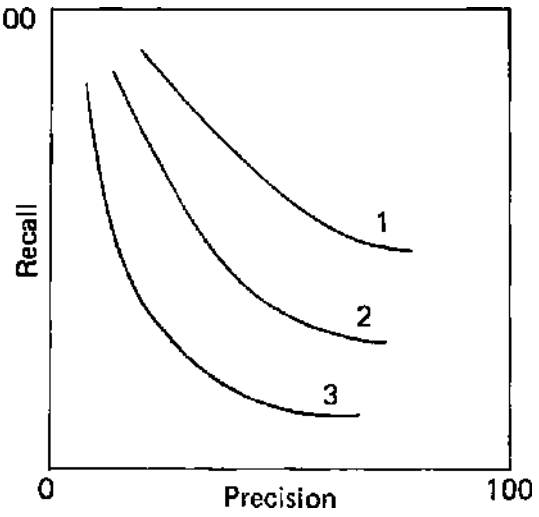

FIGURE 4. *Family of curves representing results for groups of searches of different "types."*

which the performance might be improved. For example, if the Group 3 curve represents searches in a particular subject area, these poor results might indicate inadequacies in the vocabulary of the system in this subject field. The evaluation has pinpointed this weakness and thus allows us to take appropriate corrective action. It should be pointed out, however, that we are likely to need a fairly large number of searches (many more than 50) to conduct, with any level of statistical confidence, the type of comparison exemplified by Figure 4.

Recall and precision ratios have another important use. Each ratio is likely to indicate a certain number of failures and this permits us to conduct an analysis to determine why these failures occurred. To take a simple example, suppose that a particular search has performed as follows:

1. $7/10 = 70\%$ recall
2. $7/28 = 25\%$ precision

These results indicate 3 recall failures (instances in which a relevant item was not retrieved by the search) and 21 precision failures (instances in which irrelevant items were retrieved by the search), and these failures must be analyzed to determine why they occurred. Failure analysis of this type is the diagnostic element in an evaluation program. It is the most important part of the entire evaluation activity. Failure analysis requires an examination of the document involved, how it was indexed, the request statement, the search strategy, and the vocabulary of the system. The objective is to determine why the failure occurred and to attribute the failure to the appropriate component of the total retrieval system (the indexing, the search strategy, the vocabulary, or the user-system interface). For a more complete discussion of failure analysis, and of factors affecting the performance of a retrieval system, see the article *Evaluation and Testing of Information Retrieval Systems* (this encyclopedia, Volume 8, pp. 234–259).

TABLE 2

Results of a Hypothetical Search in an Information Retrieval System

		User relevance assessments		
		Relevant	Not relevant	Total
System relevance prediction	Retrieved	10	40	50
	Not retrieved	5	499,945	499,950
	Total	15	499,985	500,000

So far in this article we have assumed that it is relatively simple to obtain recall and precision ratios for a search in a retrieval system. It is relatively easy to obtain a precision ratio for a search—but it is not at all easy to measure recall. Consider another 2 × 2 table, Table 2, this time with some hypothetical results entered. Some of the results in this table are directly observable, others can be obtained through the cooperation of the requester, and some can only be estimated.

The data base represented in this table contains 500,000 items and this hypothetical search has retrieved 50 items and has not retrieved 499,950. This is a typical result. For any search in a retrieval system the great majority of the items in the collection are not retrieved. To obtain a precision ratio for the search we need to discover how many of the 50 items retrieved are "relevant." We can obtain this figure by submitting these items to the person requesting the search and asking him to assess their relevance to the information need that prompted the request to the system. In this hypothetical case he judges only 10 to be relevant. The precision ratio is thus 10/50, or 20%. We have assumed here that it is the requester who should make these relevance assessments. Not everyone accepts this assumption, however, and some would have relevance assessments made by an independent observer or possibly a jury of such observers. For a further discussion of this, see the article *Pertinence and Relevance* (this encyclopedia, Volume 22, pp. 70–86).

We are still left with the problem of estimating recall and this is not particularly easy. To establish recall we need to determine how many of the documents not retrieved by the search are, in fact, relevant to the search request. There is only one way of determining absolute recall for a search and that would involve the examination of each and every item not retrieved. This is an impossible task in any but a very small, experimental situation. In the case of the search represented in Table 2, 499,950 documents would need to be examined. Random sampling

does not improve the situation very much. In the case of this hypothetical search, we would need to examine a sample of 499,950/5 items, almost 100,000, in order to have any chance of finding even one relevant item purely at random.

Since it is virtually impossible to determine absolute recall, we must usually be satisfied with an estimate of recall. Various methods of estimating recall are mentioned in the article *Evaluation and Testing of Information Retrieval Systems* (Volume 8, pp. 234–259). The most satisfactory of these is to base the recall estimate on some subset of documents known to exist in the data base and known to be relevant. The situation is represented in Figure 5. For any request R the collection I contains a set of documents A that the initiator of the request would judge relevant if he saw them. That is, they are the set $a+c$ of Table 1. Unfortunately, we do not know the identity of the documents in this set. For a very large collection we will never know it. We can, however, estimate recall on the basis of a subset $A1$ of the set A. The subset $A1$ consists of a group of documents that we know to be relevant and we know to exist in the data base. This subset could consist of relevant documents known by the requester before the search is conducted, it could consist of items found by a parallel search in one or more other indexes (e.g., printed indexes) and judged relevant by the requester, or it could be derived from a combination of these two sources. However we arrive at it, the recall ratio of the search is estimated on the basis of the number of this subset $A1$ that are retrieved. To take a very simple example, suppose that the subset $A1$ consists of three documents known to be relevant and known to be in the collection. The search retrieves two of the three and our recall estimate is, therefore, 66%. In the case of the hypothetical search of Table 2, we know that 10 relevant documents have been retrieved. Our recall estimate indicates that 10 is approximately 66% of the total of relevant documents in the data base. Our estimate of the number of relevant documents missed, then, is 5.

The subset $A1$ is the *recall base* by which we estimate the recall ratio for a search. It is obvious that with very small recall bases we can have little statistical confidence in the recall estimate for a single search. But when we apply this technique to a large number of searches we can create quite a large composite recall base and, as shown by Shumway (*1*), we can achieve quite a high degree of con-

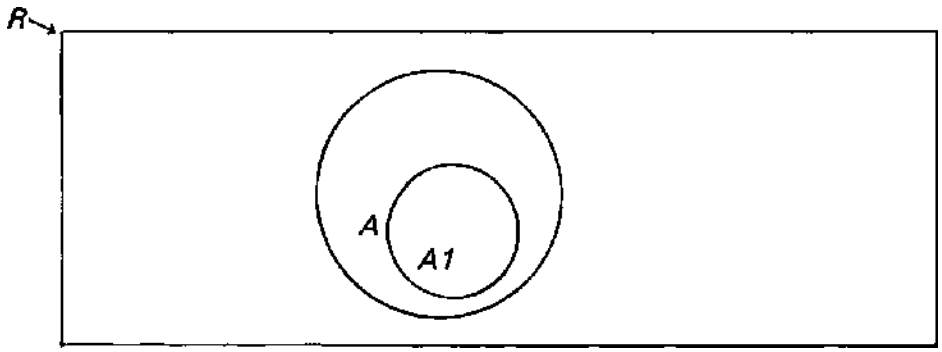

FIGURE 5. *Method of estimating recall by subset of relevant documents known to exist in the data base.*

fidence in the results for the entire set of searches or for large groups of these searches. This technique was used by Lancaster in the largest evaluation so far conducted (2). This study was an evaluation of MEDLARS, the computer-based system of the National Library of Medicine. Some 300 searches were used in this study, and the combined recall base for these searches consisted of almost 2,000 known relevant documents.

Differing Requirements for Recall and Precision

Not everyone needs high recall all of the time. Different users will have different requirements for recall and precision, and a particular individual will have different requirements at different times. The precision tolerance of the user is likely to be directly related to his recall requirements. At one end of the spectrum we have the individual who is writing a book, preparing a review article, or beginning a long-term research project. He is likely to want a comprehensive (high recall) search and he may tolerate a fairly low precision in order to assure himself that he has not missed anything of importance. At the other end, we have the typical user of, say, an industrial information service who needs a few recent articles on a subject and needs them right away. This individual does not need high recall but he will expect high precision in the search results. Other individuals may prefer a compromise; they would like a "reasonable" level of recall at an "acceptable" level of precision.

It seems rather pointless to use the recall ratio as a measure of the success of a search in which high recall is unimportant. This has led some writers to suggest the use of some measure of proportional recall (or relative recall) in which the success of the search is expressed in terms of the number of relevant documents retrieved over the number of relevant documents wanted by the requester. For example, the requester specifies that he needs five relevant documents but the search retrieves only three. The proportional recall ratio is, therefore, $\frac{3}{5}$ or 60%. This measure, while attractive on the surface, is rather artificial in that very few requesters will be able to specify in advance just how many documents they want from the system.

Another limitation of the recall ratio is that it assumes, more or less, that all relevant documents have approximately equal value. This is not always true. A search may retrieve 5 relevant documents and miss 10 (recall ratio = 33%) but the 5 retrieved may be much better than the 10 missed. They could, for example, be more up to date and might in fact make the other 10 items completely redundant. The recall ratio, while important, must therefore be used with some caution in the evaluation of information services.

Alternative Performance Measures

The 2 × 2 table (Table 1) contains all the data that we really need to know about a search in a retrieval system for evaluation purposes. One way of express-

ing the results of this table is by the recall ratio and the precision ratio, used jointly. But there are several other measures of performance that can be derived from this table, and there are various ways in which these results can be presented. Before we mention some alternative measures, it may be desirable to give some names to the various cells of Table 1. The set a we can refer to as the *hits*, the set c as the *misses*, the set b as the *noise* (in the communications sense), and d as the set *correctly rejected*.

From Table 1, all of the following measures can be derived:

$a/(a + c)$ The *recall ratio*, also known as the *hit rate*. The measure was apparently first suggested by Perry, who referred to it as the *recall factor* (*3*). Swets calls it the *conditional probability of a hit* (*4*). Goffman and Newill have called it *sensitivity* (*5*).

$c/(a + c)$ This is the complement of recall. Fairthorne has called it a *snobbery ratio* (*6*). Swets terms it *conditional probability of a miss*.

$a/(a + b)$ This is the *precision ratio*, sometimes referred to as the *relevance ratio*. Again, Perry seems to have introduced the measure (*3*). Perry called it the *pertinency factor*. Others have referred to it as an *acceptance rate*.

$b/(a + b)$ This is the complement of the precision ratio, called, by Perry, the *noise factor*.

$b/(b + d)$ This measure seems to have been first suggested by Swets, who referred to it as the *conditional probability of a false drop* (*4*). Cleverdon et al. have since named it the *fallout ratio* (*7*). It has also been referred to as *discard*.

$d/(b + d)$ The complement of *fallout*. Goffman and Newill have called it *specificity* (*5*). Swets names it the *conditional probability of a correct rejection*.

Each one of these measures can be referred to as a *single measure* of merit for a search. When two measures are used together (as in a plot of recall versus precision or recall versus fallout) this has been referred to as a *twin variable measure*. When an attempt is made to combine two of these separate measures into a single measure (e.g., one reflecting both recall and precision) the result is known as a *composite measure* or, possibly, a *single figure of merit*.

These measures are appropriate for use with a retrieval system that merely divides a collection into two parts, those items retrieved and those not retrieved by a particular search. But certain systems will do more than this. They will generate a "ranked output" of documents in order of probable relevance to a request. Ranking systems should be evaluated in a somewhat different way because here we need an indication of the success of the ranking procedure. Various measures that have been applied to ranking systems include *rank recall*, *log precision*, *normalized recall*, and *normalized precision*. These measures, introduced by Salton, essentially compare the actual ranking achieved by the system with an ideal ranking (*8*). That is, the measures reflect the degree to which the ranking matches the ideal situation.

Rather complete discussions of evaluation measures, methods of averaging results, and methods of presenting results of retrieval tests have been provided by Keen (*9,10*) and by Robertson (*11*). Recall ratios and precision ratios have

been the measures most used in evaluations of information retrieval systems. These measures were popularized by Cleverdon in the ASLIB Cranfield Project (*12*). Many other writers, however, have presented reasons why other measures may be regarded as more accurate or more informative. Robertson's paper provides a useful analysis of the pros and cons of the various measures that have been proposed or used.

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F. W. LANCASTER

PRESERVATION OF LIBRARY MATERIALS

Introduction

While concern for the preservation of written records is apparently just about as old as written records themselves, several historical forces have necessitated a change in the form of preservation efforts. First, the very volume of material to be preserved in some form or another is so vast that traditional preservation techniques, which developed from handicrafts, are no longer by themselves adequate to cope. Second, the diversity and complexity of record materials, ranging from

superb 15th-century books to evanescent photographic and magnetic images, not to mention unstable 19th-century paper, have similarly created preservation problems which cannot be solved by older, purely empirical approaches. And third, there seems to be increasing concern, perhaps generated by awareness of the fragility of mankind's cultural heritage, for the preservation of artifactual values of all sorts of material objects, from books to entire historic districts.

The preservation of library materials, impelled by the forces described above, is just beginning to emerge as a distinct professional discipline, and at the time of writing it is suffering from a rather severe case of growing pains. While some indications of the direction that the field must take have been derived from the closely allied profession of museum conservation, mass preservation procedures (see below) are largely an uncharted territory. Library conservation lacks formal, academic training programs with the attendant benefits of standardization, research, and publication. Library administrators are largely just beginning to realize their responsibilities toward preserving their collections.

Nevertheless, significant progress is taking place; much of it has occurred since the disastrous flood in Florence of November 1966. The flood itself emphasized the fragility mentioned before, and subsequent recovery efforts elicited new approaches to book conservation, new standards, and an unprecedented level of international sharing of knowledge and experience.

The remarks which follow indicate some of the areas of library conservation's underdevelopment, but it is hoped that they will also provide some useful suggestions for preserving collections within the framework of the best knowledge available at the time of writing.

Categories of Preservation

PRESERVATION OF INTELLECTUAL CONTENT

By far the largest preservation problem quantitatively are "brittle books," books printed after roughly 1860, in which the paper becomes so brittle that it ultimately cannot be handled without breaking. With the present state of preservation technology, the only economically feasible method of "preserving" such materials in nearly every case is by some form of reproduction. Stated another way, the intellectual content of the book is preserved through reproduction while the artifact book is allowed to perish.

The common methods of reproduction (which may or may not have preservation as their primary function) are commercial reprinting, micropublishing, and individual microfilming.

PRESERVATION OF ARTIFACT OR DISTINCTIVE MATERIALS

Where a book, manuscript, or related object has value as an artifact for reasons of age, beauty, rarity, historical or bibliographical significance, or monetary

value, or where it has physical features such as fine or color illustrations or fold-out maps and charts, the physical artifact must normally be preserved. Although one of the difficulties of library preservation is that there are not clear criteria for distinguishing between artifact and nonartifact materials, it is clear that the former category is far smaller than the latter. Nevertheless, the problems of preserving artifact materials are far more complex. The highly varied and complex nature of record materials, the newness of modern approaches to conservation, unresolved ethical and philosophical questions, and ongoing economic constraints all contribute to the difficulties of conserving artifact materials.

MASS PRESERVATION PROCEDURES

Mass preservation procedures, an area which is still in its infancy, have broad implications for the preservation of both artifact and nonartifact materials, implications which are largely economic. With nonartifact materials, it seems possible that techniques can be devised which will make it cheaper to preserve the physical book than to copy or reproduce it. For artifact materials, mass methods may help to reduce the frighteningly high cost of physical treatment.

An additional implication of mass methods is that as they become available, they may make it possible or even economical to physically preserve large numbers of books, thus retaining items which may prove ultimately to have artifact value which is not at present recognized as such.

Preservation Methods

ENVIRONMENTAL CONTROL

While the most devastating cause of the deterioration of books is inherent chemical instability, as exemplified by the brittle-book problem, inadequate environmental conditions take their insidious toll on book materials of all degrees of inherent stability. (For a review of the causes and effects of the deterioration of library materials, see Carl J. Wessel, "Deterioration of Library Materials," this encyclopedia, Vol. 7, pp. 69–120.) Moreover, the cost of both reproduction for preservation of intellectual content and of conservation treatments is very high. And the deterioration of artifact or distinctive materials can never be truly reversed to return a book or manuscript to "new" condition.

These factors seem to comprise a compelling argument for providing as nearly as possible optimum environmental conditions for library collections.

It has been pointed out by Smith (*1*), Feller (*2*), and others that virtually all chemical reactions, including those which are involved in the deterioration of library materials, are temperature dependent, and the relationship between temperature and rate of deterioration appears to be linear. In simplest terms, the warmer the books, the faster they deteriorate. The obvious conclusion to be drawn from this fact of chemistry is that books and manuscripts should be kept as cool

as possible. [A persistent myth is that the temperature which is comfortable for people is also good for books (*3*). This idea is true to the extent that 72°F is better for books than 82°, but it does not take into account that 62° is better for books than 72°.]

There are at least three factors which dictate the lower limit of temperature at which books can be stored: condensation, cost, and comfort.

If a book which has been stored at 50°F is brought into a room at 72° and 50% relative humidity, liquid moisture will condense on the book, just as moisture condenses on one's eyeglasses when coming indoors in cold weather. (Condensation on the book may not be noticed, however, because of the absorbency of most book materials.) For this reason, 60° F is probably the lower limit at which books which are taken from storage for use should be stored. Preservation collections which are essentially unused might well be kept at much lower temperatures (*4*).

The cost of plant and energy may be a serious inhibition to keeping books cool in warm weather. Thermal properties of the building housing the collection, climate, local energy costs, and trade-offs between energy for cooling in hot weather and heating in cold will have to be taken into account by engineering consultants in determining the economic implications of storing books at lower than normal room temperature in any given situation.

Where book storage and people functions are intermingled, as they are in so many modern libraries, human comfort will probably have to prevail over optimum temperature for preservation. To the degree that preservation is considered important, however, library buildings should be designed to separate book storage from people, so that collections can be kept at 60° or 65° F (*5*).

Relative humidity (RH), like temperature, has a profound effect on the deterioration or preservation of library materials, but in this case the forces are conflicting. High humidity, on the one hand, accelerates some destructive chemical reactions, encourages insect activity, and, above about 75% RH, encourages the growth of mildew. Low humidity, on the other hand, causes desiccation and embrittlement so that books are more subject to damage from flexing of leaves, spines, and board hinges during use (*6*). Moreover, shrinkage of book cover materials in conditions of low ambient humidity often causes warping which can, in extreme cases, actually break a book's hinges.

A factor which is even more important than the exact level of relative humidity is its constancy. Virtually all record materials shrink and expand in response to changes in moisture content, and such movement is damaging, particularly when changes are frequent, drastic, or ongoing for long periods. Since people are less sensitive to changes in humidity than they are to changes in temperature, and since air-conditioning systems are generally designed and operated primarily or exclusively for people comfort, daily swings of 25% RH in air-conditioned buildings are not uncommon, and even larger swings may be experienced over long holiday weekends, for example. Although it would be difficult to measure in the laboratory, there can be little doubt that such rapid fluctuations in relative humidity are damaging to book structures, and there is some laboratory evidence that cycling of temperature and humidity hastens the deterioration of paper (*7*).

Thus it appears from present knowledge that books and manuscripts should be stored at a relative humidity of about 50%. Again, however, preservation collections with very low rates of use might be stored at lower relative humidity. Fluctuations of 5% are probably not seriously harmful, and represent as close a tolerance as most systems can attain. Thus a humidity specification might be expressed as 50% ± 5%.

If, then, heating and air-conditioning systems are to serve the ends of preservation, they must be operated in such a manner that temperature and humidity are kept constant 24 hours a day, 365 days a year. Depending on local climatic conditions and building construction, this may well mean operating the system around the clock.

Airborne pollutants also contribute to the premature deterioration of library materials. Dust particles are abrasive, disfiguring, and may act as nuclei for deteriorative reactions; and, of course, dusting collections is expensive and also incurs the additional handling of books. Gaseous pollutants such as sulfur dioxide and oxides of nitrogen, present in urban and industrial areas, attack paper, leather, dyes; indeed, virtually all record materials (*8*).

Mechanical filtration, with glass fiber or similar media, is the most common method of removing particulate matter from the air, and the one to be recommended. (Electrostatic precipitators are effective in removing particulates also, but they are capable of producing ozone, a damaging oxidant, and are no longer recommended for libraries, museums, and the like.)

Ninety-five percent appears to be the commonly specified efficiency rating of mechanical filtration systems. It must be emphasized that mechanical filtration does not remove gaseous pollutants such as sulfur dioxide and oxides of nitrogen from the air. Earlier literature specified water "scrubbing" systems, in which air was passed through sprays of water kept alkaline (pH 8.5–9.0) (*9*). However, keeping the wash water alkaline apparently causes problems of corrosion or scaling in the spray systems, and the author has been unable to identify any library air-conditioning systems in which scrubbers, if they are used at all, are maintained at an alkaline pH. If Kimberly and Emley are correct, such libraries may not be removing all the SO_2 from incoming air unless they have installed absorbent systems, which constitute the other common means of removing pollutants.

There are two major forms of absorbents available, activated carbon (*10*) and chemically treated ceramic pellets (*11*). The manufacturers of the latter make impressive claims for the efficacy and economy of their product, and, at the time of writing, the Library of Congress is planning to specify it for the air-conditioning system in the Madison Memorial Building. However, activated carbon is initially cheaper than the ceramic pellets, and has been much more widely used. Since there appear to be no published data on pollutant levels in library and museum buildings equipped with different air-cleaning devices, there is little solid information by which good choices can be made. It seems certain that one or the other absorbent is required to remove gaseous pollutants from library air, and that careful maintenance is required, particularly since effective monitoring of pollutant levels in a building is difficult to achieve.

Adequate ventilation, the volume and circulation of air within a building, is

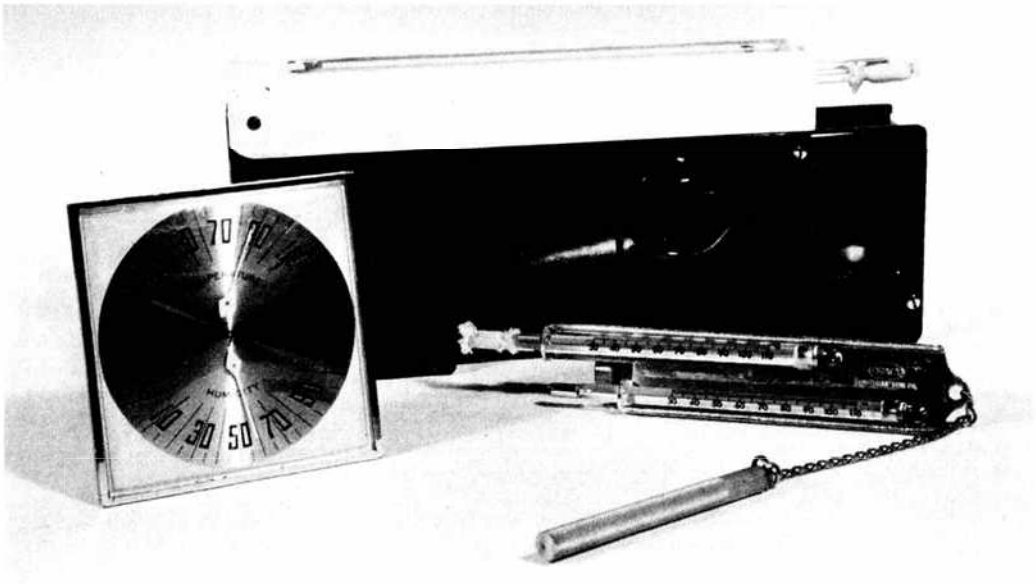

FIGURE 1. *Left: An inexpensive thermometer and hygrometer, which gives approximate readings. Right: The more accurate sling psychrometer. Relative humidity is calculated from the temperature differential between the dry-bulb thermometer and the one with a dampened wick on it. Rear: An aspirating psychrometer, which works on the same principle, except that air is drawn over the bulbs at a steady rate by a battery-operated fan rather than by twirling.*

important to prevent pockets of stagnant air, which can cause local variations of temperature and relative humidity and, in extreme cases, create conditions in which mildew will flourish, even in air-conditioned buildings. Stacks built perpendicularly to air flow, for example, can cause such pockets, and altering partitions in air-conditioned space can throw systems out of balance.

Monitoring temperature and relative humidity is of the utmost importance. If a library does not have an adequate environmental control system, solid data on actual conditions can be powerful ammunition in a campaign to install air conditioning. If a system does exist, it may not be functioning as it was intended to because of age and deterioration, building alterations, tinkering with the system, alteration of operating procedures in the interest of conserving energy or money, or loss of sight of the design standards and their purpose.*

It seems to be equally important that the monitoring should be carried out by other than the building maintenance department, preferably by conservation personnel whose sole responsibility is care of the collections. It takes time, energy, and persistence to maintain good environmental conditions for library collections, but even these qualities must be backed up with solid facts, the gathering of which is itself a tedious process.

Temperature- and humidity-measuring instruments fall into two categories, those which do not record and those which do (*12*). Nonrecording thermometers and hygrometers or psychrometers (see Figure 1), while simpler and cheaper than

* As Anna Russell says in her telling of the story of Wagner's *Ring*, "I'm *not* making this up, you know." All of the described conditions have occurred at the Newberry Library since its air-conditioning system was installed in 1961.

recording instruments, have the obvious disadvantage that they are "working" only when someone is there to take readings from them. This is particularly unsatisfactory in the present context because the greatest fluctuations in environmental conditions are apt to be during evenings and weekends. Thus *hygrothermographs*, which provide a continuous record of temperature and humidity, are fundamental to a monitoring program.

There are a number of brands of hygrothermographs on the market, which fall into two categories. In the majority of instruments the chart is driven by a spring-wound clock, and horsehair humidity-sensing elements and bimetallic thermometers are used (see Figure 2). The newer type, of which there is at least one brand, is electrically driven and the sensors are electronic (see Figure 3). The latter type is less troublesome to operate than the spring-wound instruments, but both types require regular maintenance.

In a large library, several instruments may be necessary to obtain enough data to be able really to see trends. While it may be desirable to have one or more instruments located permanently in areas which contain materials of particularly high value, such as rare book vaults, others can be moved around different stack areas in a consistent pattern (for example, one week in each location in each season).

In addition to observing temperature and humidity conditions on a daily basis, it is useful to be able to compare conditions from season to season and from year to year. For this reason it may be necessary to summarize the graphic data from the hygrothermograph charts into numerical tables (see Figure 4).

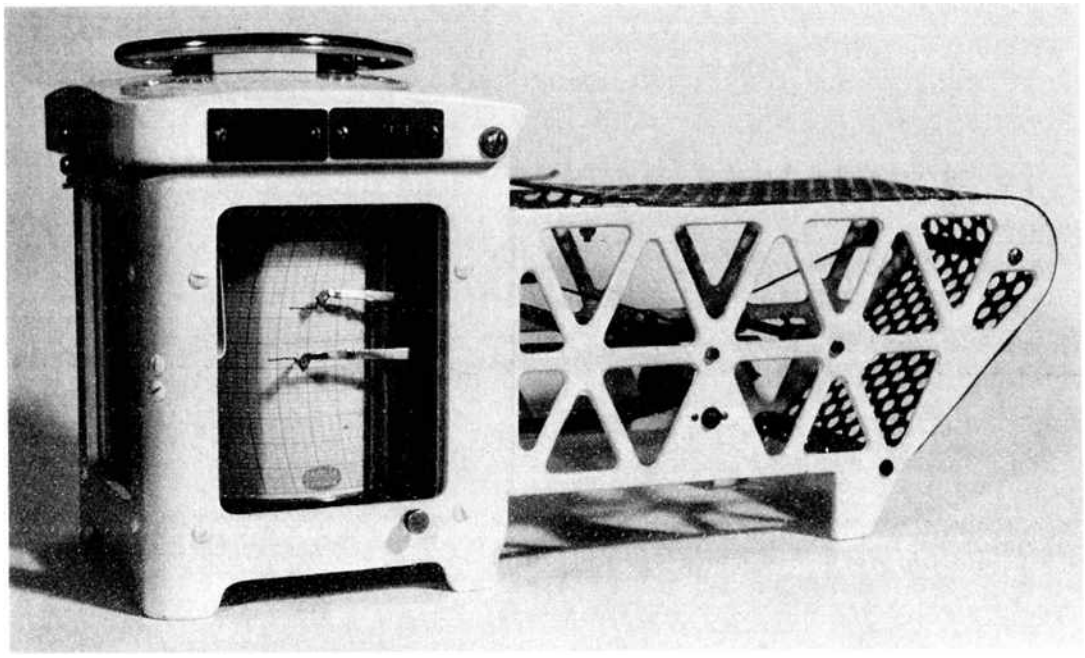

FIGURE 2. *A conventional hygrothermograph which records temperature and humidity for a week on a chart which is turned by a spring-wound clock. This type of instrument needs to be recalibrated periodically against readings from a psychrometer.*

Monitoring airborne pollutant levels is more difficult than measuring temperature and humidity, largely because the small (but nonetheless damaging) levels involved require delicate and sensitive techniques for their measurement. Thus far such measurements need to be made by specialist consulting firms, although a university library might be able to call upon science or engineering departments in the university for assistance. Because of widespread interest in pollution problems, monitoring instrumentation is evolving fairly rapidly, and reliable instruments, which would be practical for library conservation personnel to use, may become available in the near future.

Light is energy, and as such it is capable of activating deteriorative chemical reactions (*13, 14*). There are three main factors which must be considered in the present context: spectral distribution, intensity, and time. It may be well to remember that virtually all library materials are subject to damage from light, and light damage is almost invariably irreversible damage. Moreover, light does damage much more fundamental than just fading, which, because of its greater obviousness, may be considered to be the only, and a merely cosmetic, problem.

As explained by Wessel (this encyclopedia, Vol. 7) and elsewhere, light, especially in the broad sense in which the term is being used, consists of a continuous spectrum of wavelengths ranging from the invisible ultraviolet on the short end of the spectrum to the heat-inducing, but equally invisible, infrared on the long

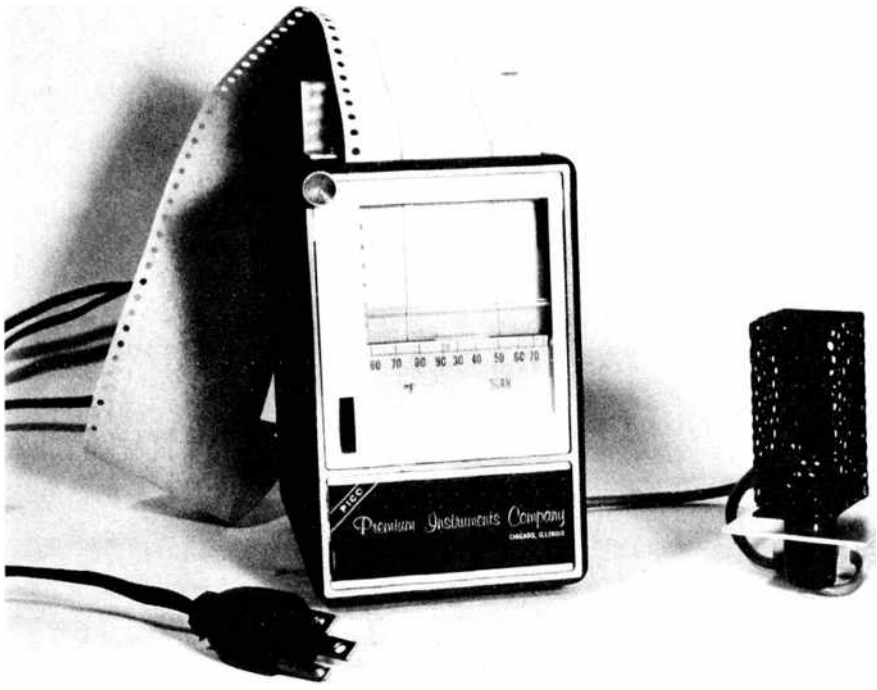

FIGURE 3. *An electronic hygrothermograph by which temperature and humidity are recorded on a roll of chart paper which lasts for 2 months. The sensor (right) may be placed remotely from the recorder.*

YR. 1975		INST. NO. 099							INST. NO. 808							INST. NO. 822							INST. NO. 805							OUTSIDE			
DATE	DAY	°c	T.			R.H.			°c	T.			R.H.			°c	T.			R.H.			°c	T.			R.H.			T.			REMARKS
			H	L	Δ	H	L	Δ		H	L	Δ	H	L	Δ		H	L	Δ	H	L	Δ		H	L	Δ	H	L	Δ	H	L	Δ	
Aug. 15	Fri	23	73	73	0	49	49	0	24	71	71	0	51	51	0	6	73	73	0	46	46	0	25	73	72	1	56	54	1	78	68	20	
16	Sat.		73	73	0	49	49	0		71	71	0	52	51	1		74	73	1	47	46	1		74	72	2	55	53	2	82	62	20	
17	Sun.		73	73	0	49	49	0		71	71	0	51	51	0		75	73	2	47	46	1		74	72	2	55	54	1	84	69	15	
18	Mon.		73	72	1	49	48	1		71	70	1	51	51	0		73	73	0	47	47	0		74	72	2	55	53	2	77	66	13	
19	Tue.		72	72	0	49	49	0		70	69	1	51	51	0		73	73	0	48	47	1		74	72	2	54	53	1	72	68	4	
20	Wed.		72	72	0	50	49	1		69	69	0	52	51	1		75	74	1	47	47	0		74	72	2	56	53	2	78	66	12	
21	Thu.		73	73	0	51	50	1		69	69	0	53	52	1		74	73	1	48	47	1		74	72	2	57	55	2	93	74	19	
Week's range			73	72	1	51	48	3		71	69	2	53	51	2		75	73	32	48	46	2		74	72	2	57	53	4	93	62	31	
Highest day's Δ								1				1			1							1				2			2			20	

NO	FL	AREA	*	DESCRIPTION
1	5	W	■	NEWSPAPER STACK
2	5	WC	■	STACK
3	5	C	■	STACK
4	5	EC	■	STACK
5	5	E	■	RAILROAD STACK
6	4	W	■	STACK
7	4	WC	■	STACK
8	4	C	■	STACK
9	4	E		BINDERY
10	3	W	■	STACK
11	3	WC	■	STACK
12	2	W	■	STACK
13	2	WC	■	GENEALOGY STACK
14	2	C		MAIN READING ROOM
15	1	W	■	AYER STACK
16	1	W		GRAFF ROOM
17	1	W	■	AYER VAULT
18	1	WC		MAP ROOM
19	1	EC		RARE BOOK READING ROOM
20	1	E	■	RARE BOOK STACKS
21	B	W	■	AYER VAULT BASEMENT
22	B	WC		CONSERVATION LAB
23	B	WC	■	G STACKS
24	B	EC	■	WING STACK
25	B	E	■	RARE BOOK ROOM VAULT
26	B	E	■	RARE BOOK STACK

* = BOOK STORAGE AREA

FIGURE 4. *Example of a form for summarizing data from four hygrothermographs which are moved around the building on a regular schedule. The form is designed to highlight unusual conditions which need attention.*

end. The rate of damage depends in part on the wavelength of the radiation which is absorbed by the exposed object. The shorter wavelengths, including but not limited to ultraviolet, are more energetic than the longer ones, and thus have more potential for damaging library materials.

This fact offers a significant advantage in the ability to reduce light damage to valuable materials, because the highly energetic ultraviolet (UV) radiation is not normally needed for seeing objects, so it can be eliminated. Fortunately, this is not too difficult or expensive to do (*15*,*16*).

Sunlight, which is very rich in ultraviolet, and which may also be very intense, may be eliminated altogether (as it certainly should be in stack and exhibition areas), or the UV component may be eliminated by UV-filtering glass or plastic sheets such as Plexiglas UF3.

While incandescent lighting emits only a neglible amount of UV, most fluorescent tubes emit damaging quantities. (In fact they are sometimes used in artificial aging tests.) Fadex brand tubes are coated with a UV-filtering material, and separate filtering sleeves are available which slide over fluorescent tubes. Both types have advantages and disadvantages.

Damage from any given wavelength of visible light is the product of the intensity of the light times the length of exposure. Thus long exposure at a low intensity can be as damaging as a shorter exposure at high intensity. This *rule of reciprocity* clearly suggests that both intensity and time of exposure must be strictly controlled for materials which should be preserved.

In practical terms, light damage from use in reading rooms appears not to be a serious problem, although preservation is only one of several possible reasons for reversing the trend toward ever-higher lighting levels in libraries.

Stack areas are of greater concern, because at least the exteriors of books may be exposed indefinitely. The kinds of precautions to be taken would need to be related to such factors as the value of the collections and patterns of use. In some cases it may be desirable to use timed switches, which turn themselves off after a few minutes. In rare book stacks, UV-filtering tubes or sleeves should certainly be employed for fluorescent tubes in situations where the lights are left on for significant periods.

Library and archival materials are most subject to light damage during exhibition, which will be discussed in more detail in the next section, subsection "Exhibition."

Monitoring light levels is not difficult to do, and some photographer's light meters have scales for reading foot-candles or lux. More sophisticated meters are also available. UV can be monitored only by fairly expensive and complicated instruments, so it may be adequate to be sure that materials are lit with sources low in UV or are shielded with suitable UV-absorbing materials. Or, help in monitoring UV might be obtainable from a local museum or university engineering department.

Environmental conditions for the storage of photographic materials, including

microforms, are somewhat different than those for books and manuscripts. These conditions are carefully spelled out in a series of standards issued by the American National Standards Institute (*17*).

HANDLING AND STORAGE PRACTICES

Adequate handling and storage practices are second only to adequate environmental controls in aiding in the preservation of materials in a cost-effective way at the present time. The cost and other difficulties in preservation treatment, discussed elsewhere in this article, add force to the argument that providing good storage and handling practices should be a high priority.

Handling Books

The fundamental factors in minimizing unnecessary damage to library materials in handling and use are common sense and an attitude of carefulness on the part of both staff and readers. In most libraries there is probably little opportunity effectively to influence the attitudes of readers except subtly through the example of the staff and the general ambience of the library. Exhibitions on the deterioration and conservation of collections, on the effects of vandalism, or which emphasize books as physical objects, may help to elicit respectful handling of books and manuscripts.

While it is usually difficult to enforce rules for handling in large, general reading rooms, certain rules are generally enforced in rare book reading rooms in which surveillance of readers is normally both more necessary and more feasible. Pens of all sorts may be prohibited; books may not be propped open with other books; notetaking and tracing may not be done on books, and so on. Felt or velvet pads, and book snakes or book holders are often provided to readers to help protect the books (*18*).

There is greater possibility of influencing the way that staff members handle books, and it may be useful to produce a "canned" presentation, on videotape or with slides and a cassette tape, to be shown to new employees who will be handling books, especially in the course of photocopying. Encouraging attitudes of carefulness and responsibility is probably just as productive in such a presentation as laying down strict rules. It may be useful to point out the cost of repairing damage caused by careless handling.

There are a few specific book-handling rules which should be included in such a presentation: Books should never be pulled off the shelf by the headcaps; when more than two or three books are to be transported within the library a book truck should be used to reduce the possibility of dropping the books; book trucks (particularly if they are flat shelved) should be loaded carefully to avoid books jiggling off the truck; oversize books (whose structure is normally not commensurate with their weight, and the rebinding of which in a sound way is enormously expensive) should be handled with particular care; books should not be jammed onto overcrowded shelves, and so on.

Shelving

Improper shelving practices are another source of damage to book collections. The shelves themselves should be smooth, without sharp edges or abrasive finish. Bookends should have a thick enough profile that they are easily visible on the shelf, to help prevent jamming books over them, damaging the leaves. Narrow aisles, or ranges of shelves placed at turnaround points, encourage damage to books from book trucks.

Books should be stored upright on the shelf, with bookends (or shelf fullness) adjusted to hold the books straight, but without being so tight that damage is incurred in removing a book from the shelf. Storing books on their fore edges or allowing them to lean diagonally is damaging to their structure. The hinge area of a book is almost invariably where major structural breakdown starts, and storing books diagonally or on their fore edges places the greatest stress precisely on the hinge area. If there is no alternative to storing books other than upright, it is less damaging to their structure to place them on their spine rather than their fore edge, although, of course, spine storage will cause abrasion to the spine.

It is vital to devise and enforce as consistently as possible a size-designation scheme for books to reduce the likelihood of attempting to jam books onto shelves which are too closely spaced for them. Large atlas-sized volumes, variously called flats, elephant folios, plusses, etc., present particular difficulties. As already mentioned, such volumes are especially vulnerable to damage because of their size and weight, and the cost of rebinding them soundly is frightening. Such volumes should invariably be stored flat, and it is always desirable (if not often feasible) to store them one to a shelf, to reduce damage incurred in obtaining a lower volume from a pile. Where two or more must be piled on a shelf, adequate vacant surface area must be provided to enable the top volumes of a pile to be carefully laid aside while getting out a lower one.

Photocopying

Photocopying is a prime example of the two-edged sword. On the one hand, it provides the possibility of preserving the intellectual content of brittle books and of reducing wear and tear on valuable books to the extent that users can be persuaded to use copies rather than the originals; but copying is inherently at least somewhat stressful to books, and potentially disastrous. Unfortunately, inexpensive photocopying appears to be necessary in many libraries to reduce vandalism, but since cheap copying usually implies self-service, coin-operated machines, there is little possibility of controlling the care with which books are handled in the copying process. An alternative used in at least one library is to subsidize the copying operation by providing copies at the same rate as coin-operated machines, but to have the actual copying done by staff, who can be encouraged to handle books carefully.

The library market for photocopying machines is small compared to commercial use, and a machine which is designed primarily for copying from books has yet

to be marketed. Some newer models of copying machines are more adaptable to book copying, but even where the copy glass is near the edge of the machine, enabling a book to be opened to less than 180°, the saving to the user of copying two pages at a time still encourages forcing a book flat on the copy glass unless the page size is too large to permit double-page copying. Also, even with machines with the copy glass edge-mounted, the imaging area of the machine often does not extend all the way to the edge of the glass, thus encouraging users to force tightly bound volumes onto the machine in order to obtain all of the text (*19*).

Microfilming is generally less damaging to materials than full-size paper copying. Microfilming is never self-service, so there is opportunity to educate operators in careful handling of books; the copying is invariably done face-up, which reduces the possibility of bending leaves; and while there are difficulties in obtaining gentle book cradles for microfilm cameras, some commercial ones and many ideas for homemade ones have been devised.

Microfilming offers the particular advantage that the camera negative can be retained as a master from which additional film or hard copies can be made, thus obviating the need for subjecting a book to the rigors of being copied again. Many research libraries do in fact retain master negatives, providing clients with positives.

Enclosure and Protective Storage Methods

It is safe to say that the library environment is essentially hostile to all forms of record materials. Specific enemies such as light, heat, and pollutants have already been mentioned; handling library materials is inherently damaging to them, however infinitesimal the damage from an individual handling may be; and fires, floods, broken steam pipes and the like occur with distressing regularity. These factors suggest, and empirical observation abundantly confirms, that what might be termed protective storage can play a vital role in the preservation of collections. Conservators observe again and again that items which have been enclosed in protective boxes, time capsules, glazed book cases, and the like not only remain in better condition than unenclosed items, but also often survive disasters in far better condition.

The provision of closely fitting protective boxes should be a central aspect of the preservation program of any special collections department, with books of great vulnerability to damage or of great value assuming top priority for having boxes made. The form of protective boxes also has a bearing on the function. Slipcases, which leave the spine of the book exposed and which cause abrasion in taking the book in and out of the case, are a virtually complete waste of money. Similarly, rounded leather spines and raised bands on boxes may be pleasing to private collectors, but they do not contribute to preservation.

The folding cloth box with a drop spine (see Figure 5) seems to provide maximum protection for bound volumes at minimum cost. This type of box provides complete enclosure and permits the book to be lifted out by lifting the spine with the pads of the fingers (similar boxes with drop fronts necessitate getting hold of

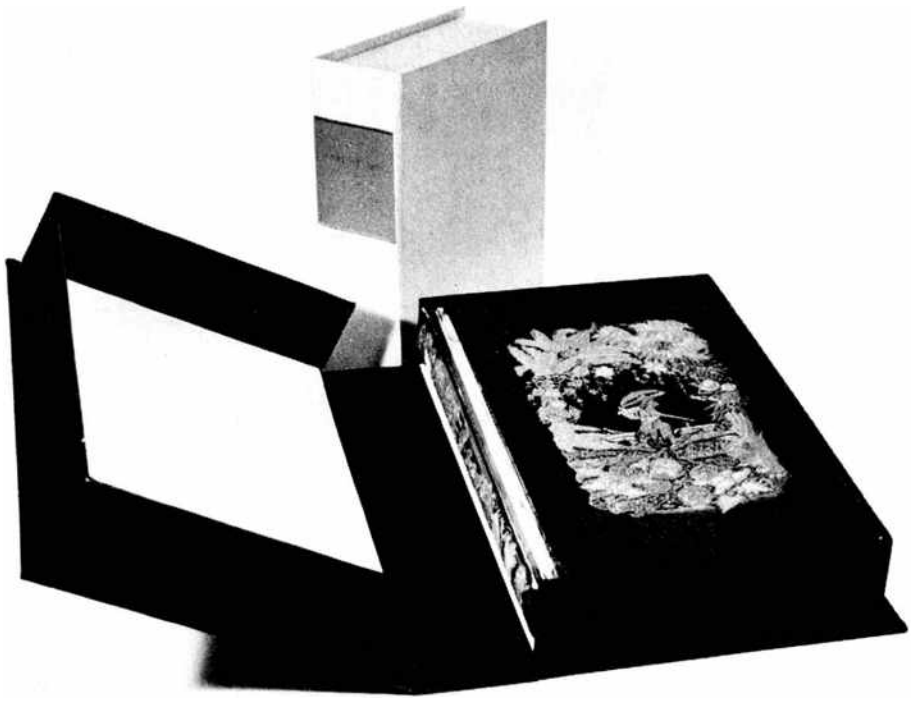

FIGURE 5. *Simple drop-spine folding cloth boxes. Complete enclosure and easy access to contents are provided at a cost which is moderate compared with many types of boxes.*

the book with the fingernails under the front edge of the lower board). Drop-spine folding boxes can be made by binders according to a series of simple formulas, so that production of them can be made routine and relatively fast. Such boxes are also useful for conventional shelf storage of nonbook materials which relate to book collections.

The Restoration Office of the Library of Congress (LC) has devised the "phase box," so called because it is part of a phased preservation program (see Figure 6). These boxes, which are meant to be temporary, are carefully fitted to each book, but their construction is quite simple. They are cut out of one piece of tough, buffered cardboard (the same material from which Hollinger manuscript boxes are made), and the folds are scored with a simple creasing device which could be rigged by a handyman or which is sold by the Hollinger Corporation. A small stud-setting machine is required for the closures.

Polyester encapsulation for the protection of single-sheet materials, devised again by the Restoration Office of LC, meets the most stringent conservation criteria, in that it is not altering or damaging to the object, and it is instantly and completely reversible (*20*).

The object is held between two sheets of clear polyester film (of which the best-known brand is du Pont's Mylar) by static electricity. The edges of the polyester are sealed with Scotch Brand No. #415 tape (see Figure 7). [Polyester film is

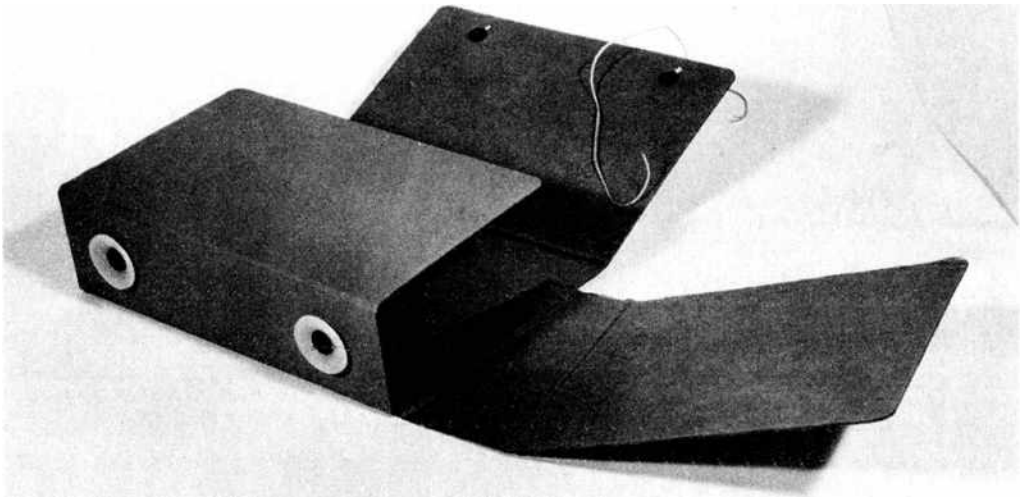

FIGURE 6. *A "phase box" made by the Library of Congress. Designed as a temporary measure, this box provides good protection at moderate cost.*

known to be highly stable, and both the film and the tape have been tested by the Preservation Research and Testing Office of LC and found to have great longevity (*21*).]

Plastics should not be used for drawings of pastel, charcoal, pencil, or other loosely bound media which might transfer to the plastic by static electricity.

Encapsulation is particularly suitable for unbound materials such as maps, posters, and manuscripts which are either subject or particularly vulnerable to handling. (Prints and drawings are customarily matted for protection, although this preference may be based largely on tradition and esthetic considerations.) Because it does not involve actual treatment to the document, encapsulation can safely be done on a do-it-yourself basis by people without specialized training. It is thus often an excellent choice where skills or money are not immediately available for full treatment, but where materials nevertheless need protection.

One indirect hazard connected with encapsulation, however, is that items which need treatment, particularly deacidification, may be stored away and forgotten about; in other words, encapsulation alone is not a permanent solution for materials which need some form of treatment.

One point should be made with regard to all forms of enclosure, whether glass front bookcases, polyester capsules, sealed picture frames, or protective boxes. There is a myth that books, pictures, and the like need to breathe. Since books are not living organisms, this statement is patent nonsense. However, the piece of truth which gave rise to the myth is that if materials are placed in a relatively vapor-tight enclosure when they are in equilibrium with high relative humidity—that is, if moisture is trapped inside the enclosure—there is the possibility of damage from microbial action or from condensation if the temperature drops. Similarly, if closed bookcases in a humidified room are against an exterior wall which conducts out-

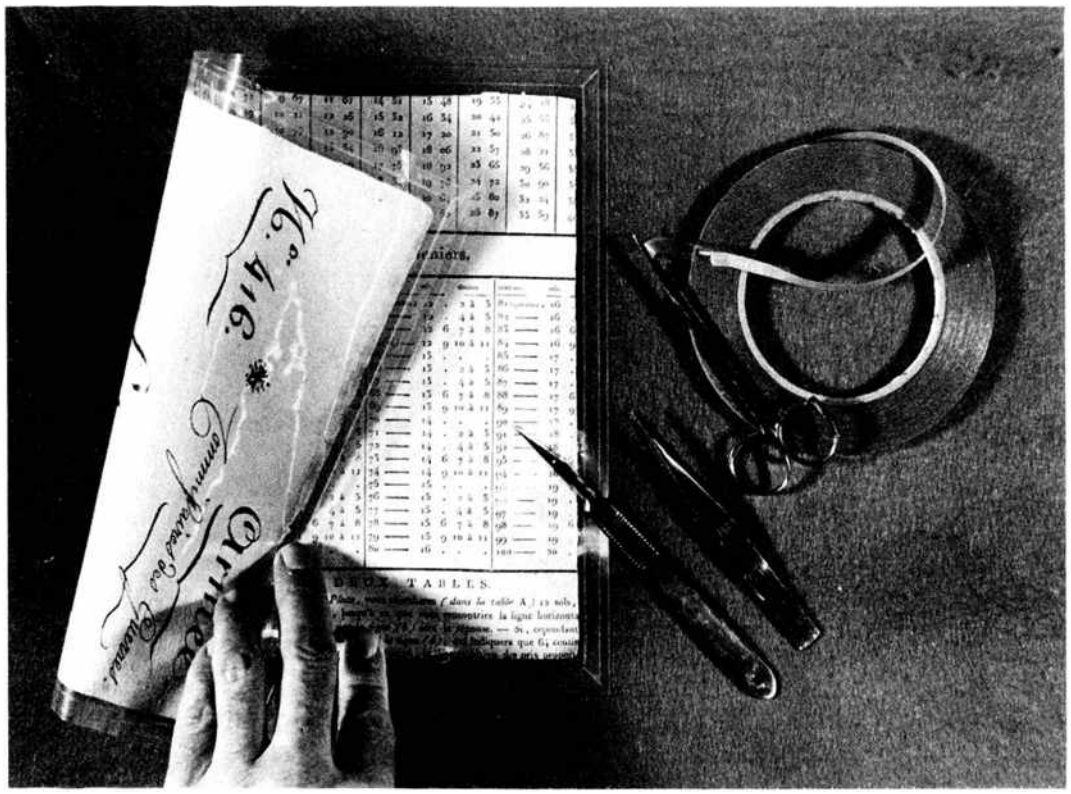

FIGURE 7. *A document encapsulated with polyester. The document is held in place by static electricity. The edges of the capsule are sealed with a stable pressure-sensitive adhesive; the polyester is allowed to extend beyond the edge of the adhesive to discourage dirt pickup.*

side cold, condensation in the back of the bookcases may result. In this case, an insulating air space between the back of the bookcase and the wall would probably cure the problem. With other kinds of enclosure, particularly encapsulation or sealed picture frames, it is vital to be sure that the materials being enclosed have been in equilibrium with RH of no more than 50% for 24 hours or so before they are sealed.

Loose, unbound materials such as manuscripts and maps are appropriately stored in folders in either drawers or boxes. Folders should be made of paper which is not only free from acidity, but preferably also containing an alkaline buffer, to prevent damage to the enclosed materials. Although buffered folders (particularly in map sizes) are expensive and consume drawer or box space which is also expensive, the more important the materials are, the fewer should be stored per folder in order to help prevent mechanical damage such as wadding or tearing, and to prevent chemical damage from migration of acidic inks, paper, verdigris, and the like. A compromise is to place separators of acid-free paper which is thinner and lighter than the folders themselves between individual items.

Folders of manuscripts are most commonly stored in the familiar one-piece fiberboard boxes made by the Hollinger Corporation. Other boxes are also available, or they may be made to order in a bindery. Maps are conventionally filed in

map or blueprint cabinets designed for the purpose. It is particularly important in map cabinets that the folders be cut to the size of the drawer, regardless of the size of the map in the folder. Otherwise, folders are difficult to find and easily get wadded into the back of the drawer when another is inserted.

Most older or larger libraries have accumulations of oil paintings and miscellaneous artifacts. Because libraries are geared to handling books and related objects rather than works of art, the latter are often neglected or mishandled. There is good literature in the museum conservation field on the handling and storage of such items (*22*).

Exhibition

Exhibition is an important library function which is nevertheless particularly insidious in its potential for damage to library materials. Not only are highly significant or valuable materials usually chosen for exhibition, for obvious reasons, but the most significant pages of books and manuscripts are often displayed. In some libraries, the most valuable items such as Gutenberg Bibles or Audubon "Elephant Folios" are displayed permanently. Damage from light has already been discussed; exhibition cases are often too warm and too dry because of internal fluorescent lighting, or from infrared heating effects from incandescent lamps. Means for minimizing heat buildup, such as vents or fans, may permit ingress of air carrying pollutants and fine dust, which becomes irretrievably imbedded in paper fibers. Electrical devices such as fans and miniature air-conditioning systems may introduce fire or smoke hazards into the exhibition case.

The ideal library exhibition case probably has yet to be designed; in the meantime, conditions in existing cases can be monitored and some corrective measures may be indicated if conditions are particularly bad. For example, depending on individual circumstances, vents could be added; incandescent lighting could be replaced with fluorescent; fluorescent lighting could be UV shielded and possibly isolated with translucent plastic from the exhibition space itself, and so on. When new exhibition cases are being designed, the advice of a library or museum conservator who has had experience with such problems should be sought (*23,24*).

There is some evidence that materials used in the construction or lining of cases may be damaging to some objects. It is unfortunate that more is not known about this question, but a simple method of testing has been published (*25*).

Permanent exhibition is clearly inconsistent with conservation. [The permanent display of the Declaration of Independence and the Constitution of the United States at the National Archives in Washington is the exception which explains some of the reasons for the rule: among other precautions the documents are sealed in an atmosphere of inert gas with a system for automatically replenishing any gas which is lost through leakage, and not only are the light levels in the display area very low, the documents are covered with deep yellow filters which remove the more damaging components—the shorter wavelengths—of visible light along with ultraviolet (*26*).] Since, other factors being equal, the amount of damage caused

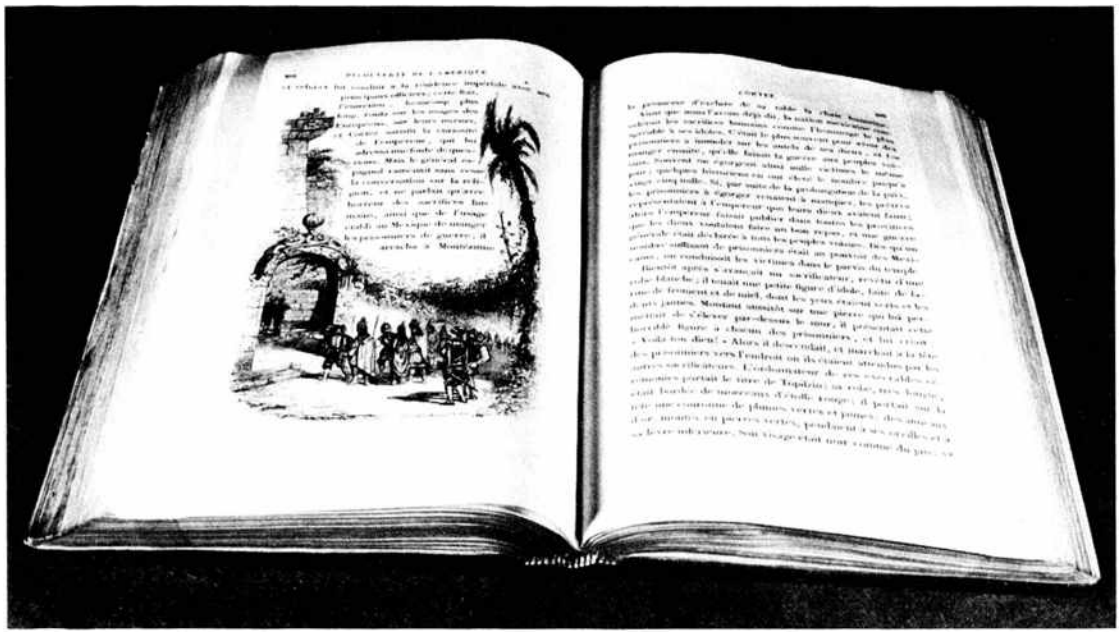

FIGURE 8. *The leaves of a book held open for exhibition with strips of polyester film. Each strip is secured to itself underneath with pressure-sensitive tape. The plastic is, practically speaking, inert; but because of its sharp edges, the book must be handled carefully.*

by exposure to light is directly proportional to the length of time an object is exposed, there is no specific period of time below which materials will be safe on exhibition. Periods of 1 to 3 months are often set as arbitrary limits.

The mounting of valuable materials in exhibition cases requires thought and care. More obvious considerations are that pins should not be placed through single-sheet items, and that no form of adhesive tape or putty should be used. Books may be gently held open with narrow strips of safe plastic such as polyester (see Figure 8); however, such plastic films, particularly in heavier weights, have sharp edges, so handling books in the tying operation must be done with great care. Cradles, which may have to be improvised, are sometimes necessary for books which are delicate or tightly bound. (The Restoration Office of LC fabricated cradles of Plexiglas for an important exhibition; while in this case they were individually designed for specific volumes, the basic configuration might be adaptable to reusable cradles.) Tissue guard sheets may be temporarily gotten out of the way safely by wrapping them around glass rods, which will rest in the gutter of the book.

Shipping and Transportation

The museum conservation profession has learned a great deal about the hazards of shipping objects of cultural property, and about methods for controlling the hazards. Among the more potentially devastating hazards are drastic changes in temperature and humidity, as, for example, shipping by truck in subzero tempera-

ture; shock as boxes or crates are thrown around or dropped; crushing; and hours or days of vibration on trucks or airplanes (*27*). Packages have also sometimes been left out in the rain.

The potential for damage to library materials in shipping can be partially controlled through choice of method of transportation. For example, air shipment is now almost universally chosen over surface carriers for valuable materials in order to reduce the time during which the materials are exposed to the hazards cited above. But packaging is by far the most important element in safe shipping. The most common deficiencies in packing appear to be general lack of sturdiness, particularly for larger and heavier packages, and lack of protection for corners. The latter problem is typified by the padded book bag, which seems invariably to result in mangled corners on books, if not worse damage.

The packaging method to be described here (see Figure 9) clearly is suitable only for materials of great value or vulnerability to damage. However, it is believed that it illustrates sufficiently well the principles involved in protection during shipping that it may be used, with compromises appropriate to the individual situation, as a guide to packing in general.

The book is first wrapped in glassine (not plastic), a slick paper which helps to

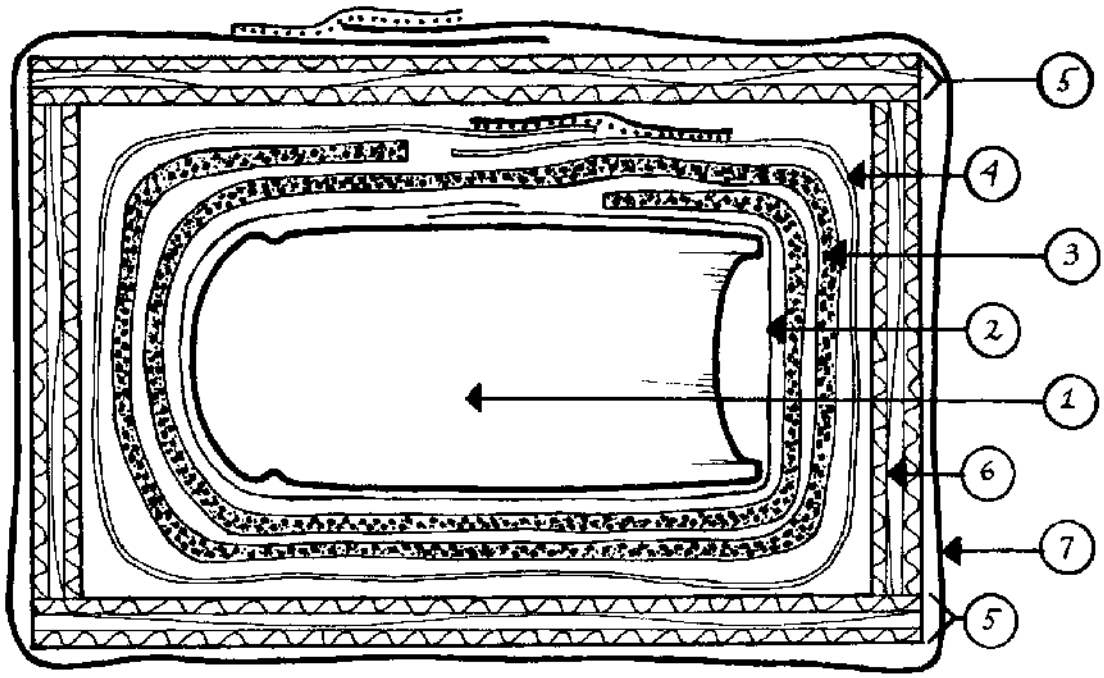

FIGURE 9. *Schematic drawing of ideal book packaging: (1) book; (2) glassine, a slick paper which reduces damage from abrasion; (3) cellulosic padding material, which acts as a buffer against both shock and changes in humidity; (4) waterproof polyethylene-lined kraft paper sealed with pressure-sensitive tape; (5) corrugated cardboard, whose layers are placed perpendicularly to each other for rigidity; (6) supporting pieces of corrugated cardboard around the edges; (7) outer wrapping of PE-lined or conventional kraft paper.*

prevent abrasion incurred during long periods of vibration. It is then wrapped in a soft, cellulosic padding material such as Kimpak. This layer is important because it provides not only cushioning, but also thermal insulation and, possibly most important, because of the hygroscopic nature of cellulosic materials, it provides a kind of humidity buffer which will help to prevent drastic changes in the moisture content of the book. (This is why the innermost layer must be glassine, which is permeable to moisture, rather than plastic, which is not.) The package is next wrapped in polyethylene-lined kraft wrapping paper with all seams sealed with pressure-sensitive (not water-activated) tape. This sealing layer both helps to control the humidity within and helps to prevent the book from getting wet if the package is exposed to water, as, for example, if it is left out in the rain.

The balance of the packing is primarily to achieve rigidity to help to prevent damage from crushing. Layers of rigid corrugated cardboard, with the fluting or grain of each layer arranged perpendicularly to each other to enhance rigidity, are placed on the top and bottom of the book, and supporting pieces around the edges. The edge pieces are particularly important to reduce the possibility of mangled corners. Finally, the package is covered with conventional kraft wrapping paper. Where multiple or large rare books are being shipped, the outer, structural shell may appropriately be a wooden crate rather than corrugated cardboard.

For shipping books of moderate value, telescoping corrugated or fiberboard cartons—which consist of two trays, one of which fits snugly over the other—appear to offer good protection against crushing of corners. Unfortunately, keeping a stock of such cartons in different sizes is cumbersome and expensive, but it may not be more costly than constructing individual packages in a way which is adequately protective. In any type of package, a layer of polyethylene-lined paper with sealed seams is probably a sensible precaution against water damage.

The key to the safe moving of books in quantity from one building to another is the carton or crate. It is impractical and potentially damaging to attempt to pack cartons full in mass moving in such a way that they will be internally supported by the contents, as would normally be done in moving household goods. When such unfull cartons are stacked, the bottom one may collapse, probably toppling the pile. A number of types of cartons or crates have been found in different moving projects which obviate these problems. For example, reusable cartons used for quart beer bottles are sturdier than most, and molded plastic crates for cardboard milk containers may be suitable, although as they are largely open, protection from weather would have to be taken into account.

It appears that the safest way to pack books for a move is to stand them upright in the cartons in one layer. When attempts are made to pack cartons or crates full by filling spaces with books oriented differently, especially where books are laid on top of others, the potential for damage increases sharply.

The fundamental elements in the safe packing, shipping, and moving of books are to analyze the nature of the hazards involved (including less obvious ones like drastic changes in humidity), and to engineer the methods used in order to protect the books from the identified hazards.

PHYSICAL TREATMENT METHODS

Although the craft aspects (such as bookbinding) of physical preservation treatment are as old as the materials themselves, the realization that many fundamental problems can be solved only with the help of science is relatively new. Equally important and even newer is concern for sound philosophical and ethical bases of preservation methods for those materials which have artifactual value. The necessary integration of three such disparate areas as craft, science, and ethics, which are moreover at different stages of development, makes preservation treatment of library materials an uncertain and controversial field at the present time. Further difficulties are the exceedingly small number of trained people in the field, and the high cost of preservation treatments which genuinely cure problems rather than simply alleviating symptoms while complicating eventual cure (*28*).

Because, then, of the difficulties inherent in the field of book conservation at the present time; because the field is entering a phase of rapid growth and change; and because of the limitations of an encyclopedia article, what follows is an attempt at only a broad, general outline of preservation treatment methods available today.

It is important to emphasize that books, manuscripts, and all of the other types of graphic materials found in research libraries are highly diversified in their nature and in the conservation problems which they present. A great deal of the damage done to library materials in the past has been caused by attempting to fit the problem to a preconceived and rigid solution, such as commercial library binding or cellulose acetate lamination, rather than attempting to design the solution to fit the particular configuration of problems and characteristics of the item itself. There can be no doubt that the latter, individualized approach to preservation treatment is more difficult and more expensive than cut-and-dried solutions, but there is equally no doubt that making the problem fit the solution only causes more problems later on.

Paper Treatment

Paper is potentially a highly enduring material, depending on two general factors: the way in which it is made and the vicissitudes which it may undergo once it is made. Most corrective paper treatments involve either the arresting or reversal of damage from storage, use, or previous treatment, or attempts to slow down deterioration caused by inherent instability of the paper itself. It should be noted that while the latter case applies primarily to paper made after about 1860, the decline in the lasting qualities of paper has been surprisingly linear since about the 16th century (*29*).

Dry cleaning may be a necessary first step in the treatment of paper, not only for its obvious cosmetic improvement, but also because any subsequent aqueous treatment permanently "sets" dust into the paper fibers. Depending on the bulk, value, and character of the materials involved, dry cleaning may range from blowing dust off with compressed air hoses to delicate application of eraser crumbs with the fingers.

Water is not only essential to many other paper conservation treatments, but washing in plain water is itself beneficial to old paper in most cases. Washing removes from paper soluble decomposition products which are themselves damaging, and it also reestablishes hydrogen bonds, the electrochemical "cement" which holds cellulose fibers together in a sheet of paper, thus providing a degree of strengthening. Moreover, since most papers from roughly the 16th to the 19th centuries contain more gelatin sizing than is desirable for preservation, removal of some of the sizing by washing in hot water improves the flexibility and apparently the permanence of such papers. Preliminary washing also may increase the receptivity of paper to aqueous deacidification treatment.

Chemical bleaching is widely employed by conservators of prints and drawings, since with this type of material esthetic considerations are uppermost. However, there is abundant evidence that all current bleaching methods are at least slightly damaging to paper, and responsible conservators generally feel that there is little justification for the use of bleaches on library materials. There is, moreover, intense controversy among conservators and conservation scientists about which bleaches are the least damaging.

Surfactants and enzymes show promise of usefulness in certain types of stain removal and separation problems in paper treatment, but experience with them thus far is limited.

Acidity was identified as early as 1829 as a major enemy of paper permanence (*30*), but it has only been in recent decades that the full extent of the problem of acid-caused deterioration of paper has been realized. There is now abundant evidence, based both on testing of recently deacidified papers and on observation of the enduring qualities of old papers with varying degrees of acidity or alkalinity, that correcting the acidity of paper is essential for long-term preservation.

The late William J. Barrow had by 1942 devised a method of not only neutralizing the acidity in paper, but also of depositing a mild alkaline buffer in the paper to neutralize any subsequent acidity (*31*). Barrow's original process, to which the somewhat unhappy and now generic term "deacidification" was applied, was the basis of subsequent extensive research on methods for the neutralization and buffering of paper which are either more effective or more efficient than the original process.

Deacidification processes fall into three categories: aqueous, in which the alkaline compound is introduced into the paper as a solution in water; solvent, in which the alkali is dissolved in an organic solvent; and vapor, in which the active agent is carried into the paper as a gas or vapor rather than by means of a liquid.

The two principal aqueous deacidification processes involve bubbling carbon dioxide through water slurries of calcium or magnesium carbonates, which are converted to bicarbonate by the CO_2. As the bicarbonate, unlike the carbonate, is soluble in water, it goes into solution as it is formed. The paper to be deacidified is immersed in a bath of the solution where the fibers absorb it, the amount absorbed varying somewhat with the nature of the paper. The paper is then air dried, during which time the bicarbonate reconverts to carbonate. In the original Barrow "two-shot" process, the paper is first immersed in a solution of calcium hydroxide.

There are a number of variations on these processes, and while scientists have not come to firm conclusions about the relative merits of all the variations, immersion in solutions of magnesium or calcium bicarbonate is clearly among the most effective methods for deacidification, as long as care is taken to be sure that an adequate amount of alkali is deposited in the paper (*32*).

The best evidence available thus far seems to indicate that the more buffer that can be precipitated into the paper, at least up to the level of 3% or so, the longer the paper will last. Some conservators, however, while generally following the more-is-better idea, feel that all the evidence is not in.

A few disturbing questions have been raised about the interactions of calcium and magnesium compounds, particularly the latter, with traces of iron or copper which are present in some papers, and with the blue-to-green copper pigment verdigris, which was often used in the coloring of old maps and in some Eastern manuscripts. Research on these questions is in progress; in the meantime it may be prudent to avoid deacidifying items containing verdigris.

Aqueous deacidification is clearly expensive for bound materials, which must be disbound, immersed, dried, and rebound; and to a lesser extent for masses of unbound materials. However, because of the effectiveness not only of the deacidification itself but of the accompanying washing action, this method is preferred by most conservators for valuable materials, including disbound books, as long as water-soluble colors are not present.

The most prominent deacidification methods involving organic solvents rather than water are those using magnesium methoxide, patented by Richard D. Smith (*33*); and methyl magnesium carbonate, developed by the Preservation Research and Testing Office at LC (*34*). Both are capable of depositing a large amount of buffer in the paper, and the end product in both cases is magnesium carbonate, as in the aqueous magnesium bicarbonate process. Both nonaqueous processes may be used for deacidifying bound books by spraying, as well as for documents which have water-soluble components. Smith has designed for the National Archives of Canada a pilot-scale mass deacidification system using magnesium methoxide.

Because of the great mass of highly unstable paper in library and archives collections, methods are being sought by which loads of bound books or bulk papers can be deacidified with vapors in a sealed chamber. In addition to Smith's method, the morpholine process of the Barrow Research Laboratory and the diethyl zinc method of the Library of Congress (*35*) are being tested at the time of writing. All processes will undoubtedly have limitations, and there will be difficult decisions to be made about which, if any, of the processes under development are worth the large amount of money which will be required to deacidify whole collections with them.

While many old papers have more sizing than is beneficial for them, occasionally old paper needs to be resized, particularly if it has been subjected to bacterial action while wet. Traditional gelatin sizing is sometimes still used, although sizing made by cooking scraps of vellum is thought to be more permanent. Synthetic sizing materials including methyl cellulose are also used.

There are many methods of mending, strengthening, and supporting damaged

or fragile paper. Mending is now most often done with Japanese paper, which characteristically has long, strong fibers, is soft and flexible, and appears to be stable and long lasting. Tearing Japanese paper of suitable weight to the shape of the required piece provides a soft and tapered edge which minimizes the tendency for the document to break or tear anew at the edge of the repair, an almost invariable problem when hard Western papers or cloth tape are used for mending. Paste made by cooking purified rice or wheat starch is the usual adhesive.

Filling lacunae in paper with paper pulp is of increasing interest. Manual methods have been in occasional use for some time, and some new variations have recently been published. A machine for pulp filling of holes, based on a Russian idea, was developed by Stella Alkalaj first in Bulgaria and later in Israel (*36*). Meanwhile other devices have been produced in various countries. The Restoration Office of LC has designed and had made a very large machine, which is intended for repairing large maps, posters, and the like.

The basic operation of the pulp-filling machines is simple: the document to be repaired is placed on a screen; a chamber above the screen is filled with dilute pulp of the correct type and amount; and vacuum is drawn under the screen, which pulls the water through and deposits the pulp in the holes of the document. Once again, this technique is not a panacea, nor is it as economical as it may appear at first glance, because careful calculation and formulation of the pulp is required for good results. Nevertheless, the method is still under development, and it is likely that it will find increasing application as time goes on.

Methods of lamination are in a state of flux at the time of writing. The earliest methods, in which tissue paper or silk fabric was applied to a document with starch paste, have been almost totally supplanted by lamination with cellulose acetate, especially for archival-type materials. However, despite its still widespread use, a number of problems are being discovered with cellulose acetate lamination, and it has passed the peak of its popularity. Encapsulation is now often recommended as a substitute for lamination where it is feasible, and the lining of one-sided items with Japanese tissue and starch paste is finding increasing acceptance for certain materials. A new technique, sometimes called "heat-set," shows promise of further development.

Cellulose acetate lamination, developed by the National Archives and improved by William J. Barrow, consists of forming a "sandwich" of a sheet of reinforcing tissue, a sheet of cellulose acetate film, the document, another sheet of film, and another of tissue. The sandwich is then either heated and cooled under pressure in a flat-bed hydraulic press, or it is first heated in a chamber and then passed through pressure rollers in the type of rotary press devised by Barrow (*37*). Cellulose acetate requires fairly high heat to fuse it into the document, making it imperative that items to be laminated by this method be deacidified previously to help to protect the paper from heat damage. However, there is some fear now that the heat may be damaging even to documents which have been deacidified, which, along with difficulties in removal and other problems, have led to doubts about the advisability of this method.

Lamination with tissue or possibly synthetic fiber webs which have been coated

with acrylic resins, "heat-set" lamination, shows promise for further development. Acrylic resins as a class tend to be stable chemically, some of them outstandingly so. Furthermore, they have a lower softening point and are soluble in milder solvents than cellulose acetate, and adequate adhesion can be achieved without driving the plastic as far into the fibers of the document as is required with cellulose acetate. Acrylic-coated tissue must thus far be produced by hand in the user's workshop, which introduces problems of high cost and of nonuniformity.

Lining paper objects which have an image on only one side with Japanese paper is an adaptation of the highly evolved techniques of Japanese screen and scroll mounters. Reinforcing paper with paper has the advantage that the two materials have roughly similar response to changes in humidity, unlike fabric and paper, which show opposite responses to moisture. The Japanese technique, as adapted by American conservators of art for use on Western papers, involves the use of only a small amount of adhesive (starch paste), which aids reversibility (*38*). Lining with fabric, which has been widely used for maps and posters, is no longer recommended by conservators.

In many cases, particularly with single unbound items of high esthetic or monetary value, it may be desirable to provide support and protection without any lamination, lining, or other treatment in which the supporting material is adhered to the document itself. (See the subsection "Enclosure and Protective Storage Methods," above.)

Bookbinding

Bookbinding is once again a two-edged sword insofar as preservation is concerned. While the codex book, a compact unit with a hard shell, has proved over almost two millennia to be a remarkably serviceable container for information, binding at best incurs some damage to the leaves of the book, and in extreme cases the damage can be devastating.

Nearly all books of the past, and many current ones, are printed in such a way that the leaves of the finished books are in pairs known as folios; that is, the two leaves consist of one sheet of paper which is folded in the middle. In most cases, several folios are inserted into each other to form what are known in various contexts as quires, gatherings, signatures, or sections. With minor exceptions, all traditional bookbinding (including most modern hardcover edition binding) is based on sewing these sections together through the folds at the back (*39,40*).

The folds of the sections are considered important for several reasons. First, from the functional standpoint, binding based on sewing through the folds offers the best possibility of producing books which are durable, which open well for easy reading and copying, and which can readily be rebound when that becomes necessary. Second, descriptive bibliographers and historians of book technology are interested in the folded sections because they provide important evidence about the way that the book was fabricated. And third, with valuable books, they can provide evidence of whether the book is authentic or whether it has been sophisticated in some way.

It has long been realized that sewing through the fold of each section of a book is a relatively slow, and thus expensive, operation. (For example, 18th-century American schoolbooks were often held together by the quick method of making stab stitches through the whole book.) Thus several types of book structure have been devised which do not depend upon folds. Stab-sewing has already been mentioned; a related modern method called side-sewing also introduces thread stitches through the entire thickness of the book rather than through each section. The two types of structure which are of most concern here, however, are adhesive binding and oversewing.

Adhesive binding consists of holding single leaves (if the book was printed in folded sections, the folds are cut away) with a layer of adhesive. Adhesive binding was patented in England in 1836, but it was not until the middle of the present century that reasonably satisfactory adhesives for this method were available. Nearly all paperback books are adhesive bound (which is also known as perfect binding), and an increasing number of journals and hardcover books are also being bound by this method. Indeed, fold-sewing is a significant enough cost factor in edition binding that the use of adhesive binding for hardcover books is growing rapidly. Also, some newer book printing technology, such as the Cameron system, precludes fold-sewing.

Oversewing (variations of which are sometimes known as overcasting or whipstitching) was in use at least as early as the 18th century for books of plates too large to be printed as folios. However, we are here concerned primarily with the oversewing machine, first marketed about 1920, upon which the modern library rebinding industry is based (*41*). Machine oversewing involves attaching clumps of single leaves together with stitches driven diagonally into the back or inner edge of the leaves, with each clump secured to at least two other clumps (see Figure 10). This type of sewing is rugged, but severely inhibits free opening of the leaves.

Where original folds exist it is generally considered desirable, as implied above, to retain them for purely functional reasons and, where a book has present or potential artifact value, for their inherence as part of the artifact and their evidential value.

To return to the original notion of binding being damaging, the minimum amount of damage in most conventional binding is caused by the sewing holes through the folds, and the adhesive on the spine. (Some adhesives are chemically damaging to the paper; with most adhesives, damage is incurred when the book is taken apart for restoration or rebinding.) At the other extreme, perhaps, is conventional library binding, in which original folds are cut off, and the machine oversewing makes dozens of perforations which extend up to ¼ inch into the back edge of each leaf. Moreover, the mass of sewing and perforations in the back of the book is so extensive that in most cases the only practical way to undo the sewing, if that should become desirable, is to cut off the sewing along with the whole back edge of the book (see Figure 11). Commercial library binding also usually entails trimming all of the edges of the book, clearly an irreversible action.

Adhesive or perfect binding as applied to the rebinding of books which originally had folds consumes less of the gutter margin than oversewing. For the

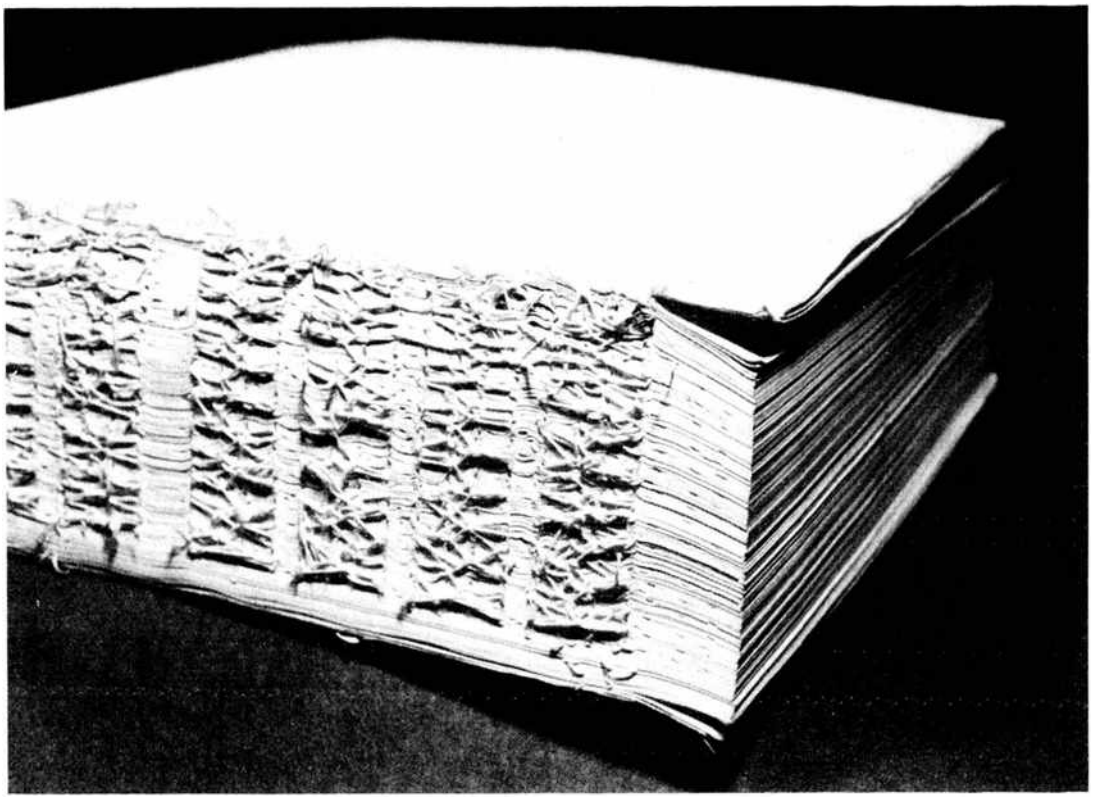

FIGURE 10. *The spine of a book sewn on an oversewing machine.*

growing number of books which originate as single leaves, there is no alternative but adhesive binding or oversewing when they have to be hard bound or rebound.

Adhesive binding is widely thought of as being not very durable, and that idea is not wholly prejudice. The durability of adhesive bindings depends on three main factors, whose relationships with each other appear to be fairly critical (*42, 43*). The quality of the paper is the first factor. Dense, heavily sized or filled paper, and coated paper offer particular obstacles to obtaining a sound binding. Stiff or boardy papers have a tendency to lever the book apart or break off just inside the glue line. The method of application of the adhesive is the second critical factor. Preliminary milling is sometimes used to roughen the spine for better adhesion; some machines fan the leaves, and some systems utilize infrared heating to drive the glue into the book. It is not clear which of these methods provides the strongest book, which in any case depends on the other factors also, but research is going on. Finally, the nature of the adhesive itself is critical to the success of perfect bindings. Even where manufacturers test for durability of adhesives, they are less likely to be concerned with permanence, and there is some evidence that the more permanent types of adhesives do not lend themselves to economical manufacturing (*44*).

The problems of obtaining durable adhesive binding are exacerbated in library rebinding because the paper of each volume rebound is different. Nevertheless, the increasing volume of single-leaf books being produced almost ensures that the

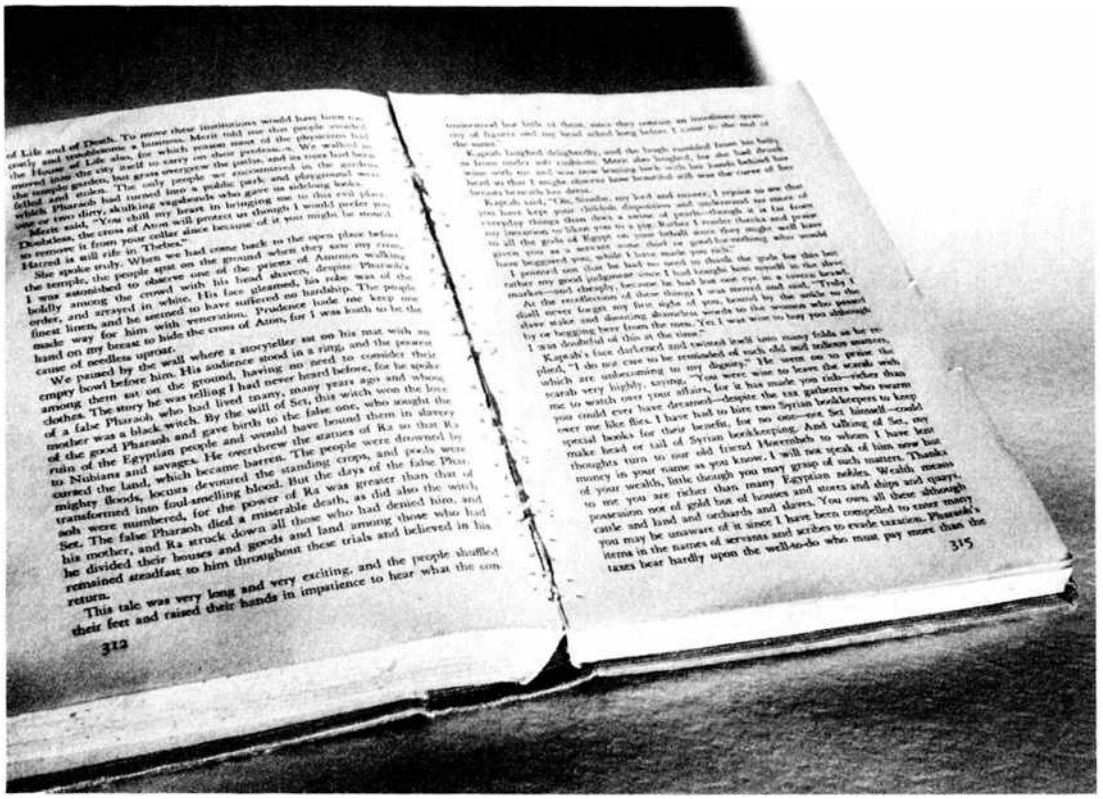

FIGURE 11. *Perforations in the gutter margin of an oversewn book. The spine was cut off prior to sewing, adding to the net loss of inner margin.*

library binding industry will have to increasingly look to this method, and more dependable techniques will probably emerge. When they do, adhesive binding may become a desirable alternative to oversewing in many cases, because it produces a more flexible book with less of the gutter margin consumed, and at lower cost, than oversewing.

Where folds are to be retained in rebinding, they must almost always have damage, from previous binding or other causes, repaired. This operation, sometimes called guarding, is a slow and fussy one if done at all carefully. The closest thing to mechanization of fold-mending thus far appears to be glorified tape dispensers. It is indeed exactly the cost of fold-mending which makes oversewing and adhesive binding so attractive in library rebinding, because in each case, not only is the book taken apart in one stroke of a milling machine, but no mending is required.

The obvious production methods of mending folds usually involve gummed paper tape or cut strips of onion skin which are applied with paste. With both materials, there are problems of increased spine thickness from the layers of paper and paste, which cause difficulties later in binding, and of breaking of leaves at the hard, stiff edge of the mend. In careful hand binding, folds are mended with soft, long-fibered Japanese paper, which has a soft, torn edge, and which is applied with the thinnest paste possible. These refinements greatly reduce problems with

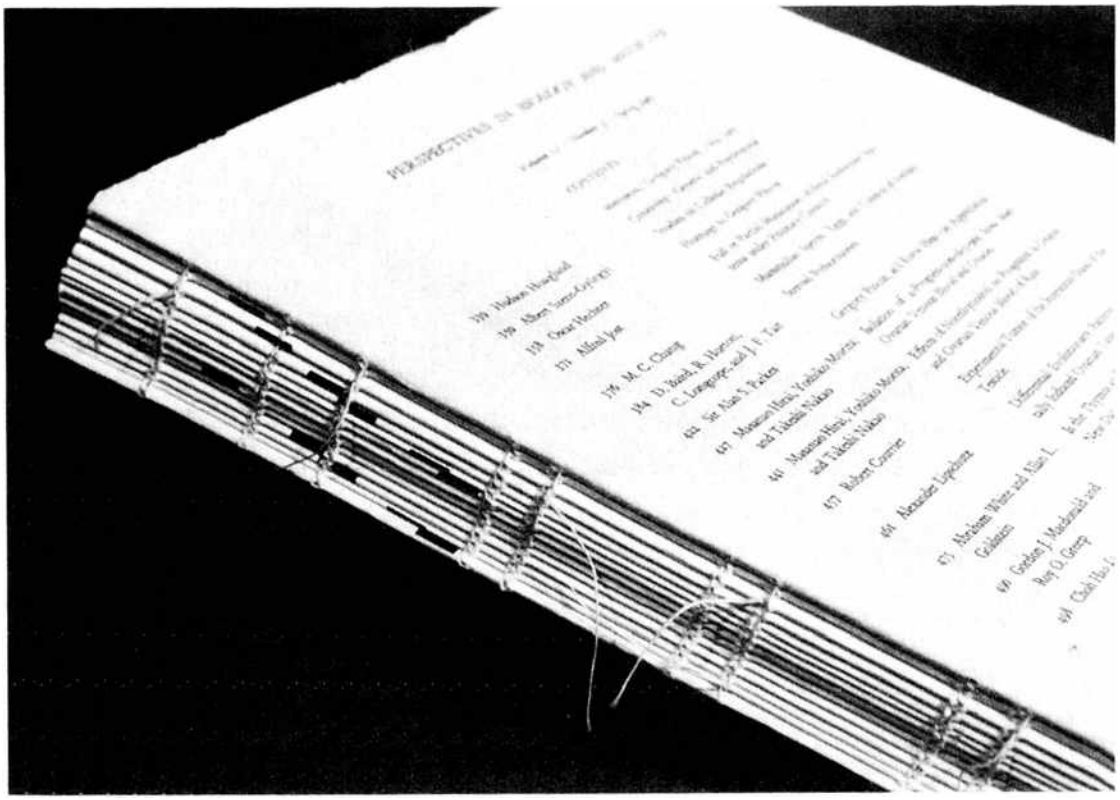

FIGURE 12. *Machine sewing through the folds of the type used in most hardcover edition binding. This "Smyth sewing" utilizes and retains the original folds and permits the leaves to open all the way to the back of the book.*

both swelling and breaking edges. It seems almost certain that fold-mending can be mechanized, probably in ways which are conservationally sound, with no great feats of engineering.

Most hardcover edition bindings have thus far been sewn through the folds on a machine (see Figure 12). (This type of sewing is known as Smyth sewing, although it may be done on brands of sewing machines other than Smyth.) At least one such machine (the Martini, made in Switzerland) is adaptable to library rebinding. A handful of library binderies have such machines, but use of them is inhibited by the cost of the hand preparation just discussed. (The cost of fold-sewing itself is little if any more than that of oversewing.) Hand fold-sewing is done by many library binderies, but they appear often to be reluctant to undertake it, perhaps because they do not recover their full costs.

To summarize the discussion of library binding before going on with the binding of artifact books, commercial library binding of the "Class A" or Library Binding Institute Standard type provides a rugged book. However, for books of present or potential artifact value, the techniques involved are severely damaging, and the damage is irreversible. Adhesive binding is somewhat less damaging than oversewing, but methods of certain durability have not been perfected. Fold-sewing is available, but problems with the cost and performance of fold-mending have in-

hibited its use. It should be added finally that where the existing sewing of a book is sound, some library binderies will place a new cover on the book ("recasing") without interfering with the sewing. This method is clearly less damaging than others mentioned, although, of course, the original cover is destroyed.

The binding of books of artifact value, often called, for lack of a less precious term, fine binding, is still to some extent burdened with the trade practices of the past century, many of which are undesirable from the standpoint of conservation however refined and elegant they may otherwise be. Such practices as drastic bleaching and pressing of the leaves, sawing slots across the spine to receive sunken cords (often disguised with false raised bands in the spine of the cover), hard rounding and backing involving hammering the spine, heavy glue and linings on the spine, and edge trimming, all caused damage to the book (see Figure 13). In addition, the materials and structures were often (and sometimes still are) not particularly sound, so that the book started breaking down prematurely.

As implied in the foregoing discussion, there are two primary considerations concerning conservation in fine binding: avoiding damage to the bookblock (the leaves, as distinct from the added binding structure), and making the binding sound, to forestall as long as possible the need for rebinding, with consequent cost and risk of incurring further damage to the bookblock.

Conservators and conservation binders now often try to use previous sewing holes in the folds of the sections to avoid having to punch a new set of holes. [The

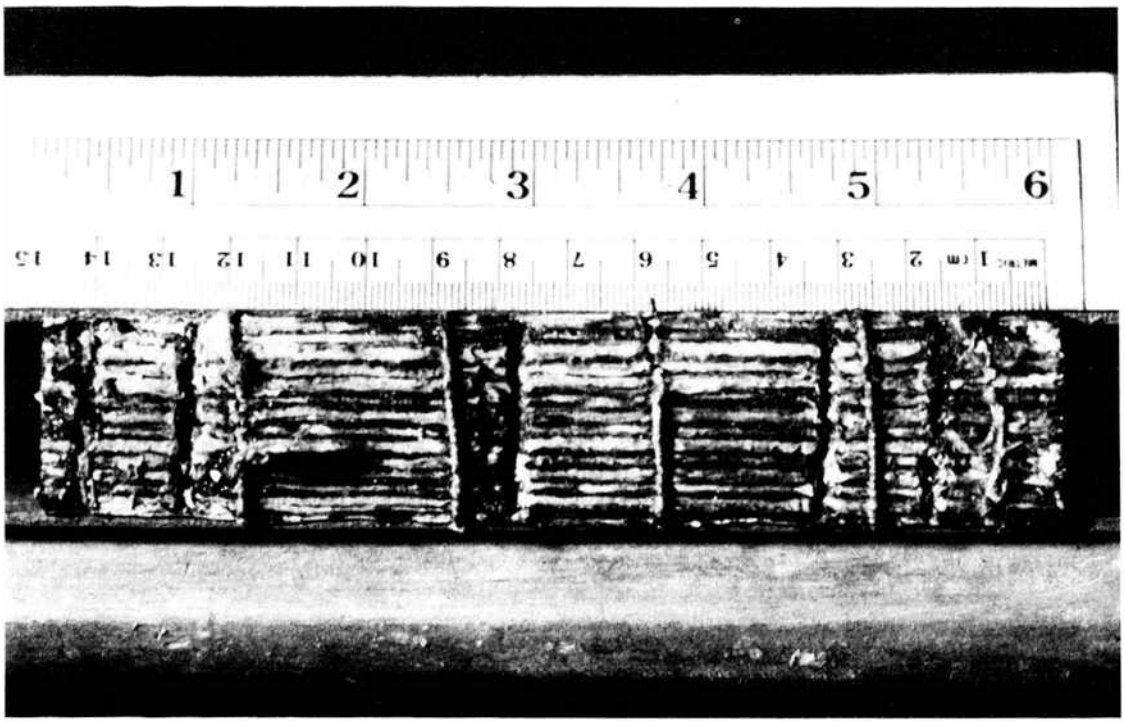

FIGURE 13. *The spine of a book which has been severely damaged from conventional trade binding practices in both the original and second bindings. Saw cuts, a new set of sewing holes, and heavy coats of animal glue create serious problems in again rebinding the book.*

spine of the *Book of Kells*, for example, was severely damaged by an accumulation of at least 13 sewing holes from rebindings in 1742, 1832, and 1895 (*45*).]

One of the most difficult aspects of conservation binding is the question of adhesives on the spine. In nearly all types of bindings as they have evolved, adhesive on the spine contributes, along with sewing, to the soundness of the book's structure. However, there is no question that adhesives on the spine are damaging. While attempts are being made to devise a conservation binding structure which will be sound without the use of adhesives at all, thus far they still seem to be required. There are at present two approaches to minimizing or eliminating adhesive damage. One of these is to place a thin paper "concertina" over the folds as the book is sewn, so that the adhesive does not contact the folds of the original book at all (see Figure 14). There are difficulties with this method, and it requires a highly skilled binder to make a satisfactory book with a concertina. The other approach is either to use an adhesive which is believed to remain easily removable, or to use a barrier coating of an easily removed substance underneath the functional adhesive. It is not clear how effective the barrier coat method is.

Another feature of conservation binding, at least for early books, is the avoidance of severe rounding and backing, which, in 19-century practice, involved hard hammering of the spine and sharp creasing of the backs of the outer sections. A less damaging practice is to bevel the inner edge of the boards to accommodate the swelling generated by the sewing thread, and to induce rounding and backing naturally during the lacing-on of the bevelled boards (see Figure 15).

The edges of books of present or potential artifact value should not, of course, be trimmed.

The choice of a suitable type of binding for a specific artifact book, which has individual characteristics of size, age, value, etc., is a complex question. It involves both functional factors and questions of historical and esthetic suitability; these two areas of consideration are not only interrelated, but there are not generally accepted standards for either.

The major issues of function are openability and durability. Openability is related to the "given" of the flexibility of the paper of the leaves, to the character

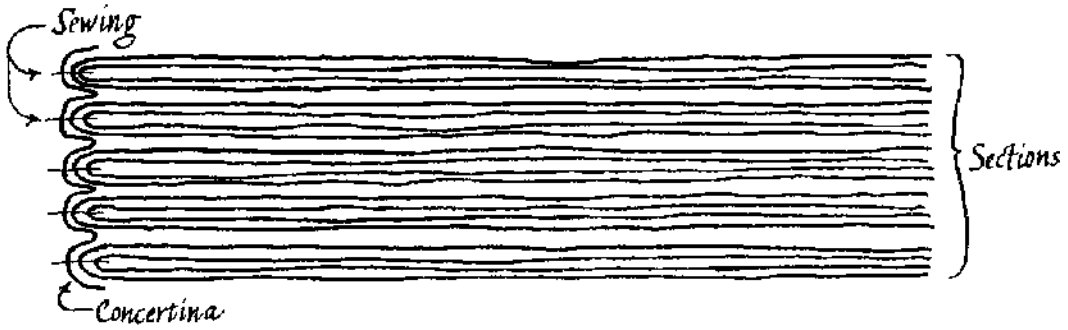

FIGURE 14. *Cross-section of a book sewn with a "concertina" of thin paper. This is one method of protecting the folds of a valuable book from damage by adhesives.*

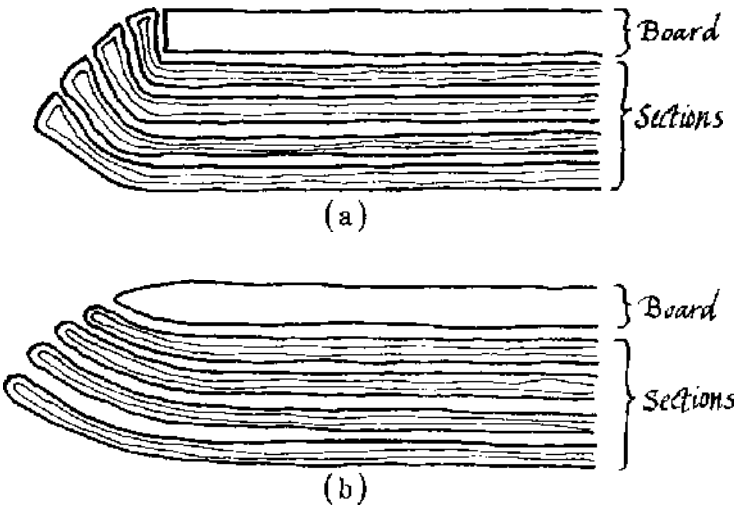

FIGURE 15. *(a) The edges of the spine have been hammered over to 90°, the drastic backing which is characteristic of 19th- and 20th-century trade practice. (b) Gentle "induced" backing produced without hammering, characteristic of many early bindings and now often used by conservation binders.*

of the sewing structure chosen, and to the materials applied to the spine (adhesives, linings, covering leather). Creating a binding structure which opens well while being durable requires judgment and sensitivity on the part of the binder. Similarly, the durability of a binding depends on the ruggedness of the total binding structure in relation to the size and weight of the book. It is easily observed that the soundness of binding structures usually does not increase in relation to the size of the volume (cf. large 19th-century folio volumes, in which the binding structure is often completely broken down), but it is also true that too rugged or rigid a structure can impose damage to the leaves of smaller, lighter volumes. Conservation binders are studying early (i.e., 12th–16th century) bindings to learn which structural features have contributed to their conspicuous durability. Creating durable binding structures, particularly for large or heavy books, is time consuming and thus expensive.

The historical-esthetic suitability of new bindings for old books is also a subtle and complex issue. In the recent past, "period" bindings—with either "authentic" crudenesses of technique and wear and tear, or elaborate ornamentation, or both—were considered suitable for old books (see Figure 16). Ornamentation and antiquing contribute nothing to preservation (indeed, the latter may in some cases actually encourage deterioration); they are often unsuccessful visually; and they raise ethical questions insofar as they border on fakery.

Current thinking on the subject suggests that when an old book must be rebound, historically correct structural and technical features, rather than decoration or antiquing, result in the most sympathetic binding. Weight is added to this approach by the fact that (at least for books prior to the 19th century) a binding

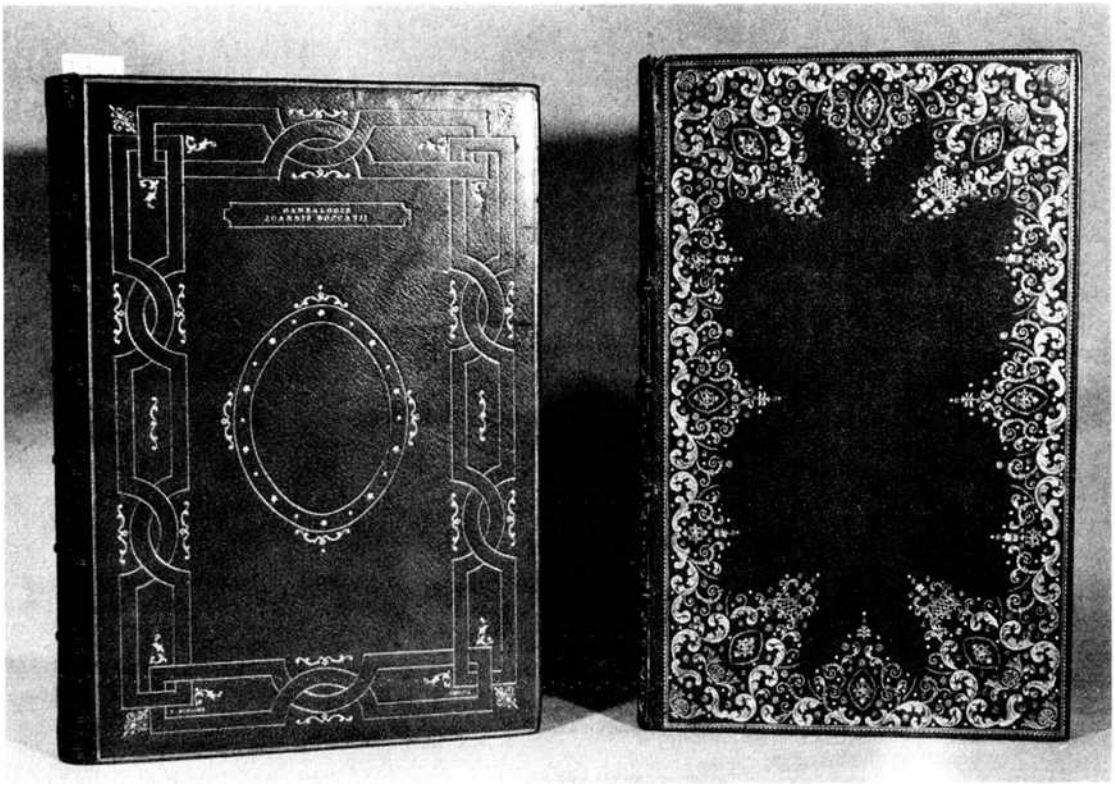

FIGURE 16. *"Period" bindings in which structural features are not particularly appropriate to the books, and which have elaborate, costly, and nonfunctional ornamentation.*

which is visually correct for the period of the book is also apt to be structurally sound. Original sewing holes, for example, will obviously indicate the arrangement of cords or thongs which is appropriate for the period of the book (see Figure 17).

Unless the craftsmanship of the binding is of the very first order, a few discreet lines of tooling in blind or gold, perhaps outlining the bands and the edges of boards, can make the book look less unfinished.

Restoration of Bindings

If there are difficulties connected with new bindings which are appropriate for old books, there are much greater ones involved in the restoration of old bindings. First, to the extent that any alteration to the existing binding is made, it is no longer the authentic artifact that it was before; in this sense there is an ethical issue in *any* restoration. Second, it is exceedingly difficult to restore an old binding in such a way that it is sound and durable. The addition of reinforcing materials usually transfers stress to the older and already weakened materials and structures, often causing rapid breakdown in the latter. Third, added materials, to the extent that they are not visually reintegrated with the original ones by toning, tooling, or other means, are disturbing; but to the extent that they are reintegrated, ques-

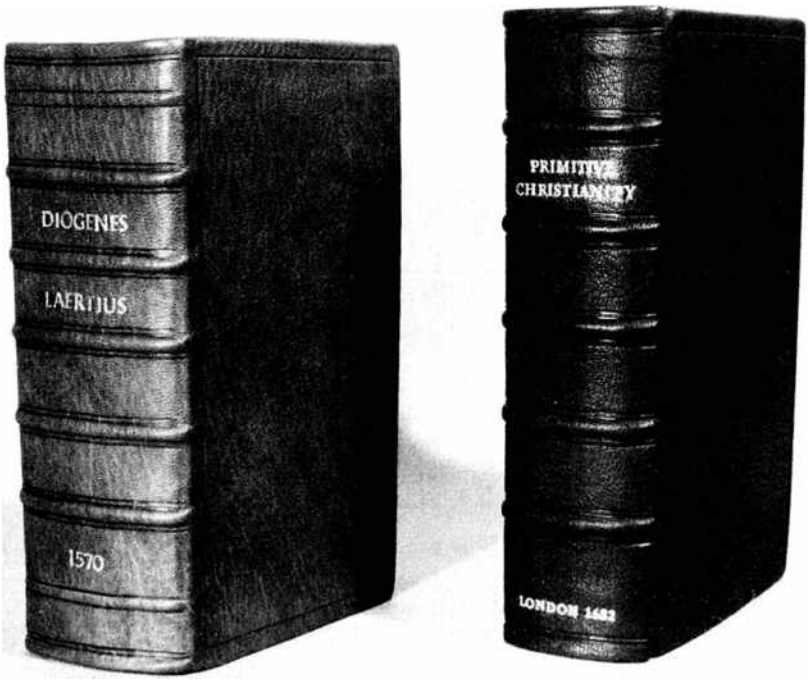

FIGURE 17. *Conservation bindings in which structural features are both functionally and visually sympathetic to the books.*

tions of fakery are raised. Thus, even if restoration of bindings itself is accepted as ethical, other ethical issues are raised.

These questions seem to be less critical with 19th- and 20th-century publishers' cloth bindings than with earlier books and leather bindings in general. Structurally sound restoration is not so difficult, and the technical features of such bindings tend to be standardized enough that there are perhaps fewer questions about altering artifactual evidence.

With leather bindings, some conservators now feel that the best course may be to do no restoration to them; that is, to protect them in the best way (through good environmental conditions and boxing), but otherwise leave them alone unless and until such time that the book must be completely rebound. At that point, the previous binding should be thoroughly documented photographically and verbally, and all of its parts should be retained, either in a permanent file in the library, or possibly boxed with the book.

Preservation Personnel

In a field as new as the conservation of library materials, job roles and definitions are inevitably in a somewhat fluid state. What is presented here is one constella-

tion of conservation personnel; other people in the field would perhaps outline a different set of job descriptions (*46*).

The *conservator*, based largely on analogy with museum conservation, is the person who has sufficient training and experience to make judgments about conservation needs, treatments, and materials, and the skills to carry out individual conservation treatments. The technical training involves three broad areas: the science of materials and structures; the esthetic, historical, and philosophical context in which conservation is carried out; and the craft of actual conservation treatment (*47*).

Much of the actual work of conservation treatment may be carried out by *conservation technicians* under the direction of a conservator. The technician's primary focus is on the workbench, and it is not expected that he or she will have the broad theoretical background that the conservator has.

Conservation scientists carry out research on preservation problems, provide advice, analytical services, and consultation to conservators, and teach in conservation training programs.

The role which is thus far the most difficult to define is that of the *conservation administrator*. It is clear that a broad preservation program in a large library—including the administration of a library binding program, a "brittle-books" program of microfilming and replacement, possibly an in-house restoration facility, and the various other aspects of library preservation—must be orchestrated by an administrator. This position is a particularly difficult one at present, since not only are there no training programs in conservation administration (see below), but there are far too few technically trained people available upon whom the administrator can lean for competent advice.

One of the most urgent needs in the conservation field, if not the most urgent need, is for formal training programs, of which there are none at present, for conservators and conservation administrators. In-house training for conservators, based roughly on the apprenticeship system, is producing what few people are being trained today, but not enough people are being trained and apprenticeship training can easily be inadequate in systematic coverage of theoretical knowledge. The Library of Congress has an outstanding in-house training program in its restoration facility.

The training programs in museum conservation (*48*), such as those of the Conservation Center of New York University (*49*), Cooperstown Graduate Programs, and the University of Delaware–Winterthur program, appear to provide useful models for training library conservators. In broad outline, they consist of 2 or 3 years of intensive in-school training plus summer projects and a year's internship outside of the school, both of which are carefully monitored by the school. All three programs lead to master's degrees.

Training in conservation administration could presumably be effectively carried out as a specialty in a library school which has a strong commitment to the physical book. On-the-job training will probably continue to be effective for conservation technicians for the immediate future.

Preservation Research

The two research facilities established to deal specifically with library conservation problems are the W. J. Barrow Research Laboratory in Richmond, Virginia, which is supported largely by the Council on Library Resources, and the Preservation Research and Testing Office of the Library of Congress. Both facilities have concentrated on the largest problem in library conservation, the deterioration and preservation of paper. Much of the Barrow Laboratory's work has been published in their well-known series *Permanence/Durability of the Book*, of which seven numbers have appeared thus far.

A number of other laboratories have contributed directly or indirectly over the years to preservation knowledge. The National Bureau of Standards has carried out various studies over many years, and the National Gallery of Art Research Project at the Carnegie-Mellon Institute of Industrial Research has made major contributions to our understanding of synthetic resins, of colorants, and of the effects of light on materials. At various times the Conservation Center at New York University, the Institute of Paper Chemistry, and the National Conservation Research Laboratory of the National Museums of Canada (now part of Canadian Conservation Institute) have carried out relevant research. A number of laboratories abroad have made important contributions to preservation knowledge, but there is not space to list them here.

As implied above, most major research efforts have thus far been concentrated on the overwhelming problem of library conservation: the deterioration and preservation of paper. It should not be overlooked, however, that there is a broad range of other problems on which more knowledge is needed. To cite but one example, there has been little if any effort devoted to the study of bookbinding leather for 30 or 40 years.

The National Conservation Advisory Council (see the section "Preservation Organizations," below) is, at the time of writing, considering whether to recommend the establishment of some form of national conservation institute. If such an institute should be established, research would almost certainly be one of its major functions.

The Literature of Preservation

The literature of library conservation is thus far spotty in quality, and it also tends to be quite scattered, making access to it difficult. Literature having to do specifically with library conservation is often indexed in *Library Literature*. The means of access most useful to conservators is *Art and Archaeology Technical Abstracts*, published at New York University for the International Institute for Conservation of Historic and Artistic Works.

The only journals in the Western world devoted exclusively to library conservation are *Restaurator*, published largely in English in Copenhagen; and the *Bol-*

lettino dell'Istituto di Patologia del Libro of Rome, which is largely in Italian. Unfortunately, the future of these journals is uncertain at the time of writing; both are years behind schedule.

The most important journals which deal with the conservation of all types of cultural property, including books and manuscripts, are *Studies in Conservation*, published by the International Institute for Conservation; the *Journal of the American Institute for Conservation*; and *Maltechnik*, published in Munich, which incorporates the *Mitteilungen der Internationalen Arbeitsgemeinschaft der Archiv-, Bibliotheks- und Graphikrestauratoren.*

Library and archives journals collectively carry a significant amount of material on conservation, although the frequency of relevant articles in any single journal is low, so that a number of journals must be scanned or *Library Literature* gleaned regularly in order to cover the field reasonably well. *Museum News*, published by the American Association of Museums; and *History News*, published by the American Association for State and Local History, publish conservation information fairly regularly, as does *The American Archivist* of the Society of American Archivists.

Preservation Organizations

The International Institute for Conservation of Historic and Artistic Works (IIC), founded in 1950; and the American Institute for Conservation of Historic and Artistic Works (AIC), founded in 1960, are the professional societies of the conservation field. Both societies have been active in raising standards in conservation in a number of ways. Both have three categories of membership: associate, for anyone who is interested in the field; fellow, for professional conservators who meet certain qualifications; and institutional. AIC has annual conferences at which papers and workshops on a wide variety of conservation topics are presented; IIC has triennial conferences which usually center on a single, but rather broad, topic. The publications of these organizations have already been cited.

The American Library Association, the Special Libraries Association, the Association of Research Libraries, and the Society of American Archivists have preservation committees, whose degree of activity has varied widely over the years. With the generally increasing interest in the conservation of research materials, these preservation committees appear to be becoming more active.

The National Conservation Advisory Council was established in 1973 to survey the nation's needs in conservation, to recommend action to meet the identified needs, and to study the advisability of establishing a national conservation institute. The council, which is supported by National Museum Act funds which are administered by the Smithsonian Institution, has issued a general report, *The Conservation of Cultural Property in the United States.* This paper discusses problems which are common to all aspects of conservation; moreover, at the time of writing, a separate report on library and archives conservation is being prepared.

On the international level, the International Council of Museums (ICOM) has a

Conservation Committee which has been active for a number of years in the reporting of the results of research in all aspects of conservation. The International Federation of Library Associations (IFLA) and the International Council on Archives (ICA) have established a joint committee on conservation, in recognition of the similarity of the preservation problems in the two areas, and of the benefits of coordinating effort. The International Centre for Conservation in Rome serves as a documentation center for conservation of all types of cultural property, and offers courses and technical assistance, particularly for developing countries. All of the organizations cited in this paragraph were initiated or are to some degree assisted by UNESCO.

Preservation Standards

It has been postulated that part of the definition of cultural property is that such property belongs to all of mankind, present and future, and that the present legal owners are, in some senses, only temporary custodians. To the extent that this philosophy is accepted, present owners of cultural property have a heavy responsibility to preserve it. At the same time, the preservation of cultural property is a complex and technical undertaking, and the consequences of ill-considered acts and treatments may not manifest themselves until long after the treatment was executed. These conditions suggest the importance of standards for the protection of the cultural property itself, and of provision of guidelines for custodians who utilize conservation services and materials (*50*).

There are as yet, unfortunately, relatively few formalized standards on the central issues of the conservation of library materials. There are a few standards for long-lived paper, there are a number of standards for testing methods for materials used in books and in conservation, and there are some standards for the preservation of photographic materials.

One of the most important areas of standards are those relating to the people who perform conservation activities. It was mentioned in the section "Preservation Personnel" that there are as yet no academic programs for library conservators or conservation administrators, which would probably, if they existed, provide some degree of implicit standardization. (As the field of library conservation develops and academic training programs for conservators are established, accreditation of the programs may become desirable. There is beginning to be discussion of accreditation of programs for museum conservators.)

The American Institute for Conservation has issued a code of ethics for art conservators (*51*), although there is as yet no mechanism for enforcement; and the organization is engaged in establishing a program for certification of conservators of prints and drawings which is based on an examination (*52*). It is expected that the certification program will eventually be expanded to include other specialties, including library and archives conservation. In the meantime, the qualifications of new applicants for admission to the fellow category of membership in AIC are carefully examined by a membership committee.

Preservation Microfilming

At the present time, the primary method of preserving the intellectual content of books whose paper has become seriously embrittled is to replace the book with a microform. (Replacement with full-size reprints cannot be ignored as a means of preservation of intellectual content, but the percentage of reprinted titles which were originally printed on paper which has become brittle is small, and the economics of book publishing suggest that full-size reprinting will probably diminish, at least vis-à-vis micropublishing, if not in absolute terms.)

In discussing preservation microfilming, it is vital to distinguish between master microforms and duplicates (*53*). Microforms are subject to deterioration just like other materials, and are particularly subject to damage from handling; because of their miniaturization, a scratch can obliterate a portion of text. Moreover, there is always some loss in image quality in each generation away from the camera negative. Thus, if microfilming is done primarily or incidentally for preservation purposes, the camera negative must be made on stable film, must be carefully processed to avoid damaging chemical residues, must be stored under good environmental conditions, and *must only be used for making duplicates*. That is, a master negative must never be given to a reader or used on a conventional microfilm reading machine (*54*).

There are three major sources for preservation microforms (*55*). Most research libraries and archives provide microfilms of materials in their collections in response to orders from clients. It is the custom of many such libraries routinely to provide the client with a positive copy of the work requested, while keeping the camera negative as a master from which additional copies can be made as needed. Some libraries have preservation microfilming programs for brittle or fragile books. Finally, there are commercial firms which issue reprints in the form of microforms. This activity is usually feasible, however, only for long runs of serials or for "libraries" of a large number of related titles. In either case, the microforms are usually sold only as complete sets, so that it is difficult to obtain single volumes for replacement of brittle ones.

While microfilming is clearly cheaper for "preservation" of brittle books than any form of physical treatment thus far available, it is by no means cheap, and there are great masses of brittle books which need preservation. For these reasons it seems vital to avoid unnecessary duplication of original filming efforts. Among the main tools to this end are the *National Register of Microform Masters* and *Newspapers in Microform*, both of which are published by the Library of Congress. By these means it is often possible to determine where a master microform exists from which a duplicate can be obtained at (normally) less cost than filming the title anew.

Microfilming has some definite limitations as a means of preservation. Even where it is decided that a book has little or no artifact value, reproducing color illustrations is not yet feasible, and the microfilming of books which have folding maps or plates presents difficulties. Moreover, reference books are generally impractical in microform.

Cooperative, Regional, and National Preservation Programs

The massiveness of preservation problems and the overwhelming cost of their solution strongly suggest the advisability of cooperative action. Cooperative programs may be divided for convenience into two categories: those which are concerned with bibliographical, reproduction, and depository functions; and those for physical preservation treatment.

Two proposals have been made under the sponsorship of the Association of Research Libraries for national preservation programs involving the identification of preservation copies of titles, in some cases transferring them to a national preservation depository and providing microform copies of them as needed (*56,57*). At the time of writing, the Library of Congress is exploring the possibility of a national preservation program which may include a national training program, a national microfilm master depository with the accompanying mechanisms for bibliographical control, and a national cold-storage depository in which copies of new publications are stored, before they have started deteriorating, for future use.

The Center for Research Libraries (CRL) in Chicago already serves some cooperative conservation functions, although they are not its primary purpose. By keeping copies of lesser-used titles and making them available to all its member libraries, and by gradually building a file of microfilm masters, it reduces the preservation burden of individual member libraries. CRL has a newspaper microfilming program, and it controls the environmental conditions in its stacks to help preserve the materials in its collections.

The Research Library Group, whose members are the libraries of Harvard, Yale, and Columbia Universities and the New York Public Library, has preservation as one of its major objectives. Among its preservation activities (present or proposed) are nonduplicative acquisition and retention of lesser-used materials, cooperative filming laboratory and master storage facilities, and possibly eventual cooperative technical assistance or actual treatment facilities for physical preservation.

Cooperative physical preservation activities include inspection and advisory service, and actual restoration treatment. The model for cooperative conservation facilities has come from the museum field, in which the Intermuseum Conservation Association in Oberlin, Ohio, was the pioneer (*58*). The New England Document Conservation Center, founded in 1973 in North Andover, Massachusetts, serves any not-for-profit cultural institution in New England (*59*). By contrast, the more recent Ohio Conservation Consortium is based more nearly on the ICA model in that it serves primarily members, who receive certain stated services in return for an annual membership fee, in addition to having access to the treatment facilities of the Ohio Historical Society.

Because of the increasing cost and complexity of conservation it seems almost certain that regional centers will be an increasingly important means of providing service. Indeed, if the thinking of the National Conservation Advisory Council on delivery of conservation services is any guide, cooperative ventures will be the

primary means of providing services to all but the largest institutions. At the time of writing, however, the lack of sufficient trained personnel to direct and staff centers is a great deterrent to their establishment, and the lack of objective standards of practice gives rise to fears of possible poor quality if centers are established prematurely or are looked upon as panaceas (*60,61*).

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PAUL N. BANKS

PRESIDENTIAL LIBRARIES

The true character of Presidential Libraries may be hidden behind a misnomer. It is true that libraries are usually thought of as buildings holding book collections, and Presidential Libraries are designated in law as "Presidential archival depositories." Even "depository" is not as accurate as "repository," which denotes an institution where materials *remain*.

Let those who will, quibble! Since legislation passed in 1939 authorizing establishment of the Franklin D. Roosevelt Library, that is the term used to designate the buildings housing modern-day presidential papers.

Our forefathers provided that the executive branch of the government be independent of the legislative and judicial branches. Presidential papers are vastly more important for the history of public affairs and shaping of future policy than are the papers of more ordinary men. It is possible they didn't foresee the interest every scrap of paper would bring. The chief executive's records cannot be regulated by the legislature. Premature or politically motivated disclosure must be guarded against. If at the end of a president's term in office, the papers could be thrown open to the scrutiny of the public, much privacy about them while he was in office would be taken away. Few presidents would put on paper their private thoughts and few people would care to write in confidence to the president. The framework of our Constitution would be endangered if the president could not function as an independent officer of the government and this ability would be curtailed and perhaps crippled.

No gap is left in the official records of the government when presidential papers are removed. Carbon copies of presidential acts may be of great benefit to the historian or to the president himself, but the originals still remain in the pertinent departments.

One could consider these the fundamental constitutional and political reasons to justify the presidents owning their papers.

You may wonder what happened to the papers before the 1939 legislation and why was it that an outgoing president didn't just put on his hat and walk out of the White House at the end of his term of office. An extremely interesting book could and should be written about what has happened to papers of former presidents.

Our first president had only British tradition to guide him, which was that the sovereign's working papers were the sovereign's personal property. Whether or not George Washington was aware that the prime ministers of Great Britain had always taken their papers home with them, that is what *he* did as outgoing president. As Dr. James B. Rhoads, archivist of the United States, explained it in his statement to the House subcommittee:

> George Washington . . . claimed that the files of his office which supported the official record of government action were his personal files and thus his personal property. The files which he claimed consisted of correspondence, notes, drafts, and working papers [and] were not official records of action. He felt that these supporting files were peculiar to himself and to his occupancy of the Presidency

> and that they should not rightfully pass to his successor. His distinction between personal papers and official records has remained to this day as the traditionalist view because we have found no better alternative for the protection of the political liberty of those who run for public office.

So when President Washington left the White House he had his correspondence and papers gathered up and sent by boat to Mt. Vernon from the Morris House at Philadelphia, the 18th-century Executive Mansion. There was no law to the contrary. The president's office files are usually called "papers." The papers of a president are not public records.

It is not surprising that the presidents who followed him did likewise. They felt they had the power to do with the papers as they wished, that they were the persons most concerned in their use. Grover Cleveland made his position clear in his message to the Senate in 1886:

> I regard the papers and documents . . . addressed to me or intended for my use and action unofficial and private, not infrequently confidential, and having reference to the performance of a duty exclusively mine. . . .

Whether the presidents lacked a sense of history and didn't know the value of their correspondence and papers, or whether they felt it was their right to do as they pleased with what transpired in their own offices, this procedure went on for many years. Now, as has been said, it has become a tradition that the papers are the president's personal property. The 1955 Presidential Library Act specifically recognized that the papers are the personal property of the presidents.

This is not to say that the federal government and the public have no legitimate interest in them or that they are not a vital and important part of the historical heritage of our country. Samuel Eliot Morison of Harvard University wrote that "American history could not properly be written without the Presidential papers, but nobody thought of that for a long time" (*New York Times Magazine*, March 19, 1939).

"The richness and fullness of our knowledge and understanding depend to a considerable extent on the completeness of the papers and the care with which they have been preserved," according to former director of the Roosevelt Library, Herman Kahn (*Special Libraries*, March 1959).

The country grew, with 37 more states being added to the original 13. Citizens became interested in their government, many even feeling a closeness to the presidency, and more than a few felt compelled to write their helpful ideas. It naturally followed that more papers accumulated for each succeeding president until at the end of his term they were removed from the White House by the truckload.

Before the papers reached that proportion they still often failed to find a resting place so that they would be accessible to future scholars. Some were weeded out by the presidents themselves and destroyed. President Grant burned all of his papers. Widows who kept a neat house saw no point in keeping their clutter, servants were often careless. Rats gnawed at stored papers. Children spent rainy afternoons in attics playing with the papers. Parts were given to relatives or sold as souvenirs.

In spite of this many presidential collections have ended in the Library of Congress, which deserves much credit. Some are owned by the government now, and some are merely deposited there subject to the control of the heirs or families. Thus, even in the 19th century, Congress recognized the president's ownership by purchasing the papers of various presidents. Yet these are but fragments of what they were when they left the Executive Mansion. Safety is assured, once they are at the Library of Congress, but due to inadequate funds and staff, it was often difficult for researchers to use the papers.

Proud though he might be, what is an outgoing president going to do with his communications and papers? From the estimated 35,000 pieces of George Washington, to the 255,000 of Theodore Roosevelt, to the 10 million of Franklin D. Roosevelt, it's readily seen that the problem was increasing. The problem continues to worsen, as can be imagined by comparing 140,000 letters President Franklin Roosevelt received in one year, 307,312 received by President Kennedy, and a further jump in 1965 to 825,750 received by President Johnson.

Cartoons have been drawn suggesting a huge paper shredder and then recycling the papers, a bonfire on the White House lawn as a fitting farewell, saving them for a paper drive, auctioning them off to the highest bidder (huge prices are paid for signatures, alone), binding them together for fuel, and many other facetious ideas.

It has been suggested that microfilms and tapes of all the papers and conversations be made, but the problem still remains as to storage, care, and arrangement for the use of researchers.

Admiration for the man and the office, as the years went on, brought many gifts to the White House. The general public, organizations, and foreign governments presented a range of gifts from those that had only sentimental value to those of great monetary worth and historical significance. Would these be stashed away in some attic, providing such a huge attic could be found? And what man could pay for the preserving of all this? Also, upon a president's death, taxes would eat up his estate, due to the value of unique historical material.

It was out of these needs that the idea of libraries for former presidents' papers was born. The logical answer to the problem of allowing him as much control as if he had personal possession seemed to be to deed them through Presidential Libraries to the federal government.

Before Franklin Roosevelt broke with tradition and did this, a few had already made an effort to have exclusive housing for their papers.

The Hayes Memorial Library was built in 1916 to house Rutherford B. Hayes's papers, at Fremont, Ohio, by his heirs in collaboration with the state of Ohio. Herbert Hoover had collected at the Hoover Institution for War, Revolution and Peace at Palo Alto many important documents that were to prove helpful for those studying the way of maintaining peace, as well as his commerce, presidential, and other papers. He was the first president to preserve his collections intact. And even the Harding Memorial Association was organized to preserve, at Marion, Ohio, what papers could be located of President Harding. George Washington did not want his papers broken up, and thought of having a kind of presidential library at Mt.

Vernon. It is evident that some of the presidents themselves, or their heirs, wanted the papers saved and kept together.

Their reasons for wanting this were similar. Time and circumstances made each president aware that his own term of office held a unique place in history. They realized theirs were more than the personal files of an individual citizen. As the middle of the 20th century rolled around the presidents became increasingly aware that changes needed to be made in handling their papers when they left office.

How better to help historians have the true facts than to have the material for each president and time period in one location, preferably where his roots were? How better to preserve the gifts than in an adjoining museum for help of the researcher as well as for the enjoyment of the public? As Herman Kahn pointed out in his article in the March 1959 issue of *Special Libraries*:

> The fact is that not only are the presidential papers today of an entirely different order of magnitude from those of their predecessors, but they are, in a precise sense, a different kind of material. Each group of presidential papers is now a vast and complicated set of files which can stand on its own feet as a body of research materials that is of central significance to the history of the period in which the President lived and worked. And as everyone is aware, there is a natural physical law that operates in such matters, by which exceedingly important bodies of material that bear on a particular period or subject tend to exercise a kind of gravitational pull on other closely related, complimentary and supplementary bodies of source material.

It was Harry S. Truman who said; "The papers of the Presidents are among the most valuable sources of material for history. They ought to be preserved and they ought to be read." On July 6, 1967, at the dedication of the Truman Library, former President Hoover was a guest and said: "The inspiration and lessons of the upbuilding of our nation have received a real contribution through Mr. Truman's gift."

President Roosevelt believed that the most complete picture of his times, as well as the best explanation and justification of his policies, could best be found in the daily records of his decisions and actions.

His intention was that legal title to all of the materials placed in his library, including his own papers, would be turned over to the United States government. In 1939 a joint resolution of the Congress authorized the archivist of the United States to accept the gift of the president's papers, as well as the gift of the building and land at Hyde Park. Historians, archivists, and other prominent people enthusiastically endorsed this, as can be confirmed in the Hearings before the Committee on the Library in the House of the 76th Congress. They realized that the Roosevelt collection was much too large and varied to be housed either by the Library of Congress or the National Archives and that to break it up would be a historical error of the first magnitude.

Official acts of the government in the president's files are supplementary rather than exclusive, for any letter or other document addressed to the president which requires action, eventually finds its way into the National Archives at Washington. Only a record or digest of it is filed with presidential papers.

President Roosevelt had planned to go through his papers himself, though he was advised this was an impossible task. The war and his death prevented him from carrying out his plans. It was fortunate for history, perhaps, as professional and objective judgment is needed for such work.

Waldo Gifford Leland, one of the members of the 30-member National Advisory Committee chosen by President Roosevelt to set up his library, wrote: "We decided that no papers in the White House should be destroyed before their transfer to the library and their arrangement and examination there" (*American Archivist,* January 1955). This was a point of considerable importance, for it had been customary for presidents (with the exception of Herbert Hoover) upon leaving the White House to destroy substantial quantities of papers as having little or no value.

It was fitting that the National Archives be responsible and in charge of processing these presidential papers, as they are considered the most competent body in the country to handle such collections and the problems connected with them. The archivists can give them expert care, handling, and classification from the day they leave the White House and provide access to them for serious scholars.

The archivist of the United States and other trained archivists recognize restricted categories, such as papers that might be used to harrass or damage an individual, and those that might jeopardize the conduct of foreign relations or be harmful to national security and keeping the peace. These principles would be less subjective when formulated and applied by professional archivists. They can determine more accurately when the passage of time causes these restrictions to be lifted.

Though a president may keep every scrap of paper, even now criticism comes from some scholars insisting that there must be something missing.

The years brought changes with the telephone and fast travel by train and plane, and the spoken word more and more displaced the written word. Conflicting memories of cruical decisions arrived at by telephone or hastily arranged conferences often left gaps in official files. It took Secretary Morgenthau and his complete stenographic records of official conferences to bring to the nation's attention how much was being left unrecorded. Many diaries and memoirs are published by government officials on their retirement, and though a public service they are often faulty as historical records. Records such as those Secretary Morgenthau made and tapes of our more recent officials have helped this situation.

One practice that is apparently overlooked by some critics is that as long as there have been archival and historical collections there have been restrictions. With the deed of gift, or a will, papers given to practically all repositories, including Presidential Libraries, have had certain parts of the collections closed to researchers for definite periods of time. Some are for personal reasons, others political, and some are reasons difficult to understand. Yet it is the donor's prerogative, and most recipents of the gifts of the papers consider it better to "have half a loaf than none at all."

As far back as James Madison, his will stated that his papers were to be published 50 years after his death. So it was not until 1837 that the secret of the federal convention could at last be told. Lincoln's papers were opened 82 years after his death, John Adams's and John Quincy Adams's papers were finally available in

1950, and it was 40 years before Theodore Roosevelt's papers were opened. In contrast, a year after Franklin Roosevelt's death scholars started using the research room and his papers were opened just 5 years after his death in 1945, which is certainly a boon to the scholar who wants his information as soon as possible. The scholar's desire is respected and every effort has been made since the formation of the first Presidential Library to aid the student of history. It is partly because of the existence and policies of these libraries that researchers now expect early and equal access to the papers. It is fortunate for them that the Presidential Libraries have preserved intact the presidents' papers, under public ownership and control.

I am not unaware of criticism concerning restrictions and favoritism. While I worked in the Research Room of a Presidential Library I had no clue that any such charges were justified. That is not to say such practices do not exist, but it's very doubtful, I should say. It should be pointed out that delay in producing some material might seem like favoritism when in fact it could be that the timing of processing is the villain. Papers that have been acquired take time to process and care for and when the task is finished they may seem unimportant. Had the archivist realized this, second priority could have been given them. It is also admitted that errors in judgment may have been made, and archivists' measuring sticks for restrictions may not always be accurate. The critics should consider, faced with a similar task, what their law of accuracy in judgment might have been.

As Dr. O'Neill explains classified materials in the July 1973 issue of *American Archivist*, it can be seen that it isn't always the former president or archivist in charge who demands the restrictions:

> The vogue of secrecy which enveloped public life during World War II has been continued throughout the Cold War era. In a nuclear age the fear of compromising national security by the premature release of documents has extended wartime controls over information into what seems like a perpetual system.
>
> Today, as one reads of the "thaw" in the Cold War, there are signs of fissures in the pack ice of classified information. President Nixon's Executive Order (11652) of March 1971, with its provisions for mandatory review and automatic declassification of classified documents, has altered the system radically.

After all, Presidential Libraries are eager for the papers to be studied and books and papers written. Whether the slant of the article is favorable is not the responsibility of the archivist. He is responsible for all available material to be given to the scholar, who then must bear the burden of proper interpretation and accuracy in his written work.

Other complaints leveled against the Presidential Libraries are the size of the buildings and expense to the taxpayers, and that they are memorials to an individual.

Memorials they are, but more than one president has emphasized that this is not the intent. Herbert Hoover felt that having a school named after him was the greatest memorial he could wish for. Taxpayers' money paid most of the expense of the land and building of the Kennedy Memorial in Washington, D.C. Were there complaints for this memorial to a martyred president?

Presidential Libraries and the land they are on are not paid for out of the tax-

payers' pockets. Foundations are formed to do this. There are two exceptions: The Johnson Library had assistance from Texas state taxes; and over-zealous Kennedy admirers asked government employees to donate for the Kennedy Library. Rather than mar the quota record of the government institution employing them, many grudgingly gave a quarter or more. But the money was not from taxes.

The taxpayers do contribute to the maintenance of the buildings and future expenses of running them. As has been pointed out, the Library of Congress and National Archives could not handle these papers. National Archives has already built 15 record centers throughout the United States for storage of records. The Library of Congress has no more land to build an addition. If the papers were left at the White House, every two or three decades a new one would have to be built to house the new president and his family. So why not be realistic? Why look a gift horse in the mouth? Taxpayers are at least spared the expense of building the libraries. Expense of the staff is no more at Presidential Libraries, as the same number of archivists would be needed since the amount of papers would be the same regardless of their location. In Presidential Libraries, the archivists are specialists in their subject.

Elaborate plans are underway for President Kennedy's library if ever a suitable location is found. The Johnson Library was designed and built big, Texas style. Other Presidential Libraries are modest and blend in with the surroundings.

Now there has arisen a hue and cry that when a president leaves office Mr. John Q. Public should be waiting to help himself to the papers. Whether he be a serious historian, economist, sociologist, or a blackmailer or gossip monger, he should have access to the papers. All the details have not been worked out by these hue-ers and cry-ers.

The Hoover Commission under President Truman and the second one under President Eisenhower studied and recommended ways of saving the public millions of dollars, by conducting the business of the government more efficiently. This may be the proper time to take another look at presidential papers. Dr. Rhoads, in testifying on the establishment of a national study commission on federal records and papers of elected officials, believed it to be a good idea. He did warn in his statement to the Subcommittee on Printing that: "The study commission will have a difficult mission. It will either have to make a hard choice between the private property right and the public accessibility right, or it will have to devise a compromise solution that will resolve this philosophical conflict in a way that meets the demands of our political system. And in devising a better way of ensuring adequate documentation of our national life, the commission will have to improve upon a system that has both met those demands and preserved property and accessibility right with considerable success." He assured Congress that should they see fit to establish this study commission, the National Archives and Records Service would assist in every possible way to reach "a just and equitable solution to the problem of ensuring adequate documentation of the endeavours of the Nation."

It is hoped that the reasons for Presidential Libraries have been made clear, yet there must be a purpose to justify them. Let us begin in Washington with the inscription on the National Archives, the parent of all Presidential Libraries: "THE

PAST IS PROLOGUE." We must be wise and learn from the past. How better to study the continuing drama of our country than through the research of scholars who bring their findings to the public?

Each president expressed in one way or another what he felt the purpose to be. President Roosevelt, at the dedication of his library in June 1941, declared that a nation must believe in the past and the future and that the people should have the opportunity to make judgments from the records of the past.

At the dedication of his library at West Branch, Herbert Hoover quoted Santayana: "Those who cannot remember the past are condemned to relive it." Presidential Libraries not only focus attention on the presidency and on the men who have been president, but also reflect the thinking of American citizens through their correspondence with them.

The libraries are not memorials, exclusively, to individual men. They are buildings housing documents, which are vital records of our country's history, and cared for by professionals who are eager to serve students of our American way of life.

As Elizabeth B. Drewry, former director of the Roosevelt Library, expressed it in her 1965 article in the *Midwest Quarterly*:

> . . . the breadth of the President's responsibilities, his involvement in all areas of national life, his position as a world leader cannot but be reflected in the White House records. If you could have only one source of information on the administrative, the political, the national, and even the international history and position of this nation, I think few would disagree that the modern Presidential papers would be the most important to retain.

President Truman's desire was that his library be a center of study in the Midwest for a wide range of events, as well as for his term as president. He wanted to stimulate study and research and general public education in matters of government. He was aware that preserving and telling about our national history could best be accomplished through the archival and historical professions.

Establishment of Presidential Libraries was an innovation in archival care of records. They have the advantage of specializing on subjects and periods, which enables them to develop staffs who are more knowledgeable. Their aim is to serve scholars in the most effective way.

During the hearings for the proposed legislation of the 1955 Presidential Libraries Act, Representative John McCormack said:

1. It provides a system for the preservation and use of Presidential papers that accords with our Constitution and traditions;
2. It enables the Government to acquire, as gifts, expensive archival depositories and equipment that can be used not only for Presidential papers, but also for the preservation of valuable Federal records accumulated outside of Washington;
3. By establishing important collections of manuscript sources in other parts of the Nation than the Capitol, thereby giving local scholars easier access to them, it will stimulate interest in our history and Government, and
4. It takes into account the growing need for the dispersion of research facilities resulting from the existence of nuclear weapons.

The papers in a Presidential Library are for the scholar, but the memorabilia in the museum are for the scholar and the public. They both get a more accurate picture of the administration if the memorabilia and papers are together. The papers are needed to interpret the exhibits and make them accurate. Who needs them more than the curator if he is to properly explain history? Color and tone of the times would be missing if the student confined himself to the papers alone.

Even the environment shows the influence it had on the boy who would one day be president. There is also a sentimental value in having Presidential Libraries in their home locales, and some presidents grow in stature with the home folks more after their library is built.

Presidents have interests and hobbies uniquely their own. The paths to the White House are varied and along the way the things that attract them or mold the careers that culminate in the highest office of our land can be understood better if we have tangible evidence of this. We can better understand these men if we see what relaxed them from the burdens of the presidency.

The general public can identify with a man, such as President Roosevelt, who collected stamps and ship models and so loved his home that he collected the history of Dutchess County. Many a fisherman sees Herbert Hoover through different eyes when they know he enjoyed this recreation. His favorite color was blue and along with his wife he collected beautiful blue Ming vases, which gives still another insight into the man.

People get a chuckle out of seeing on President Truman's desk the motto he was so famous for: "The buck stops here." They learn a great deal from the display of political cartoons about America's political history.

Servicemen and their families enjoy mementos of President Eisenhower's military days and golfers identify with his avid interest in this relaxing sport. Even now his widow vacations at Mamie's Cottage, at Augusta, Georgia, on the grounds where the famous Masters Tournament is held.

Tourists will, no doubt, thrill to the sight of the coconut with the message that helped save President Kennedy's life at the time of his rescue from the PT boat, and enjoy his scrimshaw collection and evidences of his love of sailing and the sea.

Johnson's teaching days appeal to teachers and students alike. His love of the hill country with its wide spread for cattle, just a few miles from his library, shows the viewer what helped make him the leader he became.

Of course, these examples point up just a few of the various interests of men who attain the presidency. It is hoped, and has proven the case many times, that just seeing these things starts children and adults alike to reading or rereading history. When it does, we know President Truman's admonition to his director, Philip Brooks—"Don't play up the old man too much. Build up the history of the Presidency"—was followed. All this is important and it also pictures great national experiences.

Another purpose of Presidential Libraries was aptly expressed by former President Hoover when he said: "The creation of such institutions assures that somebody will be interested in their expansion with collateral material." To ensure the presidents' papers optimum usefulness, auxiliary materials are required. Presidents'

assistants, press secretaries, and other staff personnel; cabinet members; committee and commission members; political and personal associates; and other contemporaries all have papers which add to the usefulness of the research on a president.

Any organization or person who played a nationally significant role during a president's or former president's life has papers to better define that period of time. It is reasonable to assume that these papers should be placed where they can be used effectively and conveniently by scholars.

Presidential Libraries try to avoid competition with state or local historical societies. Their intent is to restrict their acquisitions in the field of regional or local history to federal records. They primarily want source material—both in paper form and on microfilm—rather than printed material. They believe in the importance of not fragmenting collections.

Should they receive a private person's papers, the procedure is the same as for presidential papers, in that there is a deed of gift, restrictions on access may be stipulated, and the same care for their integrity is assured. It is this assurance of careful treatment at the hands of knowledgeable archivists that has caused some donors to give Presidential Libraries first preference.

If the papers are assured adequate preservation and accessibility to scholars, the National Archives Records Service has not stood in the way of other institutions trying to get them. There have been cases in which papers were greedily acquired, stored in basements in the boxes they came in, or scattered in a closed room to be unattended when a searcher wanted them—all because of inadequate help. Scholars could not get to them for many years, if ever.

All Presidential Libraries have papers they definitely want and feel they need, and they make every reasonable effort to acquire them. This may coincide with other research centers' wants and needs. It can be healthy and desirable, since more materials are often collected because of this competition. Oftentimes an exchange of microfilm copies also results, and added effort is made by these institutions to live up to the standards of care and availability set by Presidential Libraries. It also has made many institutions aware of the importance of acquiring modern papers.

More than one university library or other archival institution has come to feel relief that they didn't get certain papers. That is the case when the size of the collection is greater than they realized and they know they haven't the staff or space to care for them. Such a situation doesn't seem to stop the competition in the acquisition of papers.

If anyone is puzzled as to the reason that some Presidential Libraries have papers that don't seem to fit into their time period, the answer could be that the Presidential Libraries have accepted them rather than have the donor destroy them. Some donors threaten to do this rather than let a seemingly logical archival institution, with which they are disenchanted, have them.

The American Association for State and Local History and other organizations have expressed concern that there will be no papers left. This is a needless concern as there are more historically valuable manuscripts available for deposit than there are repositories able to handle them.

Keeping presidential papers and memorabilia together and acquiring auxiliary

materials are necessary for the true purpose of Presidential Libraries, which is service to scholarship and historical education for the public.

At one time it was thought necessary to have all material for scholarship at one place. Even with the first Presidential Library at Hyde Park, it seemed there would be no move from the eastern seaboard.

Who is to prove that Presidential Libraries changed the attitude of those who considered there was no place to go for historical and political research but Washington, D.C., and a few eastern universities? For years there have been many historical societies, universities, and other archival institutions west of the Alleghenies, not properly recognized, rich in material for those delving into the past to better interpret the present and future. The scholar was the loser. Certainly Presidential Libraries were the catalyst that set men to take Horace Greeley's suggestion, "Go west, young man," and apply it to research.

Now, with four Presidential Libraries west of the Mississippi, many midwest professors advise their students to take advantage of them for their serious study of the periods with which they deal. They realize that a big factor in the selection of a topic is the availability of research materials. It is better to have complete collections of presidential historical materials in various states than incomplete ones all in one place. Presidential Libraries don't want the same thing to happen as did to papers of many earlier presidents, which are here, there, or nowhere. However, if needed materials do exist in other libraries they can be secured through the Presidential Library where scholars are researching.

Robert J. Donovan, *Los Angeles Times* associate editor, wrote on August 29, 1974:

> Presidential libraries are a joy to work in because they are mostly small and the librarians and archivists who staff them are specialists. Infinitely more than the workers in all-purpose libraries, they know what they have and where it is. The completeness of the papers is one of the greatest advantages to scholars who are studying major controversial subjects. More of the evidence can be found among the White House papers, in staff member's diaries, memos, the President's appointments, speech drafts, press conferences and personal notes than any other place.

Newsreels, informal films of the Army Signal Corps, photographic files, sound recordings of speeches, addresses, and press conferences are kept together with the documents, and these are a further aid to the scholar.

The president's personal library shows the intellectual character of the man, and it is there at his Presidential Library for the researcher to study.

Seminars and grants to scholars, financed by foundations, make these libraries special centers of learning about the life and times of the president they wish to research.

Due to the fact that the collections must be properly classified before access is given, archivists at Presidential Libraries make every effort to hasten this work; hence the danger of loss is minimal.

A scholar wants to explain papers in light of the president's entire career, which could not be done except for Presidential Libraries. As a good example, there are the

papers of Franklin Roosevelt, as by law his state papers at Albany would have gone to the state, his papers as assistant secretary of the Navy to the Library of Congress, and those of Dutchess County to the county historical society. All presidents since then have had careers that leant their papers to being subdivided. Lists, published catalogs, and finding aids are prepared in Presidential Libraries to assist the scholar. Some of this information can be given by mail so a decision can be made as to whether a trip to the library will be worthwhile.

People can study geography and social studies and read maps, yet it is not until they travel that the full impact of their learning takes on true meaning. So it is with history, and presidential and other museums feel they are continuing the public's education by the memorabilia they present. Americans feel closer to a president if there is something they can look at that was a part of his life. The curator arranges galleries to shed light on the president's official, political, and personal life.

From the time of the first Presidential Library an admission fee has been charged to visit these museums. When President Roosevelt was questioned about allotting too much space to the museum functions of the library, he replied, "Well, you know, if people have to pay a quarter to get into the library, they will want to see something interesting inside." The price of admission has increased but it's still a bargain in education and pleasure. The Johnson Library is denied this income because it is on Texas state property. Entrance fees are placed in a special income account to give added support to the operation of the museum and libraries.

Museum objects are displayed in rotation, for it would be impossible to exhibit them all at the same time. The museums also loan and borrow from other museums certain memorabilia, as well as get loan exhibits from the National Archives. The place our president holds in the world today is pictured more impressively by the museums.

Having seen one Presidential Library, it is not unusual to want to see another one, and so the traffic moves on.

Previous volumes of this encyclopedia have articles about the Presidential Libraries now in existence, but a brief resume of their histories will be made at this point. As has been mentioned before, there were some forerunners of Presidential Libraries, as they are known today.

The first was the Hayes Memorial Library, now designated the Rutherford B. Hayes Library, which is maintained jointly by the state of Ohio and the Rutherford B. Hayes–Lucy Webb Hayes Foundation and other trusts. President Hayes's son, the late Colonel Webb C. Hayes, deeded to the state in 1914 the president's estate, Spiegel Grove at Fremont, as well as equaling the Ohio General Assembly's authorization of an appropriation of $50,000 for erection and equipment of a library in 1911. It serves the community by preserving the records relating to Sandusky Valley and northwest Ohio. It also houses the president's papers, pamphlets, memorabilia, and library, and has become a research center for the study of American history during the Hayes period—the last half of the 19th century. The inventory shows 1 million manuscript items and 75,000 volumes.

It was in the same year, 1914, following the outbreak of World War I, that Herbert Hoover organized the American Committee in London, which returned 120,000

American tourists stranded in Europe by the war. At that time, he exchanged his private life for a public career which lasted the 50 remaining years of his life. While working in various humanitarian projects in Europe, he became aware of the importance of collecting all the historical material he could. In 1919 Mr. Hoover pledged $50,000 to establish an institution which would serve as a repository on propaganda and activities of World War I. The Hoover Institution was built at a cost of $60,000 on the Stanford University campus at Palo Alto, California. It is no longer attached to Stanford, but maintains itself through donations and as a contract research institution.

President Hoover also placed his commerce and presidential papers, and commission and postpresidential papers there. They were moved to West Branch when his Herbert Hoover Presidential Library was built.

These two libraries show that records of history can be kept if there is a conscientious family or former president to make the provisions.

The third forerunner of Presidential Libraries had friends with a sense of history who organized the Harding Memorial Association to preserve what papers could be found of President Harding. It was his widow who stood in their way, longer than even she probably dreamed possible. She wanted to protect the memory of her husband, so she destroyed incriminating evidence, especially of his presidential years. She fostered the idea that she had destroyed all of the president's papers and many still hold to that idea today. The truth is, she did not have access to all of his papers and kept at least half (it is estimated by the gaps in the filing system used) of the papers she scrutinized.

Before her death in 1924 she deeded the remaining papers to the Harding Memorial Association, thus admitting she had not been truthful when she told Dr. Charles Moore of the Library of Congress that she had burned all of the papers. The association in turn donated them in 1963 to the Ohio Historical Society at Columbus, and they were first opened to researchers on April 25, 1964, more than 40 years after Harding died. The inventory shows 350,000 items in 905 document boxes, and the Harding microfilm edition makes it possible for libraries to buy or borrow all or parts of the 263 rolls of film. Light is now being shed upon Harding and the 1920s.

While still in office, President Roosevelt announced on December 10, 1938, his plans to present his papers to the nation. Congress accepted the offer and by joint resolution July 18, 1939, established the library as a federal agency. On July 30, 1940, the government accepted the Dutch colonial building at Hyde Park, New York. President Roosevelt had hoped to have an office there, where he could write, but death cheated him of his dream. It was estimated that only 1% of his papers were restricted as of 1975. The slipshod method of preserving the presidential papers was ended and a new method was established.

The idea of a Presidential Library appealed to President Truman to the extent that on January 17, 1953, he wrote the General Services Administrator Jess Larson his intention to deposit his personal papers in the National Archives and later in his own Presidential Library, should he have one. He asked for archival assistance in sorting his papers at that time, consequently preliminary work was started at that

time. Because his friends and organizations were aware of his intense interest in preserving the records of the presidency, they donated more than $1,750,000 for the Harry S. Truman Presidential Library at Independence, Missouri.

The 1939 legislation dealt only with the Roosevelt Library, but legislation in 1955 permitted the United States government to accept and operate later Presidential Libraries. The bill was signed by President Eisenhower August 12, 1955, thus it was that the first library to be given the United States under the new law was the Harry S. Truman Library, with the dedication July 6, 1957. President Truman lived to have an office in his library for many years and write his memoirs from the papers there.

From his office at his Gettysburg home, former President Eisenhower was in daily contact with his library in his 8 postpresidential years. He drew on the papers for each book and article he wrote. The procedure for the establishment of the Eisenhower Presidential Library was much the same as for President Truman's and the libraries which followed. He wrote a letter of intent on April 13, 1960, to General Services Administrator Franklin Floete; friends raised money for the library to be built near his boyhood home and the Eisenhower Museum at Abilene, Kansas. Now it is open to researchers on a variety of subjects, the presidential years and his military career getting the most attention at present.

President Hoover offered his public papers and historical materials to the United States as a gift in December 1960. Also on that date the Herbert Hoover Birthplace Foundation, Inc., offered the Herbert Hoover Presidential Library building, equipment, and grounds to the federal government as a gift. Congress authorized acceptance of these gifts in March 1962. Excluding the notable collection of war and peace documents, President Hoover's papers were brought from the Hoover Institution at Palo Alto. President Hoover also designated one room for his office when he would be in Iowa, but he never was able to use it. He did keep in close touch with the activities until his death October 20, 1964. Papers of his contemporaries are being added to the collection and scholars are finding great help for study of the late 1920s and early 1930s, as well as the years Mr. Hoover was active in relief work and his postpresidential commission work.

The archivist of the United States offered John F. Kennedy space at the National Archives in November 1960 and prepresidential papers began to be assembled there in January 1961. Yet, at the time of his death, President Kennedy had not prepared a letter of intent to offer his papers to the United States or executed a deed for his papers. It seemed clear from his private and public statements that he intended to keep to the precedent of former presidents by giving his papers to the government and by having a Kennedy Presidential Library. As emphasis for this theory, the John Fitzgerald Kennedy Library Association was founded in December 1960 and a committee was formed the next September to consider the establishment of a Presidential Library. President Kennedy's papers were donated on February 26, 1965, to the United States by Mrs. Jacqueline B. Kennedy and the executors of John F. Kennedy's estate, with the restriction of certain categories of materials. Later, on August 20, 1968, she supplemented the original donation and established a committee to act for the donors and executors in implementing the provisions of

the original deed of gift. They have developed guidelines used by the staff of the Kennedy Library in work on the Kennedy papers. The money was partially raised and the drawings were made for a Kennedy Library to be built in Cambridge, Massachusetts, where President Kennedy hoped to spend his postpresidential years in scholarly endeavors, but the building has not been started yet. At the time this article went to press, the plans were to begin construction during 1977 on Columbus Island, Boston, on the University of Massachusetts campus. Until construction of the library is completed, researchers will find the papers which are ready for study at Waltham, Massachusetts.

Much publicity has been given the eight-story Lyndon Baines Johnson Library on the campus of the University of Texas at Austin, dedicated in May of 1971. As far back as August 13, 1965, President Johnson wrote the general services administrator offering his papers to the government. Deeds of gifts were given at various times between 1965 and 1971 and the remainder of his papers were conveyed to the United States by his will, filed for probate on February 14, 1973. Fortunately, President Johnson was able to use his library for the writing of his memoirs and his widow continues to have close contact with the ongoing administration of this gold mine of research.

Scholars and citizens alike can be grateful for the sense of history our recent presidents have shown in preserving their papers.

Former President Nixon also had plans for a Presidential Library as a repository for his papers. A foundation was formed to raise money and help decide on a location. Papers were placed in the National Archives building and scholars were looking forward to the study of the Nixon years and especially his conduct in foreign relations. The Watergate cover-up and legislation (which will be brought out later) changed all that, and the latest plans are that private funds would be solicited for a planned Nixon Presidential Library at the University of Southern California. President Nixon would have to be successful in his court suit to change legislation requiring that his presidential materials must remain in the Washington, D.C., area.

President Ford has given his congressional and vice-president's papers to the University of Michigan, from which he graduated. No formal announcement has been made of his plans for a Ford Presidential Library but as of this writing, it appears that his papers will be placed in a Presidential Library on the University of Michigan campus at Ann Arbor, and that a museum will be constructed at Grand Rapids.

In review, Presidential Libraries have come into being in a unique way. They are not established with taxpayers' money, but through gifts of private individuals and organizations. President Franklin Roosevelt made the initial suggestions and few variations have occurred. They are given then to the General Services Administration, the business arm of the federal government. If the library is part of a National Historic Site, the grounds are under the jurisdiction of the National Park Service, which is part of the Department of the Interior.

The National Archives, under the General Services Administration, accepts the deed of gifts for the papers from the presidents or their heirs, and professional archivists prepare them for use by qualified scholars. Presidential Libraries are in

effect field branches of the National Archives. It is sad that the National Archives could not have been established in 1914, when early supporters wanted it. Waiting until 1934 meant that the avalanche of records was so great it was difficult to keep up with the present, let alone catch up with the past—in bringing records together, arranging, repairing, and preparing finding aids to make them useful. Presidential Libraries, hopefully, have alleviated a portion of this work, especially since the holdings of both are primarily concerned with the operations of government.

So it is that salaries for upkeep and care of the buildings and grounds, as well as the staff for the care of the papers, are paid for by the taxpayer. Admittance charges for the museums help defray expenses of extra staff and equipment. Associations are formed by interested individuals to provide grants, seminars, financial encouragement for book publication, and further study.

It must be evident that Presidential Libraries have not been created to humor the whims of presidents, because there have been several pieces of legislation passed by Congress.

First there was the special legislation accepting the Franklin D. Roosevelt Library. The first draft of the joint resolution was ready by December 21, 1938, only 4 days after the first meeting of the Executive Committee appointed by President Roosevelt at the time he announced his plan to present his papers to the United States. Amended drafts followed and the final draft was introduced in the Senate and the House of Representatives on April 19, 1939 (S.J. Res. 118, H.J. Res. 268) and passed the Senate on the following day. As Waldo Gifford Leland recounts it in his article in the January 1955 issue of *American Archivist:*

> In the House the Committee on Library held a hearing on May 7; no witnesses were called, but supporting written statements by several members of the Executive and Advisory Committees were incorporated in the record. The House Committee reported favorably on May 10th. Two months later the resolution passed the House by a partisan vote of 321 to 124, after a lively debate, and was sent back to the Senate with minor amendments. It was finally approved on July 18.

The legislation deals with both the library and the residence. With respect to the former it authorized the archivist of the United States (*a*) to accept title to the land to be used as the site of the library; (*b*) to permit the Franklin D. Roosevelt Library, Inc., to construct a building or buildings on the site, to be known as the Franklin D. Roosevelt Library, and to landscape the grounds; (*c*) to accept for the library, as a gift, the historical materials donated by Franklin D. Roosevelt; and (*d*) to acquire other contemporary or relevant historical materials by gift, purchase, or loan.

Then came other legislation, in what was meant to be an economy move but in reality threatened the future of not only Presidential Libraries, but all archival work. In 1949 the Federal Property and Administration Services Act provided for the formation of the General Services Administration. President Truman signed into law on September 5, 1950, the Federal Records Act, which placed in the office of the administrator of general services practically all national archival and records management authority.

Since the National Archives was created as an independent agency in 1934, these

two pieces of legislation seemed like a rebuff to the archivists. Time shows they were able to rise above this snub and successfully preserve the records of our nation.

On August 12, 1955, President Eisenhower signed the Presidential Libraries Act, amending the Federal Property Act of 1949 by authorizing the administrator of general services to:

> . . . accept for deposit . . . the papers and other historical materials of any President or former President of the United States, or of any other official or former official of the Government, and other papers relating to and contemporary with any President or former President of the United States, subject to restrictions agreeable to the Administrator as to their use; and . . . to accept for . . . the United States, any land, buildings, and equipment offered as a gift to the United States for the purpose of creating a Presidential archival depository, and to take title to such land, buildings, and equipment on behalf of the United States, and to maintain, operate, and protect them as a Presidential archival depository.

The public and newspapers have long criticized our presidents, accusing them of a credibility gap, believing they were entitled to know more than they were told about running the government.

In 1966 Congress passed the Freedom of Information Act (Public Law 89–487). It required the federal government and its agencies to make available to citizens, upon request, all documents and records—except those which fell into the following exempt categories:

1. Secret national security or foreign policy information
2. Internal personnel practices
3. Information exempted by law
4. Trade secrets or other confidential commercial or financial information
5. Interagency or intra-agency memos
6. Personal information, personnel, or medical files
7. Law enforcement investigatory information
8. Information related to reports on financial institutions
9. Geological and geophysical information

The above is a simplification as explained by the *Congressional Quarterly*, which goes on to explain that because of bureaucratic delay and excessive charges for providing information, and lack of a provision for the courts to go behind a "classified" stamp on information sought by a citizen under the law, amendments were in order.

This brought about the 1974 Freedom of Information Act Amendments (Public Law 93–502) which put more teeth in the 1966 act. Even though President Ford vetoed it, his veto was overridden and the act became a law November 21, 1974. It must be noted that the act and its amendment applies to public papers but not to deeded papers.

In between these two pieces of legislation came another act of Congress in 1969 called the Public Property Act that had an effect on Presidential Libraries. Until

that time an individual could deduct the appraised fair market value of contributions to a maximum of 30% of his or her annual income in the year a gift was made, with any excess deduction being applied against taxes for a maximum of the next 5 years. This has caused many individuals to refrain from giving their papers to the government to such an extent that the Library of Congress has suffered greatly in the accessioning of papers. It has had some effect on Presidential Libraries, also, but not to the extent of other libraries. According to Herman Kahn: "No President has ever taken a tax deduction for a donation of Presidential papers."

It was this law, however, that led to the confusion about President Nixon's congressional and vice-president's papers being legally eligible for a tax deduction.

More recent legislation has been passed as a result of President Nixon, on the day of his resignation, making an agreement with Mr. Samson, the administrator of general services, for the transfer of his presidential materials to the government for deposit. The control and access to them, which included the possibility of destroying them after September 1, 1979, was not understood and was shocking to many. Even Dr. James Rhoads, the archivist of the United States, was kept in the dark about this arrangement. The blessing of President Ford to these specific details caused further confusion and questions.

This brought so much controversy that Public Law 93–526 was enacted December 19, 1974, just 123 days after President Nixon's agreement with Mr. Sampson. The act is to protect and preserve tape recordings of conversations involving former President Richard M. Nixon and made during his tenure as president and for other purposes. . . . . .

Title I of this is cited as Preservation of Presidential Recordings and Materials. The day after the law was passed Richard M. Nixon went to the Federal District Court for the District of Columbia to enjoin permanently the enforcement of this act. Other cases, as a result, are also in the courts. The General Services Administration in its memorandum on Title I gives the following summary of the current status of this law:

> Court orders now in effect prevent both the movement and the archival processing of the materials as contemplated under these regulations. The Administrator may not move the materials from their present location or begin archival processing until these outstanding court orders, or successor orders having the same effect, are vacated. Current and anticipated litigation may, therefore, prevent any archival processing for a year or more.

Title II is cited as the Public Documents Act and authorizes appropriation for a commission to:

> . . . study problems and questions with respect to the control, disposition, and preservation of records and documents produced by or on behalf of Federal officials, with a view toward the development of appropriate legislation recommendations and other recommendations regarding appropriate rules and procedures with respect to such control, disposition and preservation.

TABLE 1

Holdings through December 31, 1974, According to Each Library's Report

	Roosevelt	Truman	Hoover	Eisenhower	Johnson	Kennedy
Total holdings	21,747,802	10,284,000	4,880,220	17,194,882	32,602,737	18,692,775
Film holdings	913,834	0	220	84,300	6,435,131	2,511,200
Photographs	109,026	65,427	11,605	76,335	518,642	64,299
Motion picture films (feet)	264,997	168,858	117,774	589,930	168,858	1,575,031
Sound recordings (disks and tapes)	3,561	2,368	646	2,358	7,620	2,408
Oral history transcripts (pages)	896	12,578	9,445	14,764	13,531	23,370
Museum objects	21,192	12,612	2,767	17,379	35,471	11,427
Books	35,403	42,756	17,577	24,273	12,045	17,988
Other printed items	58,368	56,151	20,338	20,775	16,505	20,790
Microfilm (rolls)						
MSS—other archives	224	2,237	1,022	1,906	0	5
Printed materials	788	2,400	544	3,082	66	462
Video recordings	—	—	—	—	3,288	151

Presidential Libraries have done a great deal for the preservation of history but no settlement has been made on the fundamental question of ownership.

Since tradition and common law fail to satisfy some, it is hoped that the commission can find the satisfactory and legal solution. This is no easy task, as making a law to rectify the error in judgment of one administration could change the whole archival picture.

When a researcher goes to a Presidential Library he can expect to find manuscripts, oral histories, books, dissertations, magazine articles, films, tapes, and papers of the president he is researching. He can also find the same kind of materials for the president's contemporaries. He can make a study of the president's personal life, his church affiliations and religious beliefs, his political and public life, his hobbies and other interests, because qualified archivists have used their knowledge and skills for easy access to the materials. Table 1 shows what can be expected to be found at each Presidential Library.

For those interested in the whereabouts of the presidents' papers, an up-to-date record of the present status of presidential papers was provided in the Hearings on Presidential Recordings and Materials Preservation Act. It is reprinted in Table 2.

Who can properly assess the accomplishments of Presidential Libraries? Yet who will deny that public interest in history has been broadened by the museums and more accurately interpreted by the scholars through their research for books, articles, and dissertations?

TABLE 2

Depositories and Purchases of Presidential Papers [a]

President	Depositories [b]	Purchases [c]
George Washington (1732–99), president 1789–97	The Library of Congress has some 800 volumes of letters, diaries, official papers, and other manuscripts. The Henry E. Huntington Library (San Marino, Calif.) has 450 letters. The Connecticut State Library has the extensive Trumbull correspondence. Other collections are in the Chicago Historical Society (150 pieces), the U.S. Naval Academy (15 pieces), Maryland Historical Society (62 pieces), Boston Public Library (5 vols.), Harvard College Library (88 pieces), William L. Clements Library (Ann Arbor) with 147 items, Detroit Public Library (part of the diary), Minnesota Historical Society (123 pieces), Princeton University Library, New Jersey State Library (3 items), Long Island Historical Society (123 pieces), Cornell University Library (80 pieces), Morristown National Historical Park (95 pieces), Columbia University Library (57 pieces, including parts of the diary), New York Historical Society (215 pieces), New York Public Library, Pierpont Morgan Library (New York, N.Y.) (114 items), Duke University Libraries (99 pieces), Historical Society of Pennsylvania, Virginia Historical Society (225 pieces), Virginia State Library, and William & Mary College (205 pieces). The Washington home, Mount Vernon, has family papers and diaries of the later years.	The Library of Congress acquired its papers in purchases totaling $45,000 in 1834 and 1849.
John Adams (1735–1826), president 1797–1801	The Adams papers are largely in the Massachusetts Historical Society, which has the diaries, the autobiography, and various manuscripts. There are 4 boxes of papers dated from 1776 to 1813. The Boston Public Library has some papers and some books with annotations by Adams. The postpresidential papers in the Harvard College Library are chiefly retrospective comments on the Revolution. There are scattered papers in the Columbia University Library, the Duke University Hospital Library, Princeton	

(continued)

TABLE 2 (Continued)

President	Depositories [b]	Purchases [c]
	University Library, the Pierpont Morgan Library, and Historical Society of Pennsylvania.	
Thomas Jefferson (1743–1826), president 1801–09	The Library of Congress has 236 volumes of the correspondence, and the Massachusetts Historical Society has 77 volumes of papers and some of his record books. The University of Virginia has 2,500 items, Colonial Williamsburg 600 pieces, and William & Mary College 265 pieces. The Virginia Historical Society has 100 items, and there are some assorted papers in the Virginia State Library. Other collections are the Henry E. Huntington Library (800 pieces), the Historical Society of Delaware (14 items), the William L. Clements Library (91 pieces), the Missouri Historical Society (130 items), Princeton Universty Library, Columbia University Library (21 items), New York Historical Society (130 items), New York Public Library, Pierpont Morgan Library (245 pieces), Duke University Libraries (33 pieces), American Philosophic Society (Philadelphia), Historical Society of Pennsylvania, and the University of Texas (68 items).	Many of the 23,600 items held by the Library of Congress were purchased in 1848 for $20,000 from Thomas Jefferson Randolph, executor of the Jefferson estate. Fully half of the collection purchased at that time was returned, however, as being of too "personal" a nature for government acquisition. This returned cache of papers was ultimately dispersed by the heirs to friends, relatives, and collectors.
James Madison (1751–1836), president 1809–17	There are 114 boxes and 10 volumes of papers in the Library of Congress. The University of Virginia has 165 items, the New York Historical Society 134 pieces, and the Henry E. Huntington Library 104 pieces. There are smaller collections at the Virginia State Library, William & Mary College, the Virginia Historical Society, the Historical Society of Pennsylvania, the Pierpont Morgan Library, William L. Clements Library, and Princeton University Library. The New York Public Library has a collection of 390 items.	Of the approximately 10,000 items in the Madison collection held by the Library of Congress, most were acquired through 2 purchases from Mrs. Madison and one from the Chicago Historical Society. The cost of the 3 transactions amounted to $65,000.
James Monroe (1758–1831), president 1817–25	Chief repositories are the Library of Congress with 40 volumes and 5 boxes, New York Public Library with 1,300 items, and the James Monroe Memorial Foundation (Fredericksburg, Va.) with an extensive and varied collection. There are	The Library of Congress holds 4,200 items which were acquired from the Monroe heirs in 1849 for $20,000.

(continued)

TABLE 2 (Continued)

President	Depositories [b]	Purchases [c]
	also materials at William & Mary College (111 pieces), the University of Virginia (160 pieces), the New York Historical Society (50 items), the Pierpont Morgan Library (30 items), University of Pennsylvania Library (30 items), the Virginia Historical Society (35 items), and the Virginia State Library.	
John Quincy Adams (1767–1848), president 1825–29	Most are in the Massachusetts Historical Society (some 15,000 diary pages and 6,300 letters). The Library of Congress has several boxes, and scattered items are in the New York Historical Society, the New York Public Library, and the Pierpont Morgan Library.	
Andrew Jackson (1767–1845), president 1829–37	The Library of Congress has a collection of over 340 volumes and boxes. The Tennessee State Library has 1,500 items, and the Tennessee Historical Society and the Jackson home, the Hermitage, have additional materials. Other collections are the Chicago Historical Society (450 items), New York Public Library (250 items), Pierpont Morgan Library (72 pieces), Duke University Libraries (50 items), Missouri Historical Society (40 items), Princeton University Library, and New York Historical Society.	Of the 20,000 items held by the Library of Congress, a small number of papers were donated in 1903 by the F. P. Blair family; 2 purchases of papers were made in 1911 and 1932 for a total expenditure of $18,000. Some of Jackson's papers were lost in 1834 when the Hermitage burned.
Martin Van Buren (1782–1862), president 1837–41	The Library of Congress has 73 volumes and containers, and the New York State Library has a collection of letters. There are smaller collections in the Columbia County Historical Society (Kinderhook, N.Y.), the Pierpont Morgan Library, and the Massachusetts Historical Society.	Van Buren's papers remained in the control of his family until 1904–05 when they were presented to the Library of Congress. The former President is thought to have destroyed many of his papers before his death.
William Henry Harrison (1773–1841), president 1841	Most are in the Library of Congress and Indiana State Library, but significant presidential writings are limited to his inaugural address.	A number of Harrison's records are thought to have been destroyed when his homestead burned in 1858.

(continued)

TABLE 2 (Continued)

President	Depositories [b]	Purchases [c]
John Tyler (1790–1862), president 1841–45	There are 8 volumes in the Library of Congress, and a smaller collection in the Duke University Libraries. The University of Virginia Library, William & Mary College, and the Pierpont Morgan Library have collections ranging up to 130 pieces.	While a large part of the Tyler cache was burned in 1865 when Richmond was put to the torch, the Library of Congress purchased its collection from Tyler's son in 1919 for $1,000.
James K. Polk (1795–1849), president 1845–49	The Library of Congress has 188 volumes and boxes. The diary, running to 25 volumes of up to 200 pages each, is in the Chicago Historical Society. Scattered correspondence and papers are in the William L. Clements Library and the Tennessee Historical Society.	There were 2 purchases of Polk papers by the Library of Congress, 1 from a family heir and 1 from the Chicago Historical Society, both of which totaled $13,500.
Zachary Taylor (1784–1850), president 1849–50	1 volume and 2 boxes are in the Library of Congress. The Kentucky Historical Society (Frankfort), the University of Kentucky Library, and the University of North Carolina Library have assorted papers, mostly prepresidential.	
Millard Fillmore (1800–74), president 1850–53	The Buffalo Historical Society has all but a few that are in the Library of Congress.	
Franklin Pierce (1804–69), president 1853–57	The largest collection, 1,500 items, is in the New Hampshire Historical Society. The Library of Congress has a few additional pieces. But the papers relating to the period of the presidency have, for the most part, disappeared.	Pierce is thought to have destroyed many of his papers; much of his official and personal White House correspondence has disappeared.
James Buchanan (1791–1868), president 1857–61	The Library of Congress has 11 volumes and boxes, and the Historical Society of Pennsylvania has 25,000 items. There is a considerable collection in the Lancaster County (Pa.) Historical Society. Smaller collections are in Franklin & Marshall College Library, Dickinson College Library, the Rutherford B. Hayes Library (Fremont, Ohio), the Pierpont Morgan Library, the New York Historical Society, and the Princeton University Library.	

(continued)

TABLE 2 (Continued)

President	Depositories [b]	Purchases [c]
Abraham Lincoln (1809–65), president 1861–65	The major collection, over 100 volumes and boxes, is in the Library of Congress. The Illinois Historical Society has over 6,000 items, and the Brown University Library 1,678 pieces. There are 4 boxes of material at the University of Chicago. Other collections are at the Chicago Historical Society (50 items), Indiana University Library (215 items), Boston University Libraries (60 items), Harvard College Library (40 items), New York Historical Society (4 volumes and boxes), New York Public Library (4 boxes), Minnesota Historical Society (11 items), Missouri Historical Society (41 items), the Pierpont Morgan Library (26 items), the Rutherford B. Hayes Library (Fremont, Ohio), and Lincoln Memorial University (Harrogate, Tenn.).	
Andrew Johnson (1808–75), president 1865–69	The Library of Congress has 275 volumes and boxes. The Rutherford B. Hayes Library has 158 items, and the Duke University Libraries have 42 items.	The Library of Congress acquired its collection of Johnson papers through two purchases from family heirs for $7,500.
Ulysses S. Grant (1822–85), president 1869–77	The Library of Congress has over 100 volumes and boxes. The Henry E. Huntington Library has 345 items, and the Rutherford B. Hayes Library 255 items. Smaller collections are at the Chicago Historical Society (125 pieces), Illinois State Historical Library (200 pieces), Chicago Public Library (10 pieces), Illinois Historical Society (27 letters), the New York Historical Society (35 items), and the Pierpont Morgan Library (11 pieces).	Though not a prolific letter writer, Grant is reported to have returned certain letters he received as president to the originator of the correspondence.
Rutherford B. Hayes (1822–93), president 1877–81	Some 300 volumes and 75,000 items are in the Rutherford B. Hayes Library in Fremont, Ohio, Hayes's home. Western Reserve University Library has 8 boxes, and the Library of Congress has 5 boxes.	The first actual Presidential Library, the Hayes Memorial Library is maintained by the State of Ohio and the Rutherford B. Hayes–Lucy Webb Hayes Foundation.

(continued)

TABLE 2 (Continued)

President	Depositories [b]	Purchases [c]
James A. Garfield (1831–81), president 1881	There are 343 volumes and boxes, most prepresidential, in the Library of Congress. The Ohio Historical Society has 1 box, and the Rutherford B. Hayes Library has 30 items.	The Library of Congress was made a gift of its Garfield collection in 1930–31 by the former president's children.
Chester A. Arthur (1830–86), president 1881–85	The Library of Congress has 5 boxes; the New York Historical Society 8 volumes of letters and a box of other papers. The Rutherford B. Hayes Library has 16 items.	
Grover Cleveland (1837–1908) president 1885–89; 1893–97	The major collections are at the Library of Congress with 407 volumes and 109 boxes and the Detroit Public Library with 1,250 items largely relating to the second administration. The Buffalo Historical Society has 75 items, New York Historical Society 30 items, and Pierpont Morgan Library 14 pieces. Princeton University Library also has a varied collection.	The Cleveland collection of the Library of Congress was presented as a gift by Mrs. Preston, the former president's widow.
Benjamin Harrison (1838–1901), president 1889–93	The Library of Congress has 290 volumes and 193 boxes. Indiana Library has a box of papers, and the Rutherford B. Hayes Library 42 items.	The Harrison papers were presented to the Library of Congress by members of the former president's family.
William McKinley (1843–1901), president 1897–1901	There is a collection of 417 volumes and boxes in the Library of Congress, and other sizable collections are at the Western Reserve Historical Society and the Western Reserve University Library (2 volumes of letters). A few papers are at the Rutherford B. Hayes Library.	Approximately 122,000 items were presented to the Library of Congress in 1935 by George B. Cortelyou, the president's personal secretary and executor.
Theodore Roosevelt (1858–1919), president 1901–09	The Library of Congress has well over 1,000 volumes and boxes. There is another large collection at the Harvard College Library. The Pierpont Morgan Library has the manuscript of his autobiography and some letters. William L. Clements Library has 290 items, the University of Southern California Library 60 items, Bowdoin College Library 15 items, Duke University Libraries 43 pieces, and Yale University Library assorted letters.	The T. R. collection held by the Library of Congress was donated by the former president himself.

(continued)

TABLE 2 (Continued)

President	Depositories [b]	Purchases [c]
William H. Taft (1856–1924), president 1909–13	There are 1,300 boxes at the Library of Congress. Other collections are at the Yale University Library, Princeton University Library, Western Reserve University Library, and the Ohio Historical Society.	Of the half a million items held by the Library of Congress, none could be consulted prior to 1960 without the consent of the Taft family. The first L. C. deposit of Taft papers was made in 1919 and various additions followed after that time.
Woodrow Wilson (1856–1924), president 1913–21	The Library of Congress has 1,325 boxes. Yale University Library has the Wilson–House correspondence. Harvard College Library has the letters to Walter Hines Page. There are major materials at Princeton University Library and 1,150 items at Columbia University Library. The University of Virginia Library has 248 pieces, the Historical Society of Wisconsin 30 items, the Maryland Historical Society 12 items, and the Woodrow Wilson Foundation has some materials.	The Library of Congress holds the former president's collection of academic materials and certain of his university documents and office items.
Warren G. Harding (1865–1923), president 1921–23	There are 4 boxes in the Library of Congress, 2 boxes in the Ohio Historical Society, and an undisclosed amount in the Harding Memorial Association, Marion, Ohio.	Certain items in the Harding collection will remain under seal until 2014.
Calvin Coolidge (1872–1933), president 1923–29	The Library of Congress has 347 boxes, and the Forbes Library, Northampton, Mass., 79 volumes and boxes. Smaller collections are at Amherst College Library, the State Library of Massachusetts, and Tulane University Library.	
Herbert C. Hoover (1874–1964), president 1929–33	The chief repositories are the Hoover Institution on War, Revolution, and Peace at Stanford University, and the Hoover Library at West Branch, Iowa. There are small collections at the University of Southern California, Yale University Library, Harvard College Library, and Princeton University Library.	
Franklin D. Roosevelt (1882–1945), president 1933–45	There is a great and expanding collection in the Franklin D. Roosevelt Library at Hyde Park, N.Y. The Library of Congress has 1 volume and 2 boxes, and the Duke University Libraries have 26 items.	

(continued)

TABLE 2 (Continued)

President	Depositories [b]	Purchases [c]
Harry S. Truman (1884–1972), president 1945–53	The central collection is at the Truman Library, Independence, Mo. There are a few papers in the Library of Congress.	
Dwight D. Eisenhower (1890–1969), president 1953–61	The papers are housed at the Eisenhower Museum in Abilene, Kans.	
John F. Kennedy (1917–63), president 1961–63	The papers of Kennedy, as well as others relating to his administration, will be housed in a memorial library at Harvard University.	
Lyndon B. Johnson (1908–73), president 1963–69	The Johnson papers are at the Lyndon Johnson Library located at the University of Texas, Austin, Tex.	
Richard M. Nixon (1913–), president 1969–74	The Nixon papers are being gathered in Washington at the National Archives for shipment to a Federal Records Center near San Clemente, Calif., where they will be under the joint supervision of the former president and the General Services Administration.	

[a] Reprinted from: U.S., Congress, House, Committee on House Administration, Subcommittee on Printing and Related Legislation, *Hearings on HR 16902: Deposition and Preservation of Documents of Federal Offices, September 30 and October 4, 1974*, 93rd Cong., 2nd Sess., Government Printing Office, Washington, D.C., 1974, pp. 88–92.
[b] Information regarding papers depositories is generally drawn from Arthur Bernon Tourtellot, *The Presidents on the Presidency*, Doubleday & Co., Garden City, N.Y., 1964, pp. 471–485; updating material supplied by the National Archives and Records Service.
[c] Information regarding purchases of presidential papers is drawn from David Demarest Lloyd, "Presidential Papers and Presidential Libraries," *Manuscripts*, 8, (Fall 1955).
Source: Harold C. Relyea, analyst, American National Government, Government and General Research Division, Sept. 24, 1974.

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RUTH DENNIS

PRICE INDEXES, LIBRARY MATERIALS

Price indexes for library materials are numbers used to show periodic price changes in terms useful to libraries. Index numbers show percentage variations from an arbitrary standard, usually 100, which represents the status at some other time. The utilization of indexes to provide more precise guides to price changes in the cost of library materials is a relatively recent phenomenon. The usefulness of such indicators had been proven in business and government. It remained for William H. Kurth to apply the concept to the materials which make up library collections.

To produce a price index for a category of library materials, the indexer gathers the list prices of items in the category, totals them, and divides the total by the number of items to obtain the average price per item. This figure is then divided by the average price of the same category of materials for the base period and multiplied by 100 to obtain the index. (For example, a price index of 187 for U.S. periodicals in 1973 means an 87% increase over the average price during the 1967–1969 base period.) Although the index number is in essence a percentage indicator of change from the price for the base figure, its usefulness lies in the ease with which it can be compared with other indexes and can show successive changes over periods of time.

History

Kurth's first published reference to his pioneering work appeared as an article entitled "A Proposed Cost of Books Index and Cost of Periodicals Index" in the October 1955 issue of *College and Research Libraries*. Pointing out that price information for library materials was not being offered in the consistent statistical pattern required for meaningful application in analysis, budgeting, and planning, he proposed the development of cost indexes for books and periodicals by subject categories along lines which would produce figures specifically useful to libraries. Kurth's grand design included indexes for nine subject categories of books computed for 1947, 1950, 1954, and annually thereafter, with 1939 as the base year. Eventually, indexes were to be prepared for the annual publishing output of 15 countries. He offered some experimental compilations, and reported the interest of the American Library Association's Board on Acquisition of Library Materials.

A year later, in the November 1956 issue of *College and Research Libraries*, Kurth's second article on the subject, "Mexican Book Prices, 1950 and 1954," offered an example of price indexes for nine subject categories for books published in Mexico. This was followed by an exhaustive exploration of the subject in his master's dissertation at the Catholic University of America, "A Cost of Books Index Applied to the Mexican Book Production, 1947–1957," dated August 1957, which showed the concept in practice.

Thus, in 3 years Kurth had provided a public forum for librarians to consider how indexes could be produced and used. From the beginning, Kurth thought of them as cooperatively produced, with the acquisition unit of the American Library Association serving as a coordinating agency to provide for participation by librarians, expansion of the program, and continuity of production. Following the association's reorganization, the Acquisitions Section of the Resources and Technical Services Division replaced the old Board on Acquisition of Library Materials. The section established the Costs of Library Materials Index Committee in 1957 (later called the Library Materials Price Index Committee, and hereafter referred to as the committee) with Kurth as chairman and with a statement of responsibility reading, "to prepare and publish cost indexes of library materials in various countries."

Under the committee's aegis, a number of volunteer librarians were selected to undertake the drudgery of gathering data to compute U.S. book price indexes, the first objective. As a result of their work, Kurth's article in the January 1, 1960, issue of the *Library Journal*, "U.S. Book and Periodical Prices—A Preliminary Report," listed U.S. book price indexes for 12 subject categories and the beginnings of price indexes for periodicals. Sources and procedures for establishing the latter were set forth in "Proposed Procedure for Establishing a Cost of Periodicals Index," by Helen Welch Tuttle, in the Summer 1959 issue of *Library Resources and Technical Services*, followed by a progress report in the Spring 1960 issue, listing annual indexes for 19 subject categories covering 1950 through 1959. In the latter issue, an article by William H. Huff and Norman B. Brown, "Serial Services Cost Indexes," reported indexes covering the same years for four categories of serial services and a combined group.

The publication which crystallized the activity and drew together its parts was *The Cost of Library Materials: Price Trends of Publications*, which appeared as the June 1961 issue of *Library Statistics*, written by Frank L. Schick and Kurth. Schick had been a member of the committee from the beginning and in his position as assistant director, Library Services Branch of the U.S. Office of Education, was interested, and was able to see the place of the library materials price indexes in the federal government's efforts to aid libraries. Following this publication, the book indexes began to appear regularly in *Publishers' Weekly* and those for periodicals and serial services in the *Library Journal*. Credit must be given to the R. R. Bowker Company, publisher of these two journals, for supporting the concept in various ways and for its regular roundup of index information in *The Bowker Annual of Library and Book Trade Information* (originally called the *American Library Annual* when first revived as a new series by R. R. Bowker Company in 1956; referred to hereafter as the *Bowker Annual*).

The role of the committee has been a central one, and Kurth's wisdom in choosing it as a coordinator has been verified. It coordinated the decisions which guided the establishment of the various indexes: deciding to use a 3-year base to accommodate quirks in the data and selecting the same 3 years used by government statisticians; dividing serials into periodicals and serial services to avoid losing sight of periodicals in the more expensive and less stable prices of the services; and advising on questions of detail which arose during the early activities. It then settled into its ongoing responsibilities for encouraging use of the indexes; overseeng their continuing production, including changes to new bases; and exploring needs for additional indexes. Much of the committee's success can be assigned to the working contributions of its chairpersons during the first 15 years of its life, such librarians as Kurth, Avis Zebker, Hyman Kritzer, Marietta Chicorel, and Hugh Atkinson.

U.S. Book Indexes

The price indexes for books published in the United States are based upon the tabulation of the books recorded in the "Weekly Record" section of *Publishers'*

Weekly. At the beginning, as the librarian-volunteers gathered the data by subject area, they omitted paperback books, government documents, textbooks for elementary and secondary levels, encyclopedias, and, of course, unpriced books. The group produced indexes for 1953, 1956, 1958, and 1960, with the average price of 1947–1949 publications used as the base equivalent to 100.

Once the indexes were established and accepted, they were included each year in the annual summary issue of *Publishers' Weekly*, which features statistics and trends in the U.S. book industry. Since the statistics cover books published during a calendar year, they are published as early as possible in the following year. In the 1960s, they generally appeared in a late January issue; in the 1970s, an early February issue.

The first appearance of the indexes in *Publishers' Weekly* was in the January 15, 1962, issue. A table included figures for 1953, 1956, 1958, 1960, and 1961, with averages for the base years 1947–1949 as well. Presentation by *Publishers' Weekly* coincided with the transfer of responsibility for compiling the figures from the librarians to the *Publishers' Weekly* staff. Due to a lack of understanding between the two groups, first-publication paperbacks were included in the first count made by *Publishers' Weekly*, with a consequent drop in the indexes for categories which included a substantial number of these less expensive titles. This error was corrected in a revised table published in the April 23, 1962, issue.

Initially, indexes were computed for the total year's production and for 19 subject categories, including four divisions for literature, namely, Fiction, Poetry, Drama, and General Literature. With the 1970 price indexes, some formerly omitted subjects were added and parts of the list were restructured, with a resulting list of 23 categories provided in addition to the total group.

Recognizing an increasing use of paperbacks in libraries and being able to compile figures for paperback prices through its computerized records, *Publishers' Weekly* began in the late 1960s to publish tables of average paperback prices in two categories (mass market paperbacks, generally sold through news agencies; and quality, or trade, paperbacks, sold through bookstores), but without computing the index figures. It was again the Library Materials Price Index Committee which led the way in providing index figures to facilitate comparisons among types of publications. In the 1967 *Bowker Annual*, Marietta Chicorel, committee chairperson, included two tables based on compilations by Bowker, but with indexes added, using the 1962 average as the base. The indexes were supplied thereafter through the committee membership (with 1962 as the base), until the 1971 and 1972 indexes (based on the 1967–1969 prices) were reported in the 1973 *Annual*, thus bringing the paperbacks into line with the committee's commitment to a 3-year base.

The U.S. book price indexes have had some irregularities due to the division of responsibility between the *Publishers' Weekly* staff and the committee. The annual reports in *Publishers' Weekly* (controlled by that journal) and in the *Bowker Annual* (generally supplied by committee members) have diverged somewhat. In belated recognition of the omission of some classes of books in data compilation, *Publishers' Weekly* changed the title of the table in its annual report to specify "hardcover" books for the first time when the 1964 indexes were reported, further

modified to "selected hardcover" books for the 1966 report, and back to "hardcover" books with the 1970 report. The series in the *Bowker Annual*, controlled by the committee, is slightly more specific. The 1965 *Annual* specified "hardcover" books. The 1967 *Annual* carried the title, "List Price Index of Books (Hardcover, Trade-Technical)," and the two restrictive adjectives have been continued in use for most of the reports thereafter.

More important than the title variations have been changes by the *Publishers' Weekly* staff in computation of the indexes. From the beginning, the annual average prices had been computed on the basis of price per title; for the 1970 computation, the *Publishers' Weekly* staff changed to price per volume. In the narrative presentation which accompanied the tables, "average price per volume" was noted, but the reader was not warned that the earlier figures in the table were not comparable. Also, with this report, the base was changed to 1967, a single year instead of the previous 3-year base. To provide indexes with the more reliable 3-year base, Hugh Atkinson began to compute the indexes and include them in the *Bowker Annual* reports, providing the 1970 index for hardcover books in the 1971 *Annual* and continuing thereafter. However, his averages are taken from the *Publishers' Weekly* figures and are necessarily tied to the change from title to volume. The averages computed from prices per title for the period 1967–1969 continued to be used as long as the base was needed.

At first, the two paperback tables listed only the annual average figures, with the figures for 1962 as the earliest provided. Since the data had not been collected for the 1957–1959 years, the committee decided to use 1962 as the base until the new base years of 1967–1969 were adopted for all of the book indexes.

U.S. Periodical and Serial Service Indexes

Control of the periodical and serial service indexes for titles published in the United States has been relatively constant, the compilers approved by the committee and working closely with it. The periodical indexes were developed by Helen Welch Tuttle, who continued to produce 22 of the 24 subject categories until Norman B. Brown took over responsibility with the 1972 indexes. From the beginning, Avis Zebker prepared the index for children's periodicals and James W. Barry that for medical periodicals, both of the compilers having relevant periodical collections at hand. Brown assumed responsibility for children's periodicals with the 1974 indexes. The serial service indexes were developed and produced thereafter by William H. Huff and Brown, until Brown assumed sole responsibility with the 1974 indexes.

As in the case of book price indexes, the periodicals and serial service indexes were conceived along lines intended to be of use to librarians. Most house organs, local interest periodicals, pulp magazines, and like categories which would not be of interest to the majority of libraries were omitted from the compilation of annual subscription prices to make up the data for computation of the periodical indexes. Early efforts to base the indexes on samplings within each subject area soon gave

way before the difficulty of finding valid information for enough titles to provide a reliable index. The subscription price was defined as that published in the first issue of the year for each title, and the price to libraries was used for those titles listing a variable scale for different subscribers. Only changes in subscription price were considered, no adjustment being made for changes in format, scope, frequency, advertising status, or other factors which would influence price. The subjects and combinations of subjects which made up the 24 categories, which, with an index for the combined group of titles, came to make up the annual compilation, grew out of the necessity to provide a large enough number of titles in each category to yield a trustworthy index, one which would not be distorted by radical changes in one or two titles. Subjects which were joined together for a single category were those found to behave similarly in price changes and to have about the same level of price. Indexes for the 24 categories and the combined group of periodicals have been published for all years since the first base period used, 1947–1949.

Serial services present different problems. In some cases, prices vary more from year to year because the amount of material issued varies. A number of services are highly specialized and often quite expensive, and are bought by only a limited number of libraries. Eligible for inclusion among the titles providing the data for these indexes are those serial publications which provide revised, cumulated, or indexed information which is not readily available otherwise in a specific field on a regular basis by means of new or replacement issues, pages, or cards. The indexes as finally developed provide figures for seven categories and a combined group.

The periodical and serial service indexes began to be published on a regular basis with the 1962 report in the *Library Journal*. The first report was in the October 1, 1962, issue, but thereafter it has regularly appeared in the July issue. The first base period used was 1947–1949, with a change to 1957–1959 with the 1963 report. Beginning with the 1971 report, indexes for 1970 and 1971 were based on 1967–1969 prices. Each time a new base is used, indexes are provided for all years since the new base and, for a limited time, indexes related to the older base are given also.

Other U.S. Indexes

The only other index of U.S. library materials provided regularly is that for the cost of microfilm made by libraries, which was established and is continued by Robert C. Sullivan. As with all indexes, the availability of the data upon which the indexes are based dictates their frequency of appearance. The U.S. Library Microfilm Rates Indexes are based on data in the successive editions of the *Directory of Institutional Photocopying Services* (which became the *Directory of Library Reprographic Services* with its fifth edition in 1973), with some additional information secured directly from the libraries whose rates are included in the data. The first *Directory* provided 1959 prices, and 1959 was used as the base year to provide indexes for 1962, 1966, and 1969, published in the Summer 1970 issue of *Library Resources and Technical Services*. The negative microfilm rate indexes, re-

porting price per exposure, included separate indexes for bound materials, unbound materials, and newspapers, as well as a combined index. A single index was computed for positive microfilm rates based on price per foot. The number of categories provided was dropped to two with the 1972 index: negative and positive microfilm. The indexes are published in the *Bowker Annual* as often as they are available.

Indexes for other forms of library materials have been much discussed by the committee. Efforts have been made to provide indexes for out-of-print books, antiquarian books, recordings and other audiovisual materials, older books still in print, and newspapers. None has yet resulted in ongoing indexes.

Supported by a grant from the U.S. Office of Education, Harold Goldstein provided indexes for college textbooks in six subject categories and a total group, with 1958 as the base period and covering production for 1961 and 1964. For school textbooks, indexes for 1961 and 1963 were computed on a 1958 base, providing indexes for ten subject categories and a total group. These indexes were published in the 1966 *Bowker Annual*, but have not been continued.

British Indexes

The production of indexes by the British, begun in 1965, developed along lines similar to those in the United States but with some significant differences. The book price indexes were similar in being sponsored by the Book Price Subcommittee of the Library Association's Library Research Committee; they were based on publications listed in the *British National Bibliography*; and a crash program was mounted by librarians to gather the data for the first year, 1964–1965. Differences lay in time unit for data gathering, price per volume instead of title, the single-year base period, and the categories for which indexes were provided.

After the initial trials, the book indexes settled into a pattern, which has been maintained. The indexes are based on data for a split year (July through June) rather than the calendar year, and are generally published in the August issue of the *Library Association Record*. Only average prices were published for the first year, percentage comparisons were added the second, and thereafter indexes were based on the single year's prices for 1964–1965. The figures compiled were prices per volume. Excluded from the data gatherings were limited and deluxe editions, pamphlets, unpriced titles, and loose-leaf materials of less than 49 pages. However, with the figures for 1974–1975, pamphlets and limited editions were included to reflect current trends in publishing more completely.

Besides a figure for all publications combined, figures for the following categories are given: Adult Fiction, Adult Nonfiction, Reference Books (also included in Adult Nonfiction), Children's Fiction, and Children's Nonfiction. A separate table breaks down Adult Nonfiction by subject according to the Dewey Decimal Classification. This table provides figures for 56 indexes in all, with the 1966–1967 average serving as the first base period used. Special needs are served by two additional indexes: "Backlist Adult Fiction," based on a sample survey of adult fic-

tion in publishers' backlists by calendar year; and "Selected Books in Science and Technology," based on an analysis of *Aslib Booklist*, providing average prices for that journal's categories, but indexes only for the total.

The British periodical price indexes, which are published annually in the *Library Association Record* along with the book indexes but are based on the calendar year, differ in an important aspect from the U.S. indexes. A typical description appended to them points out that they provide an "annual survey of periodical prices based on journals which reflect as nearly as possible the actual pattern of periodical purchases in specialized and learned libraries with no limitations on language, price or country of origin. The sample is based on the more important journals in each subject field and the subjects [are] chosen to approximate to subject divisions in special and academic libraries regardless of classification schemes."

From the beginning, the indexes have been compiled and computed by members of the staff of B. H. Blackwell, Ltd., a firm which serves an international market. Price information has been taken from Blackwell's records, with the firm's standard conversion rates used to provide all subscription prices in British currency. If different rates are offered to different categories of subscribers, the highest rate charged to a British subscriber is used. Guidelines such as these provide indexes which are more complex to interpret. Devaluation and periods of inflation or deflation peculiar to one country are lost in the general mix, and the basis for including or excluding a title is not well defined for the index user. Although foreign-language titles are included, there is an understandable bias toward English-language titles.

Like the U.S. periodical and serial service indexes, the British indexes have had the advantage of regularity and control by a few coordinated hands. Figures were first published in the August 1966 issue of the *Library Association Record*, where the 1966 averages were recorded along with averages for 1965 to provide a basis for reporting percentage changes. Index figures were added in the 1967 report computed on the 1965 average price as a base of 100, changed to the 1970 average price as a base with the computation of the 1971 indexes. The pattern of the report has been unchanged throughout the years since the beginning. All tables are divided into two sections, in which one provides figures for all prices and the other, figures for those periodicals priced between ½ pound and 25 pounds. The tables include (*a*) "Analysis by Country of Origin," for three areas: Great Britain, U.S.A. and Canada, and Other Countries; (*b*) "Total All Subjects," divided among Humanities and Social Sciences, Medicine, and Science and Technology; and (*c*) tables giving more specific subject categories (a total of 60) for the three general subject areas.

Like the British book indexes, the periodical indexes for very small subject areas are too erratic to provide much predictive value. Some periodical indexes are based on as few as five titles, with a consequent erratic behavior of the indexes. The major use of indexes is in predicting budget needs and justifying budget requests. Indexes based on a limited number of titles can be jerked about by changes in a single title, and offer no guidance to the librarian in predicting the future. Since indexes are based on factual data, generally book prices of the year before publication of the indexes and subscription prices published half-way through the year to which they

apply, the precise figure has little practical value for libraries; it is the trend displayed by the figures which can be useful.

Indexes of Other Countries

From the beginning, Kurth anticipated indexes for foreign publications as well as domestic to serve the needs of libraries. A fairly complete series has been compiled for West German books. In the Winter 1963 issue of *Library Resources and Technical Services*, Marietta Chicorel published "Trends in Book Prices and Related Fields in West Germany, 1954–1960," reporting the development of a set of indexes for 1955, 1956, 1958, and 1960 for 11 subject areas and one for the total group, all based on the 1954 averages. In subsequent years, Chicorel expanded the report to provide indexes for 1961 through 1968, all reported in the *Bowker Annual*. The *Annual* for 1974 included a new effort made by Frederick Lynden and Hugh Atkinson to provide indexes for 1970 and 1971 expanded to 23 subject categories with the base 1967–1969, updated in the 1975 *Annual* to include 1972.

As noted above, Kurth's pioneering work in developing indexes as library tools included the establishment of a Mexican book price index. His dissertation listed index figures for books published in 1953 in a dozen subject categories and as a whole for 1953, 1956, and 1957, the latter based on publications of the first half of 1957. Using the 1947–1949 base figures, with the help of David Zubatsky, he has continued to provide index figures for selected years, namely, 1960, 1965, 1968, and 1970.

Another treatment has been provided by Emil Frey in his master's thesis, "A Comparison of Trends in Book Costs and Book Production in Switzerland and the United States from 1947 to 1960" (University of North Carolina, 1963). Frey computed indexes on a base of 1947–1949 for the years 1953, 1956, 1958, and 1960, selecting years which would permit him to make comparisons with U.S., Mexican, and West German figures. He produced figures for 23 categories, as well as an index for the total group.

Masato Matsui, of the East-West Center, University of Hawaii, using 1957–1959 prices as a base, produced Japanese book price indexes for 1960 through 1964 in 12 categories plus the total group, published in the 1966 *Bowker Annual*.

Publication of Indexes

Due no doubt to Frank Schick's involvement in the *Bowker Annual*, the *Annual* reported index information from its beginning. Bowker's roundup of index information each year has been of great service to librarians. Chairpersons of the committee have often authored the section dealing with price indexes for library materials, an exercise which has kept the committee aware of progress and needs in the area of its responsibility. In the first *Annual*, published in 1956, mention was

made of Kurth's proposal that indexes be produced. Thereafter, each yearly publication has kept the reader up to date on developments as they occurred. The *Annual* for 1962 reviewed Schick and Kurth's *The Cost of Library Materials*, and the yearly volumes thereafter have updated the indexes reported in that publication.

The *Bowker Annual* gathering of index information offers the librarian the conveniences of regular reporting and current information drawn together in one place. However, if there is need for the figures as soon as they are available, the user can consult the February annual summary issue of *Publishers' Weekly* to find indexes for U.S. books, the July issue of *Library Journal* for U.S. periodical and serial service indexes, and the August *Library Association Record* for British indexes.

Index Uses and Limitations

Indexes provided under the sponsorship of the committee have been developed to be of use to libraries. They are based on changes in price without consideration of the reasons for changes. If the publisher of a given periodical changes its frequency from quarterly to monthly or doubles the size of each issue, the charge to the subscriber must certainly be increased. If price indexes were refined so that they were based on a price per page of text received, such changes in size or frequency would probably not affect the indexes. However, the resulting index figures would be of use to the librarian only if the library were concerned about the number of pages of text it could provide for patrons on a given budget, not a common approach to library budgeting.

The index figures do not measure or explain the elements which cause the change in prices; they are designed simply to measure the amount of price change and to guide the library-consumer in planning and justifying budgetary requests. They can be used to ascertain whether budgets for library materials are keeping pace with inflation, and can aid in the assignment of funds to different subject areas. The indexes alone cannot guide librarians in budget making. No allowance is made for such factors as the number of titles published, new subject fields which may be assigned to a library in an educational institution, new areas of interest which may develop in a particular locality served by a public library, or a change in the number of users of the library's resources.

The indexes are not to be thought of as charting the path of publication costs nor of indicating the publishers' profit. The book indexes are based on a collection of data which allows only for prices of a single copy of new and revised titles published in a designated year with no weighting for the volume of sales of the various titles appearing in the average. No allowance is made for the size of the volume, quality of format, or the mix of expensive and inexpensive books published.

Modeled upon the government economic indexes and using the same base periods for computation, the library materials indexes were understandably compared to the U.S. Consumer Price Index during the first years of their production. The library materials indexes were startlingly higher than the consumer price indexes, leading members of Congress interested in aid to libraries to question whether the publishers' prices could be defended in terms of fair profits. The story of this episode

is told by Schick in the 1967 *Bowker Annual* (page 89), including Robert Frase's defense of the publishers. Frase, then associate managing director of the American Book Publishers Council, pointed out the limitations of the library materials indexes for comparison to the cost of living indexes, and made a particular point of the need to weight the library materials figures in terms of the buying of earlier publications kept in stock and the greater number of the less expensive books purchased by libraries. However, he agreed that the indexes are designed for libraries and useful to them if they are not stretched beyond their applicability.

The result of this confrontation was that reports ceased to compare the library materials indexes with the Consumer Price Index, and where "cost" had been used in relation to the U.S. indexes, the word "price" was substituted—in the committee's name, in the titles of index tables in *Publishers' Weekly* and the *Library Journal*, and in the reports in the *Bowker Annual*.

Librarians have voiced some criticisms of the indexes available. Some have questioned the need for indexes at all, believing that averages with comparisons in terms of percentages serve their needs, and finding the introduction of another figure confusing. Since most of the reports of indexes furnish the averages also, the needs of these librarians are met. The translation of averages into indexes permits ready comparison among types of materials, categories, and the annual production of different nations.

Some librarians complain that the average figures are lower than those of titles actually bought by libraries during a given year. One explanation advanced by Atkinson is that the greater the selectivity of a purchasing program, the more likely that costs will be higher than costs of a program representing a larger number of publications. An alternative approach which the librarian may choose is to collect figures for the single library's purchases and compute averages, using them either directly for budget justification or for comparison with the published index averages in order to find out how the two compare for use annually thereafter.

Standards for Indexes

An important step toward encouraging the production of library materials indexes in other countries was taken with the development of a standard to guide in establishing comparable indexes. In late 1969, Jerrold Orne, chairperson of the American National Standards Institute's Sectional Committee Z39, appointed a Subcommittee on Elements of Library Materials Price Indexes. Kurth agreed to chair the committee, and members included representation from Bowker and a number of old index hands. The result was "American National Standard Criteria for Price Indexes for Library Materials," approved by the institute on April 10, 1974, and published as standard number ANSI Z39.20-1974.

The abstract statement for the standard follows:

> The purpose of price indexes for library materials is to measure as accurately as possible the extent of price changes on a periodic basis. It is an economic indicator, providing for a base period, for the derivation of average prices and for the citation of changes in terms of index numbers in a systematic fashion at

fixed intervals of time, usually on an annual basis. The price indexes describe the essential characteristics of the various forms of library materials (as set forth in the standard) so that the same characteristics are measured periodically. This set of price indexes is intended to meet administrative needs for budgeting, cost analysis, and other purposes in libraries.

The standard gives definitions of terms and materials which appear in indexes, and provides separate sections on the formulation of indexes for hardcover trade and technical books, paperback books, periodicals, serial services, and library-produced microfilm rates. It is hoped that it will be adopted by the International Organization for Standardization and will encourage the development of comparable indexes in other countries.

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PRINCETON UNIVERSITY LIBRARY

Background

The Princeton University Library, like all academic libraries, has been largely shaped by its parent institution. The ways in which Princeton differs from other universities have helped define the ways in which its library diverges from the mean of American university libraries.

Founded in 1746 by a group of Presbyterians primarily to produce ministers of the gospel, from the beginning the College of New Jersey admitted young men of any religious denomination and gave them background for entering other learned professions as well as the ministry. Although there was never any formal legal association with the church, the college's presidents were Presbyterian ministers or the sons of Presbyterian ministers or missionaries until 1972. Perhaps from this background came a certain caution and thriftiness in outlook which has always

been a restraining force on overly rapid growth in numbers or in curriculum. The college's relatively rural location has also helped remove it from pressures to perform the wide variety of services which make up the modern "multiversity."

At the same time it was by no means a country college. Certainly by the end of the vigorous administration of President John Witherspoon in 1794 it had a national reputation. From the students in his term alone were to come a president, a vice-president, 9 cabinet officers, 21 United States senators, 39 representatives, 3 justices of the Supreme Court, 12 governors, and 39 judges. The underlying Presbyterian thriftiness has persisted in spite of the considerable success and consequent wealth of many of Princeton's graduates and in the face of the picture of the college of the 1920s popularized by F. Scott Fitzgerald.

Princeton has remained a relatively small institution with a heavy emphasis upon undergraduate education. The only professional schools are in engineering, architecture, and public affairs. It did not designate itself a university until 1896 and still has only about 1,400 graduate students, most of them doctoral candidates in the traditional academic disciplines. There are now about 4,200 undergraduates, most of them in residence on campus. (Note: This article describes the Princeton University Library in 1975. Statistical data, organization, and procedures, of course, continue to change.) Academic requirements for admission have remained high.

Princeton is thus a small, relatively coherent, national university with a tradition of excellence in teaching and scholarship. There is evidence from the beginning of emphasis on independent study and a recognition of the library's role in this sort of pedagogy. When the Reverend Samuel Davies became president in 1760 he immediately prepared and published a catalog of the college library, partly for the purpose of seeking contributions. In the preface he wrote:

> A large and well-sorted Collection of Books on the various Branches of Literature, is the most ornamental and useful Furniture of a College, and the most proper and valuable Fund with which it can be endowed. It is one of the best Helps to enrich the Minds both of the Officers and Students with Knowledge; to give them an extensive Acquaintance with Authors; and to lead them beyond the narrow Limits of the Books to which they are confined in their stated Studies and Recitations, that they may expatiate at large thro' the boundless and variegated Fields of Science (*1*).

Today the preceptorial system of instruction, introduced by President Woodrow Wilson, and the requirement of junior independent work and a substantial senior thesis for almost all undergraduate degrees help pull the library into the center of the educational process. That it is in fact heavily used is indicated by what seems to be the highest circulation rate per student among the major university libraries of the country in spite of the unusual accessibility of books on open stacks and an uncommonly high ratio of study seats in library buildings.

The Governance of the Library

Princeton University today has one library, dispersed for the convenience of the users. Although books, staff, and readers are housed in 17 campus locations, the

administration of the library is centralized. The Trustees' Bylaws make the librarian responsible, under the president, "for the administration of the Library, and for the development, care, and safekeeping of the University's collections of books, manuscripts, and related objects." In the last few years, since the position of provost has been added, the librarian reports to the president through the provost. There is a single library budget, administered by the librarian.

The Professional Library Staff, currently numbering about 90, is an academic rather than an administrative body, separate from but parallel to the Faculty and the Professional Research Staff. The dean of the faculty is responsible for appointments, promotions, and salary administration of all three of these bodies. The present governance was codified in 1968 in the *Rules and Procedures of the Professional Library Staff*, reflecting some evolution from long-standing practices.

With the formation of the Council of the Princeton University Community in 1969 as a forum for the discussion and resolution of a variety of issues affecting the whole university, the Professional Library Staff became one of its constituent bodies with one elected representative. Members of the Professional Library Staff have been quite active in the council and its committees, including the Priorities Committee, the Committee on Rights and Rules, the Judicial Committee, and the Committee on Relations with the Local Community.

The nonprofessional library staff, the Library Assistants, about 200 in number, are represented on the Council of the Princeton University Community as members of the campuswide Office and Clerical Staff. The personnel administration of the Library Assistants is handled by the university's Office of Personnel Services.

Within the library the staff organization has been a rather traditional hierarchical one but with a substantial amount of staff participation through meetings at various levels and a variety of standing and ad hoc committees. The associate university librarian has served as the library's executive officer with primary responsibility for the internal operations. The seven assistant university librarians head substantive departments and with the associate university librarian form the Librarian's Council, which meets weekly with the librarian to coordinate policy, discuss problems, and exchange information of mutual interest.

The Staff Association, founded in 1942, and open to all library staff members, exists as its constitution says, "to promote the social and economic welfare of its members, to advance their professional interests, and to encourage cooperation in improving the work of the Library." It publishes *The Green-Pyne Leaf*, a bulletin of information about staff activities. The *Princeton University Library Bulletin* is published from the Librarian's Office and contains more official notices.

The Deployment of the Collections

The library at Princeton has occupied space in a number of different buildings. When the college moved from Newark to Princeton in 1756, two boxes of books were sent to a room planned as a library on the second floor of Nassau Hall, the newly completed classroom and residential building. There the library remained through the depredations of the Revolution, when the building was occupied in

turn by troops of both sides, and this large room served as a meeting place for the first New Jersey Legislature in 1776 and for the Continental Congress for several months in 1783. Rebuilt by generous contributions after Nassau Hall was gutted by fire in 1802, the library was housed along with some other college functions in Stanhope Hall, where it stayed until 1860. It was then moved back to Nassau Hall into new and larger quarters provided in the reconstruction following a fire in 1855.

In 1873 the Chancellor Green Library, Princeton's first separate library building, was opened. This Ruskinian Gothic octagon with radial stacks was full by 1897, when the Pyne Library, a hollow rectangle, was constructed and connected to the Green Library.

In the 1920s existing library space began to become crowded again, and various planning activities were undertaken. The ideas of Professor Rufus Morey, chairman of the Department of Art and Archaeology, were particularly influential. Professor Morey, in *A Laboratory-Library* (1932) proposed that the library provide space for students, teachers, and books, and become a workshop rather than a warehouse (*2*). While it was not feasible to provide space for all faculty offices and all classrooms in the library, these concepts were not lost as planning proceeded.

Finally, in 1944 President Harold W. Dodds and Julian P. Boyd, the librarian, invited representatives of 15 institutions planning to construct new library buildings when materials became available, to meet in Princeton to share experience and ideas. This group, meeting in various places during the next several years, became the Cooperative Committee on Library Building Plans and had a major influence in the revolution in academic library architecture which took place at this time.

The Harvey S. Firestone Memorial Library at Princeton, completed in 1948, was influential as one of the first of the new generation of large university library buildings reflecting much of the thinking of the Cooperative Committee. The great buildings of the first half of the 20th century typically consist of a large fixed-purpose warehouse for book storage, often on multitier stacks, closed to most readers, linked to a vast, ornate, high-ceilinged and often ill-lighted reading room. The Firestone Library, like many other buildings of its generation, is much more flexible, with bearing floors throughout which can carry either books or readers, with generally low ceilings and a lack of bearing walls to facilitate rearrangement as functions change, and with study space scattered through open stacks.

It houses, with a few notable exceptions, the university's collections in the humanities and the social sciences, together with the central administrative, ordering, and cataloging functions of the library. Scattered throughout its open stacks are more than 2,000 study seats, about half of them in individually assigned, closed carrels and studies for undergraduate seniors writing theses, graduate students writing dissertations, and more advanced scholars. Almost every department or program which has its major collection in Firestone has a graduate study room with a collection of reference and bibliographic tools and a seminar room for graduate teaching but open for study when seminars are not in session, a somewhat scaled-down version of Professor Morey's plans of 1932. There are, of course, in addition the special-purpose areas common to most large research libraries.

The Firestone Library has been highly successful in its flexibility, some interior

rearrangements to meet changing needs having been made almost each year since 1948 and four additions having been made outside the original walls. This flexibility has not been achieved at the expense of aesthetics. In most parts of the building a careful choice of materials and colors has maintained a pleasant environment and sometimes a certain elegance.

In the meantime the library was growing in other directions. As new buildings for some individual subject areas were built in the late 1920s and early 30s, handsome library quarters were provided to house growing departmental or subject collections: engineering in Green Hall in 1927, chemistry in the Frick Laboratory in 1929, and mathematics and physics in Fine Hall (now Jones Hall) in 1931. Before that, when McCormick Hall was built in 1922, a library was included to house the collections in art and archaeology.

As of 1975 the following subject collections are located outside the Firestone Library in association with the teaching or laboratory areas of one or more academic departments in space created or substantially enlarged and renovated during the years indicated:

Art and Archaeology (Marquand Library)—new	1965
Astronomy—new	1966
Biology—completely remodeled and expanded	1971
Chemistry—substantially expanded	1966
Engineering—new	1962
Geology	1909
Gest (East Asia)—moved and expanded	1972
Mathematics and Physics (Fine Hall)—new	1968
Plasma Physics—new	1960
Population Research—moved and expanded	1975
Psychology—moved and expanded	1964
Urban and Environmental Studies—new	1963
Woodrow Wilson School—new	1965

Each of these libraries is not merely a working collection but is essentially the total collection of the university in its field of specialization. Each is administered by a librarian and appropriate supporting staff under the supervision of one of the assistant university librarians. Each subject specialist librarian is responsible for book selection and for reference, circulation, and other services; but ordering, cataloging, and other processing activities are carried out centrally in the Firestone Library. These libraries range in size from about 280,000 volumes with 150 study seats (art and archaeology) down to about 5,000 volumes with 20 study seats (plasma physics). In spite of the dangers of fragmentation, it is clear at Princeton that a very high level of library service can be provided by a specialized subject collection located in comfortable quarters in close proximity to the teaching and research areas it serves and directed by a skilled librarian with advanced training in the subject, working daily with the faculty and students in the discipline.

There are other libraries outside the central library which follow a different pattern. In the belief that a separate undergraduate library is an expedient to be applied only when either the collections or the student body become so large that the

undergraduate is lost, Princeton has not developed a separate undergraduate library. The emergence at Princeton of new groupings of undergraduates into separate residential colleges has made possible and desirable the creation of two small college libraries, the Julian Street Library of Woodrow Wilson College and the Norman Thomas Library of Princeton Inn College. These libraries of about 10,000 volumes each are located in buildings which house dining and social facilities, surrounded by residential areas. The books, duplicated elsewhere in the library system, were carefully chosen to be serious but readable, neither textbooks on one hand nor light fiction on the other. Their very heavy use indicates that these books have been valuable to students, and the rapid sale of the commercially published catalog of the Julian Street Library suggests that there is a need for small collections of this sort (*3*).

The popularity of these two collections was one of the factors which led to the creation within the Firestone Library of a new open-stack reserve reading room in 1974. Some 30,000 volumes can be shelved on open stacks surrounded by almost 200 study seats, all within a controlled area. This collection houses not only regular course reserves in multiple copies but also copies of other books known to be in heavy use, all held for reading in the room or for short-term loan. The resulting core collection seems to be making books easily available which were often difficult to obtain under the long-term loans which prevail in most parts of the library.

Some space studies in the mid-1960s suggested that the growth possibility of the Firestone building and site is limited to a few decades and that if this admirable building is to remain for the foreseeable future the center of the interactive collections in the humanities and social sciences, continuing study should be given to housing elsewhere any portions of the library which would not suffer by removal from Firestone. As a result three categories of material were identified which could be housed elsewhere without any serious disruption of service: books and bound journals in all fields which the record indicates to have been very seldom used; Chinese, Japanese, Korean, Arabic, Persian, and Turkish language material, for which the audience is special and identifiable; and large manuscript collections, such as the personal archives of men who have distinguished themselves in public life, and the university archives.

In 1968 the William Watson Smith Library (The Annex Library) was completed on the Forrestal Campus, about 3 miles from the Firestone Library. It now contains about 200,000 volumes, shelved in five size categories on 8½-foot stacks, 22 inches apart. There is twice-a-day delivery service to the various regular library circulation desks. The storage location of each volume is indicated by a plastic overlay on the complete set of catalog cards in the central card catalog in Firestone and, when appropriate, the catalog of the subject collection from which the volume came. Selection from various parts of the library which are crowded continues, date of publication and record of previous use being the principal criteria. The present building has a capacity of about 600,000 and could be expanded indefinitely. This storage library concept has worked well, perhaps in part because from the beginning it was decided that the regular location record, the public card catalog,

should indicate precisely where the book is, and because it was made policy to have the procedure easily reversible and to restore to its original location immediately any volume for which an Annex Library location was questioned by users.

Of the East Asian and Near Eastern language collections, by 1975 all but Arabic had been moved to renovated contiguous areas in Jones and Palmer Halls, recently vacated by mathematics and physics. Departmental offices and classrooms for these linguistic areas are in the same buildings. For linguistic reasons a separate ordering and cataloging operation has always been maintained for East Asian languages.

The third area of planned relief for Firestone space was accomplished when the Seeley G. Mudd Manuscript Library was completed in 1976. Located within five minutes' walk of Firestone, the new building provides secure and handsome quarters for the storage, display, and use of such bulky collections as the papers of Adlai E. Stevenson, the archives of the American Civil Liberties Union, and the official records of Princeton University.

The Collections

The first major increment to the library of the new College of New Jersey was the gift in 1755 of 474 volumes from Jonathan Belcher, the royal governor of the province, and ever since gifts of books and money to purchase them have played a major part in the growth of the collections. The catalog of 1760 listed 1,281 volumes, and by the end of the century, in spite of the losses sustained in the Revolutionary War, there were about 3,000 volumes. Soon after the disastrous fire of 1802, which destroyed most of these books, the collections had grown again to about 4,000 volumes through the response of generous donors, and by 1827 there were 7,000. Growth was slow then for the next half-century, with the students drawing heavily upon the libraries of the two student literary societies, the American Whig Society and the Cliosophic Society, which were evidently more accessible and certainly more current than the central library.

In 1868 the collection, numbering only about 14,000 volumes, began to grow more rapidly with the establishment by John C. Green of Princeton's first large endowed library book fund. By 1873 there were 20,000 books, by 1879, 44,000, by 1890, 65,000, and by 1898, 106,000. This period of growth was concurrent, of course, with the awarding of the first Ph.D. degree in 1879 and the designation of the College as Princeton University in 1896.

In this century the Princeton University Library has shared the rapid growth of its peers, as the following table of its holdings of printed books by decades suggests:

1910	296,536
1920	462,707
1930	643,861
1940	976,260
1950	1,166,634
1960	1,486,045
1970	2,194,273

In 1974 its holdings numbered 2,615,000 printed books and 838,000 microform units. It received 30,800 current serials. It stood sixteenth in size among the university libraries of the United States, whereas in 1900 it seems to have been sixth. The statistical reasons for this decline in relative size are apparent in the analysis of the growth of 58 university research libraries from 1950 to 1969 published in the Baumol and Marcus study, *Economics of Academic Libraries* (*4*). In the period under study, Princeton's growth rate was among the lowest, 75.99% as compared to more than 300% for some of the state universities with their exploding programs and populations. Harvard and Yale during this period grew at an even lower percentage than Princeton, but having obtained substantial size earlier, they retained their relative positions.

Princeton's library in its acquisition policy of necessity followed the academic policy of the institution as a whole. This policy has been formulated at various times as to do a limited number of things but to do each of them well. The strength and depth of the collections in the disciplines pursued at Princeton, the basic arts and sciences with few applied fields, are greater than numerical comparisons with other institutions might suggest. There is particular strength in manuscripts and other types of material not included in counts of printed books and in some areas where the importance of the individual books and not their numbers is significant.

Rare books and manuscripts have in general been added to the collections only by gift or through purchases made possible by gift funds. Fortunately, Princeton has alumni and other friends who have that combination of taste and wealth which can lead to the development of important collections. In a number of areas where rare books and manuscripts are important sources and where systematic purchasing has been carried on for many years, collections of genuine research strength have grown up.

In the Greek and Latin classics a traditionally strong faculty interest has ensured good working collections, which have been augmented by the Junius S. Morgan Vergil Collection and the Robert W. Patterson Horace Collection. From various sources, but particularly from Robert Garrett, have come one of the half-dozen best collections in this country of Medieval and Renaissance manuscripts. The English literature collections are generally good, with particular strength in the latter half of the 19th century with the combined resources of the Morris L. Parrish Collection of Victorian Novelists, the Rossetti Collection of Janet Camp Troxell, the J. Harlin O'Connell Nineties Collection, the Gallatin Beardsley Collection, and the Miers Collection of Cruikshank, in particular. In American literature the publishing archives of Charles Scribner's Sons and of Henry Holt offer a wealth of primary material, as do the files and papers of writers as diverse as Booth Tarkington, F. Scott Fitzgerald, Philip Wylie, and Allen Tate. Continental literature is probably less strong, but the published writings of French writers of the 17th, 18th, and 19th centuries are well represented in original editions, and the Caroline Newton Thomas Mann Collection is one of the strongest in America on that author.

American and European history are generally strong, with the Grenville Kane Collection's riches in early voyages and colonization reinforcing the standard works

of the 15th and 16th centuries. The Philip A. Rollins Collection of Western Americana and the John S. Pierson Civil War Collection are excellent, and most of the major political and military figures of the 18th and 19th centuries are represented in some depth in the Andre de Coppet Collection of American Historical Manuscripts. A major resource for the 20th century may be found in the personal papers and files of many men who have distinguished themselves in public life. Among them are John Foster Dulles, Adlai E. Stevenson, James V. Forrestal, Allen W. Dulles, Bernard Baruch, John Marshall Harlan, George Kennan, and David E. Lilienthal.

Princeton has been selective in its emphasis on international or area studies, having developed major graduate programs and library collections in the East Asian, the Near Eastern, and the Slavic areas. The Gest Oriental Library holds the largest collection of Chinese rare books outside the Orient, and its Japanese and Korean collections have grown substantially since World War II. The collection of Arabic books and journals is the largest in the country, as is the collection of Arabic manuscripts. The Persian collections are also extremely rich.

The Marquand Art Library is a major research collection in art history, being particularly strong in early Christian art, an area stimulated by the presence at Princeton of the ongoing *Index of Christian Art*. The music collections support a great deal of active musicological research, being particularly rich in Bach and Handel. The Hall Handel Collection is the best in the country.

With all of these strengths, the Princeton University Library makes no attempt to be strong in all fields. While it is strong in constitutional theory and jurisprudence, it has no law library. It acquires research materials in biochemistry, but it has no medical library. It makes no attempt to cover comprehensively the proliferating literature of a host of applied fields such as forestry, nursing, agriculture, education, or business administration.

Two great private collections, on indefinite deposit, occupy their own rooms in the Firestone Library and through the generosity of their owners are accessible to scholars, with their books listed in the public card catalog of the University Library. The Scheide Library is unusually rich in the greatest examples of early printing and other landmarks of cultural history, while the Collection of Robert H. Taylor covers in books and manuscripts the whole sweep of English literature.

The social and natural sciences gain their library strength less through scarce or unique books and manuscripts than through the breadth of their holdings of books and journals. The Fine Hall Library of mathematics and statistics has an international reputation, and Princeton's holdings in geology, economics, and demography are outstanding. In the new field of plasma physics the analytical catalog of the Princeton collections has been published commercially (*5*), and its acquisition list is in demand across the world.

Responsibility for the development of the collections is delegated by the librarian to the assistant university librarian for acquisitions, along with the control and allocation of the funds available each year for acquisitions. The university's investment pool holds more than 200 endowed funds with a book value of about $12 million dedicated to the library. The annual income from these funds plus gifts and grants received during the year covers about one-half of the annual ex-

penditure for acquisitions, which totaled $1,633,000 in 1973–74. Just 25 years earlier expenditures for the same purpose were less than $118,000. The change is the product of the growth of new fields of study, of the growth of world book publishing, and of inflation far in excess of the general commodity index.

About 40 members of the library staff are engaged in book selection under the general coordination of the assistant university librarian for acquisitions. Some of these librarians are scholarly bibliographers, who combine book selection with advanced reference work, while others have the broader responsibilities of managing special subject collections. Most of them work closely with members of the faculty, often with departmental representatives or committees. Most book selection in most fields is done by these staff members, but faculty and student recommendations are encouraged and in a few subjects most selection is still done by faculty members.

The development of the collections at Princeton has proceeded on the principle that genuine excellence should be attained in those areas in which there are active programs of teaching and research. The number of these areas at Princeton is relatively limited, but since knowledge and the records of civilization do not fit into neat compartments, an attempt has been made to build a good basic reference collection in all fields. Gifts of books and money have been cultivated particularly in those areas where excellence is sought, in which the quality of the retrospective collections of unique and scarce books and manuscripts marks the difference between a mature research library and a developing library which has been able to obtain only currently published material for a few years. The undergraduate program at Princeton, with its junior independent work and senior thesis, makes heavy use of primary sources, and all students have been encouraged to use the special collections of the library.

Although continuing attempts have been made through the years to build up these rich collections of books and manuscripts, parallel attempts have been made to avoid unnecessary expenditures by sharing other sorts of resources with other institutions as much as possible. In 1910 Librarian Ernest Cushing Richardson wrote: "If this matter of co-operation could be organized systematically, it is within bounds to say that it might reduce by one-half the financial problem in equipping American Universities and American research scholarship in general, with proper book apparatus" (6). Richardson, active nationally in a variety of cooperative activities, including the development of cooperative cataloging at the Library of Congress, pressed for "a plan of cooperation by specialization" involving cooperative selection, purchase, and union cataloging of books not already in the United States. He urged in 1922 that an experimental arrangement be made among Harvard, Yale, Chicago, and Princeton.

Julian P. Boyd, librarian from 1938 to 1951, stated clearly in a 1940 memorandum the concept which is now central to library thinking of the mid-1970s: "The fallacy of an impossible completeness in any one library should be abandoned in theory and practice; librarians should now think in terms of 'completeness' for the library resources of the whole country." Soon after this he was one of the founders of the Farmington Plan.

His successor at Princeton, William S. Dix, librarian from 1953 to 1975, in a

report to the Trustees in 1968 wrote: "In any event we must have a number of books near at hand. . . . I believe that we can, because we must, learn to get along with less rapid, although still quite rapid, access to certain other books. The sharing of these other books through various other forms of cooperation can retard the growth of library costs. It is quite impossible to visualize the university library at the end of this century unless we do have shared resources" (7). As chairman of the Shared Cataloging Committee of the Association of Research Libraries, Dix was active in developing the legislation which led to the NPAC program of the Library of Congress.

The Princeton University Library's long history of interest in library cooperation and the sharing of resources continues. Richard Boss, who became librarian of Princeton University in 1975, is vigorously pursuing the concept of national library cooperation. It is engaged in a variety of cooperative ventures with its neighbors, particularly the Princeton Theological Seminary and Rutgers University. Under annual agreements with the state it is one of the four resource centers which top New Jersey's state network. It is a member of the Center for Research Libraries, it shares the cataloging and other capabilities of the Ohio College Library Center through the Pennsylvania Library Network, and it provides on-line literature search capabilities through the Northeast Academic Science Information Center. Cooperation and the sharing of some kinds of seldom-used resources, the building of strong local resources of heavily used books and journals, and the continuing acquisition of scarce books and manuscripts of major importance are all aimed at making the Princeton University Library serve the needs of the teaching and research programs of the university, and in many areas the broader world of international scholarship.

The Friends of the Princeton University Library, organized in 1930 and with a membership of about 1,300 in 1975, has been active in stimulating an interest in the library and the growth of its collections. This organization sponsors the publication of *The Princeton University Library Chronicle*, which is received in most of the major libraries of the world and makes known and interprets the resources of the Princeton University Library. A series of occasional monographs, also sponsored by the Friends, makes available unique or scarce items from the collections of the library.

Exhibits in a number of parts of the library, both in Firestone and the special subject collections, are designed to make known the resources of the library. While these exhibits are usually topical in nature, they afford an opportunity to call to the attention of the academic community the great variety of materials, particularly rare books and manuscripts usually not seen, which the Princeton library can bring to bear on the particular subject.

In interpreting the collections to students and scholars, the library makes use of the knowledge of a number of staff specialists. In addition to the heads of the various subject collections outside Firestone, there are within the central building a number of curators and bibliographers. The Andrew W. Mellon Foundation Social Science Reference Center, opened in 1974, brings together strong reference collections in economics and finance, political science and public administration, and in-

dustrial relations, with three librarians specializing in these subjects. Scattered through Firestone near the collections which they build and then use are curators and bibliographers on subjects as diverse as manuscripts, history, maps, music, numismatics, Slavic studies, Latin America, the Middle East, Western Americana, the theater, and graphic arts. The undergraduate senior or the graduate student beginning a thesis soon discovers that one of these specialists can be valuable in teaching the bibliography of his or her subject. General reference inquiries are the province of the Reference Department, organized in the traditional fashion around a reference collection strong in the humanities. This department also provides a variety of kinds of instruction in the use of the library.

Major collections and comfortable and convenient buildings are important elements of a great library, but the essential third element is a staff with the skill, the scholarship, and the desire to build, organize, and interpret a library in support of teaching and research. Princeton has been fortunate in its library staff, as is indicated by the testimony of countless acknowledgments in books, the comments of visiting scholars, and the letters of former students.

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WILLIAM S. DIX

PRINTERS AND PRINTING

See also *Aldus Manutius, Venice*

The series of articles which follow represents a continuous history of printing except for: (*a*) the origins of printing in England (covered in the article on William Caxton by Thomas C. Pears III, published in this encyclopedia, Volume 4, pages 323–328); and (*b*) Hispanic-American Printing (covered in the article by Lawrence S. Thompson, published in this encyclopedia, Volume 10, pages 402–423).

This series of articles has been coordinated by Dr. Lawrence S. Thompson, professor of classics, University of Kentucky. The contents are:

THE EDITORS

JOHANNES GUTENBERG*

Evidence

In a letter attached to a book printed in Paris in 1470/71 Guillaume Fichet, professor in the Sorbonne, writes to a former student, by that time a colleague in the same university, of the "great light" that had been given to the intellectual world by "a new variety of scribes, which Germany has dispatched in all directions in our time." "A certain Ioannes Bonemontanus" was "the first to conceive the art of printing." It is not hard to recognize here the customary humanistic Latinization of the name of Gutenberg, thus Schwarzert = Melanchthon, Reuchlin = Capnio, Weber = Textor, Bäcker = Pistor, Fischer = Piscator, and so on.

The art discovered by that Ioannes Bonemontanus, Fichet continues, consisted in the fact that "books were produced not with a pen, or even a quill, but with metal letters, and this in a quick, attractive, and beautiful form." Fichet said that this man deserved "to be honored with praise worthy of a god," who had "formed letters in such a way that from now on one could write down everything that might be said or thought in this manner or transfer that which is already written into the form and hand it over to the memory of posterity."

* The Bibliography for this section begins on page 292.

It is noteworthy (but not accidental) that it was not only the new possibility of communication through the printed word for the present and the future that was important to the humanist, but also the preservation of that which had been handed down through the tradition of manuscripts, from place to place in single copies. This formulation already hints at the concept of the preservative aspect of printing. One point in the evidence from the French scholar in 1470 may not be overlooked: Fichet says that Gutenberg made his discovery "haut procul a civitate Maguncia" ("not far from the city of Mainz"). The earlier opinion (and one which some still like to believe) was that Eltville on the Rhine, in the immediate vicinity of Mainz, was the locality designated by this phrase, since a printing shop was operating in that city during Gutenberg's lifetime. Its existence can be verified from concluding notes in books dated between 1467 and 1477. However, no single word in the Fichet letter suggests that "not far from Mainz" must mean Eltville. We may assume that the French scholar had read or heard that the new discovery had been made "apud Magunciam"; and since this phrase can also mean "in Mainz" in medieval Latin, Fichet, possibly citing from memory, made of it a "haut procul," which, quite naturally, was understood as "not far from Mainz." The important thing about this evidence in any case is that in 1470 a French scholar clearly documents Johannes Gutenberg as the inventor of the "new way of writing." It is not the only contemporary evidence in which there is mention of the invention of printing by Johannes Gutenberg and as far as the locale of the invention is concerned, this fact is also mentioned frequently, thus at the conclusion of a Basel imprint of 1472, Gasparinus Barzizius' *Epistulae* (GW 3676):

> Artem pressurae quanquam moguncia finxit,
> E limo traxit hanc basilea tamen.
>
> [Even if printing was already discovered in Mainz,
> it was still freed from the mud in Basel.]

Thus in 1472 the Baselers claimed to have been responsible for especially distinguished typographical productions, presenting evidence to support this claim; and the important thing for us here is the fact that in a book printed in Basel in 1472 there is no doubt that Mainz was the place where printing was invented.

Ancestry and Biography of Johannes Gutenberg

Johannes Gutenberg (Johannes Gensfleisch zur Laden genannt Gutenberg, ca. 1400–1468), his brother Friele, and his sister Else were children of the second marriage (1386) of Friele Gensfleisch zur Laden zum Gutenberg. Their mother was Else Wirich, daughter of a citizen. While the father and his ancestor belonged to the patrician upper crust and, as Münzerhausgenossen, held key offices in the government of the city (among others, as judges, magistrates, councillors), the mother was not of patrician origin, and thus the son Johannes, born between 1397 and 1402, was excluded from the Münzerhausgenossenschaft.

We know nothing about Gutenberg's youth. There is nowhere any evidence that

he learned the craft of the goldsmith, a statement frequently encountered. Further, it is improbable, since the son of a patrician did not learn a handicraft. Thus no original source explains how Gutenberg acquired competence in metal work. We can only assume that the young Gutenberg "felt strongly attracted" (Ruppel's phrase) to the craft of the goldsmiths, of which there were more in Mainz at that time than in other comparably large cities. It is only in the Strassburg period that the name Hans Gutenberg is found in the list of *Zugesellen* ("members") of the Goldsmiths' Guild (according to the Strassburg Stadtarchiv for January 22, 1444). Even if the sojourn in Strassburg is documented in several places, the fortuitous character of the existing records—between March 14, 1434 and March 12, 1444—does not provide any firm basis for the real facts, either for the beginning (which could be earlier) or for the end. It is known with regard to the Strassburg period that Gutenberg had a contract with three comrades to make mirrors for the Aachen pilgrimage. The recent studies of Kurt Köster have shown that these objects were actually mirrors (*Spiegel*) and not the work of a typographer.

On the basis of a second contract which Gutenberg made with citizens of Strassburg in 1438 there was litigation after the death of one party, and part of the record, or, at least, copies of it, are preserved. According to it Gutenberg had taught a secret art to others; and when one of them died, Gutenberg paid back his portion of this capital, although the brothers of the dead man were not accepted into the company by Gutenberg. Might we dare to hazard the guess that typography was the secret art? In the record one of the witnesses states that he had earned money with equipment "das zu trucken gehöret" ("that belongs to printing"). Is this not "drucken"? But the proof isn't so easy: the word "trucken" had already been used (e.g., for cloth prints) at a time when there was no typographical printing. There is proof that Gutenberg received money in Strassburg in 1442, for there is a record of a loan to him from the local St. Thomas Foundation, for which a Strassburg citizen gave security. We do not know the purpose for which the money was used. It would be all too easy to assume that the funds were for experiments in the "secret art" or its expansion. It is possible that Gutenberg was concerned with typography in Strassburg, but it cannot be proven; for there is no evidence of a Strassburg origin for a single one of the earliest known printed works. Imprints from those years are not mentioned anywhere, nor is there any evidence that Gutenberg's collaborators from the Strassburg period ever were known as printers. We can only say that if Gutenberg was experimenting with typography in Strassburg, there are no tangible results.

Neither do we know the precise length of Gutenberg's sojourn in Strassburg. Following the last known date of the Strassburg period (March 12, 1444) is the most serious lacuna in his biography, falling in those very years when the final experiments were completed or when the first imprints were already executed. We have no information about what Gutenberg was doing or where he was between March 12, 1444, and October 17, 1448 (when there is evidence of his presence in his native Mainz again). This vacuum has given rise to all manner of supposition, thus, that he was in Avignon with Prokop Waldfoghel or in Haarlem with Coster. How-

ever, it is significant enough that this first documentary evidence of his return to Mainz is an entry of a loan of 150 gulden borrowed at 5% with help of a relative. We can only guess how much Gutenberg had already invested of his own funds, patience, and energy; and the same applies to the financing of works he then printed, for which we are largely dependent on estimate.

It is symptomatic that a great deal of what we know about the life of the inventor consists of records of litigation. In 1455 there was a suit which had far-reaching effects for Gutenberg. The plaintiff was Johann Fust, a court official and moneylender. He had made one loan of 800 gulden to Gutenberg; and he made the same amount available later as partner in a joint business, an agreement notarized by Ulrich Helmasperger (preserved in the original in the University of Göttingen Library), the so-called Helmasperger Notarial Instrument. The business was called "werck der bucher," words which have been interpreted as referring to the 42-line Bible. We can only guess why the two partners went into the courts since the document refers only to a part of the litigation. Had Gutenberg prepared simultaneously another book in addition to the monumental job of the 42-line Bible, so that Fust became impatient and was concerned about his investment? We only know that the outcome of the suit meant financial ruin for Gutenberg. It was his former partner who, first through a loan, then through personal participation, had put him in a position "to realize his idea in a way which has aroused the admiration of the succeeding centuries" (Ferdinand Geldner). But now Fust and his helper, Peter Schöffer, previously a copyist, organized a new printing and publishing house, a firm which was to enjoy respect and business success.

There is no documentation that tells how Gutenberg moved out of this situation, and we must assume that first efforts were made in order to survive, perhaps by printing school grammars and similar works. It is hard to believe that he ever became prosperous again (according to some very recent opinion), and, in any event, the fact that he never repaid two loans (the one of 1442 from the St. Thomas Foundation in Strassburg and the one of 1448 for 150 gulden upon his return to Mainz) speaks against this assumption. He at least paid the interest on the Strassburg loan until 1457. When he was unable to continue (and the Strassburger who had been his security was unable to help), Gutenberg was accused by the foundation before the Imperial Court in Rottweil and thereafter held in contumely. The debt incurred in 1442 was written off after his death, since the guarantor could not come up with the money either, but the 150-gulden debt remained outstanding until 1503. (Thus the assumption that Gutenberg became prosperous in his old age has little support from this last fact. Perhaps one of the larger printed works, the *Catholicon* of Johann Balbus of 1460, probably produced by Gutenberg in 1460, might suggest that substantial funds were available for this work; but it is no indication of basic affluence of the inventor.)

There are other reasons to believe that Gutenberg's later years were laden with care. After the emperor and the pope agreed to depose Diether von Isenburg as prince-bishop of Mainz, and the dean of the Mainz cathedral, Count Adolf of Nassau, took his place, hostilities broke out, since Isenburg did not wish to step down.

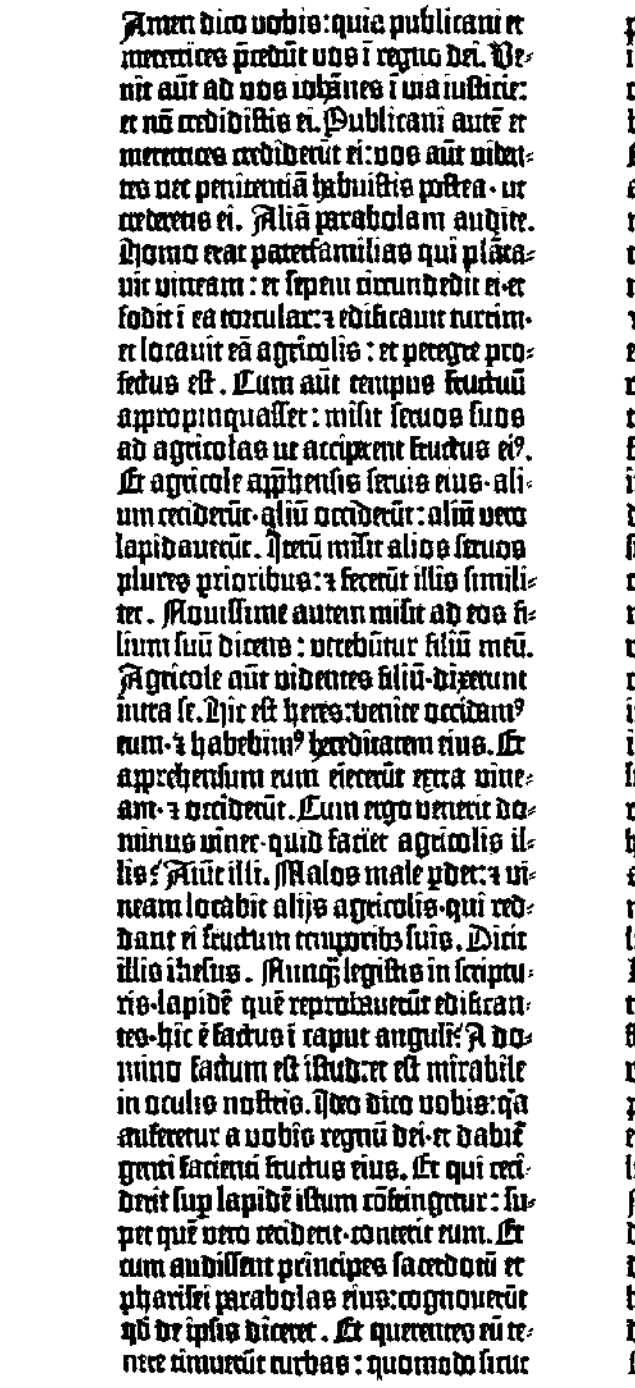
In 1462 Adolf's mercenaries stormed the city, burning and plundering. The men were expelled, and it is assumed that Gutenberg was among them. While they were permitted to return after a while when Adolf and Diether made peace, the consequences of the plunder and slaughter were fateful for the city. There was one ray of light in the inventor's life on January 17, 1465, when the prince-bishop of Mainz in his summer residence at Eltville gave a court appointment to Gutenberg with certain privileges such as to supply grain and wine, and exemption from taxes. However, we may not conclude from this fact that Gutenberg spent his last years in Mainz.

According to an entry in a copy of Antoninus Fiorentinus, *Confessionale* (Peter Schöffer, 1475; this copy lost in 1916), "der ersam mei(n)ster Henne Ginnsfleisch" died on February 3, 1468, and it is believed that this note refers to Johannes Gutenberg. For some time there was considerable argument as to whether Gutenberg died in Mainz or Eltville. This question has no real significance except for local concern. It is just as the Strassburg Gutenberg scholar François Ritter has expressed it in a conciliatory tone: In view of the importance of the invention, it is relatively unimportant whether Gutenberg perfected it in Mainz or Strassburg.

What Did Gutenberg Discover?

It is firmly established that printing from wood blocks was widely practiced in Korea, China, and Japan in the eighth century; but something new is seen in the method of the Chinese smith, Pi Sheng, who invented stamps made of baked clay around the middle of the 11th century. The device of printing with movable metal letters, developed in Korea, was a decisive step forward. Until a few years ago imprints of this type were known from a period of some half-century before Gutenberg's childhood, but in the meanwhile the period has been moved back substantially (some three centuries). As far as Gutenberg's invention is concerned, there is contemporary evidence that he conceived his invention and brought it to reality between 1440 and 1450, and to a climactic achievement hardly equaled subsequently with the 42-line Bible, which was completed before August 1456 (according to rubricators' notes in both volumes). (See Figure 1.)

Although priority for the Korean invention of printing with movable metallic type is beyond doubt, nevertheless Gutenberg excelled the East Asian technology with his devices, for the matrix for the casting of single letters and the press itself were basic aspects of his invention. Nothing is more pertinent than the question of whether Gutenberg was influenced from the East and, if so, to what extent. But even if Gutenberg knew about Korean printing or had even seen it or had a copy in hand, the method he developed is quite independent—just as, on the other hand, stamps for printing single letters had long been known. Finally it must be noted that although the oriental printing techniques have venerable age, they never expanded beyond their locality, whereas the invention of Johannes Gutenberg of Mainz spread in a very short time from this city to change the course of world history.



Amen dico vobis: quia publicani et meretrices precedunt vos in regnum dei. Venit enim ad vos iohannes in via iustitie: et non credidistis ei. Publicani autem et meretrices crediderunt ei: vos autem videntes nec penitentiam habuistis postea: ut credentes ei. Aliam parabolam audite. Homo erat paterfamilias qui plantavit vineam: et sepem circumdedit ei: et fodit in ea torcular: et edificavit turrim: et locavit eam agricolis: et peregre profectus est. Cum autem tempus fructuum appropinquasset: misit servos suos ad agricolas ut acciperent fructus ei⁹. Et agricole apprehensis servis eius: alium ceciderunt: alium occiderunt: alium vero lapidaverunt. Iterum misit alios servos plures prioribus: et fecerunt illis similiter. Novissime autem misit ad eos filium suum dicens: verebuntur filium meum. Agricole autem videntes filium dixerunt intra se. Hic est heres: venite occidamus eum: et habebimus hereditatem eius. Et apprehensum eum eiecerunt extra vineam: et occiderunt. Cum ergo venerit dominus vinee: quid faciet agricolis illis? Aiunt illi. Malos male perdet: et vineam locabit aliis agricolis: qui reddant ei fructum temporibus suis. Dicit illis ihesus. Numquam legistis in scripturis: lapidem quem reprobaverunt edificantes: hic factus est in caput anguli? A domino factum est istud: et est mirabile in oculis nostris. Ideo dico vobis: quia auferetur a vobis regnum dei: et dabitur genti facienti fructus eius. Et qui ceciderit super lapidem istum confringetur: super quem vero ceciderit: conteret eum. Et cum audissent principes sacerdotum et pharisei parabolas eius: cognoverunt quod de ipsis diceret. Et querentes eum tenere timuerunt turbas: quoniam sicut prophetam eum habebant. Et respondens ihesus dixit iterum in parabolis eis dicens. Simile factum est regnum celorum homini regi: qui fecit nuptias filio suo. Et misit servos suos vocare invitatos ad nuptias: et nolebant venire. Iterum misit alios servos dicens. Dicite invitatis. Ecce prandium meum paravi: tauri mei et altilia occisa: et omnia parata: venite ad nuptias. Illi autem neglexerunt: et abierunt alius in villam suam: alius vero ad negotiationem suam. Reliqui vero tenuerunt servos eius: et contumelia affectos occiderunt. Rex autem cum audisset iratus est: et missis exercitibus suis perdidit homicidas illos: et civitatem illorum succendit. Tunc ait servis suis. Nuptie quidem parate sunt: sed qui invitati erant non fuerunt digni. Ite ergo ad exitus viarum: et quotcunque inveneritis: vocate ad nuptias. Et egressi servi eius in vias congregaverunt omnes quos invenerunt malos et bonos: et implete sunt nuptie discumbentium. Intravit autem rex ut videret discumbentes: et vidit ibi hominem non vestitum veste nuptiali. Et ait illi. Amice: quomodo huc intrasti non habens vestem nuptialem? At ille obmutuit. Tunc dixit rex ministris. Ligatis manibus et pedibus ei⁹: mittite eum in tenebras exteriores: ibi erit fletus et stridor dentium. Multi enim sunt vocati: pauci vero electi. Tunc abeuntes pharisei consilium inierunt: ut raperent eum in sermone. Et mittunt ei discipulos suos: cum herodianis dicentes. Magister: scimus quia verax es et viam dei in veritate docens: et non est tibi cura de aliquo. Non enim respicis personam hominum. Dic ergo nobis: quid tibi videtur. Licet censum dare cesari: aut non? Cognita autem ihesus nequitia eorum

FIGURE 1. *A page from the 42-line Bible (Matthew, 21:31 through 22:18).*

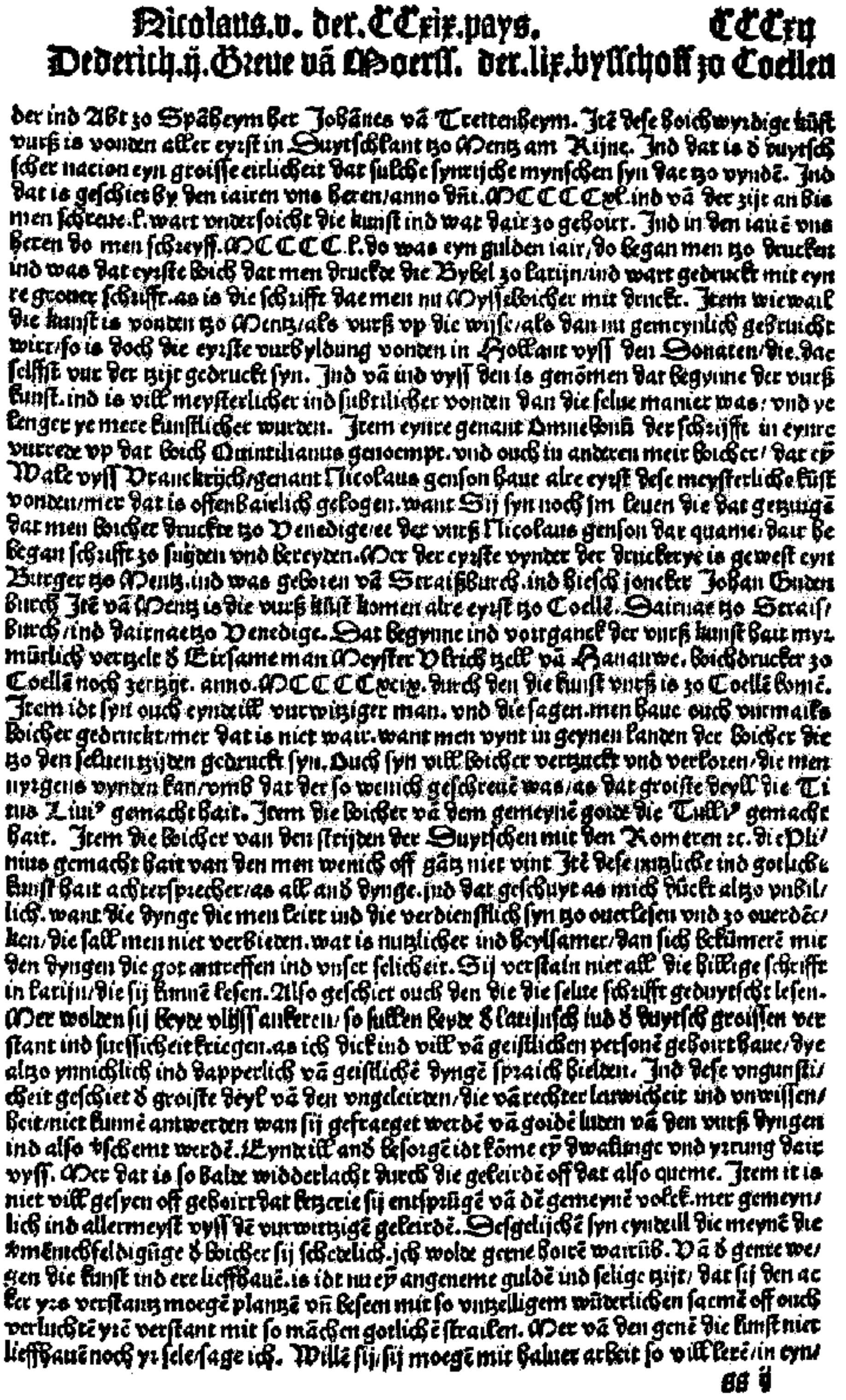
Printing Before Gutenberg

At every step we encounter the unhappy fact that the reports about Gutenberg's life have come down to us in very fragmentary form. Even worse is the fact that not one single imprint carries the name of the inventor. We have already noted in

connection with the report of the *Kölner Chronik* of 1499 ("so is doch die eyrste vurbyldung vonden in Holand uyss den Donaten . . .") that it has been calculated that Gutenberg could have been in Holland between 1444 and 1446 (see Figure 2). But that is nothing more than a supposition. In a situation that is so wide open, we cannot even designate the oldest printed work that came from a press of Gutenberg. For decades there were two opposing opinions: Some considered the so-called *Fragment vom Weltgericht* to be Gutenberg's oldest imprint (as we still read in the reprint of Ruppel's monograph on Gutenberg of 1967, in which there is no consideration of research after 1946); others viewed a missal, the so-called *Missale speciale*, as the oldest piece of typographic printing, although some scholars assumed that the missal could only have been printed in the period 1470–1480 on the basis of the type. In 1954 the debate took a dramatic turn when Curt F. Bühler acquired one of the few surviving copies of the missal for the Pierpont Morgan Library from the Capuchin Monastery of Romont (Switzerland), since he was convinced of the great age of this item. In the heated discussion of the matter it was even indicated as conceivable that this imprint could have been produced in Basel, a notion contrary to all existing evidence pointing to Mainz as the place of the discovery. The controversy in the consideration of the type used for this imprint is a model case insofar as it demonstrated that no certain conclusions on the age of an early printed work may be drawn simply from the form of the type, if, as here, we are dealing with the alternatives between an early trial imprint and a late form using the same type with less success. In the meanwhile the students of watermarks (Stevenson, Gerardy, Picard) came to the conclusion that this particular work must have been produced about 1473. If this is correct—and the agreement (otherwise debated on many basic points) of three students of watermarks is significant—then the work could not be traced to Gutenberg in any case, thus resolving the question of its age, which had caused so much disagreement. (The main objections now, as before, are from Bühler; see the Bibliography.)

There was a successful revision of the chronology of the earliest printed works in 1948 when Carl Wehmer, working with Viktor Stegemann, a colleague in astronomy, proved that the so-called *Astronomical Calendar*, a tabulation applicable over a period of years, which had long been dated 1448, was not printed until 1457/58, a decade later than generally assumed previously. The oldest printed work to which a date may be assigned with certainty is an indulgence, thanks to a manuscript entry giving the date of publication (October 22, 1454). This is a copy with 31 lines, but there are also copies with 30 lines, of which the oldest has a notation of February 27, 1455. (See Figures 3 and 4.) We may only guess why we should have such formularies—and we have here the first printing of a formulary—in two different compositions: obviously the printer operated with two different types to execute his commission more expeditiously. Whether, however, this situation permits the supposition of the existence of two presses operating together in Mainz at that time is a question which can be answered in various ways. It is certainly not the only problem in Gutenberg scholarship that is unanswered!

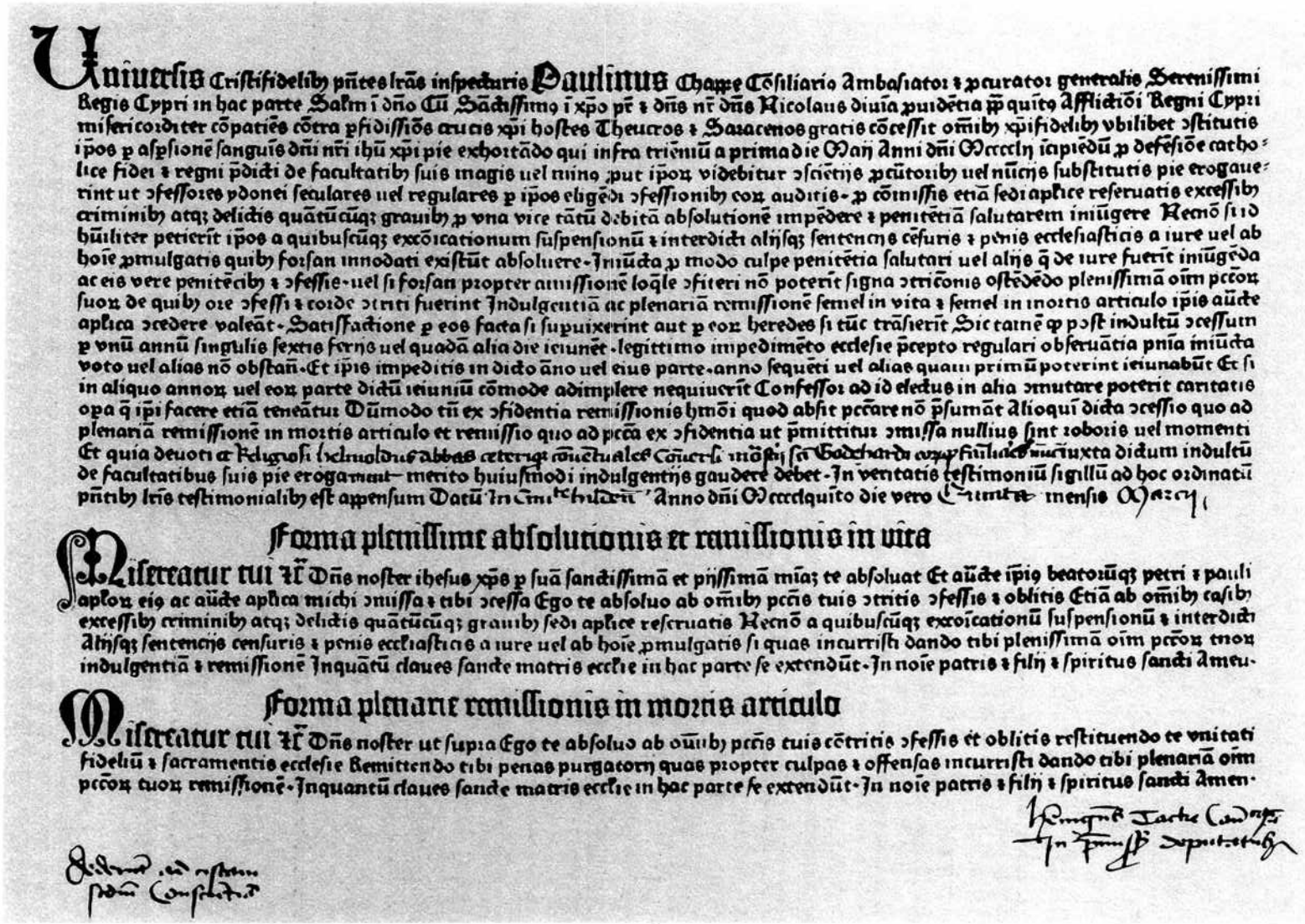
Like the indulgences, the so-called Türkenkalender (with the caption—indica-



Nicolaus.v. der.CCxix.pays. CCCxij
Dederich.ij.Greue vā Moerß. der.lix.byſſchoff zo Coellen

der ind Abt zo Spāheym her Johānes vā Trettenheym. Itē deſe hoichwyrdige kūſt
vurß is vonden aller eyrſt in Duytſchlant tzo Mentz am Rijne. Ind dat is d duytſch
ſcher nacion eyn groiſſe eirlicheit dat ſulche ſynrijche mynſchen ſyn dae tzo vyndē. Ind
dat is geſchiet by den iairen vns heren/anno dn̄i.MCCCCxl.ind vā der zijt an bis
men ſchreue.l.wart vnderſoicht die kunſt ind wat dair zo gehoirt. Ind in den iaiē vns
heren do men ſchreyff.MCCCC.l.do was eyn gulden iair/do began men tzo drucken
ind was dat eyrſte boich dat men druckde die Bybel zo latijn/ind wart gedruckt mit eyn
re groner ſchrifft.as is die ſchrifft dae men nu Myſſeboicher mit druckt. Item wiewail
die kunſt is vonden tzo Mentz/als vurß vp die wijſe/als dan nu gemeynlich gebrucht
wirt/ſo is doch die eyrſte vurbyldung vonden in Hollant vyſſ den Donaten/die.dae
ſelffſt vur der tzijt gedruckt ſyn. Ind vā ind vyſſ den is genōmen dat begynne der vurß
kunſt.ind is vill meyſterlicher ind ſubtilicher vonden dan die ſelue manier was/vnd ye
lenger ye mere kunſtlicher wurden. Item eynre genant Omnebonū der ſchrijfft in eynre
vurrede vp dat boich Quintilianus genoempt.vnd ouch in anderen meir boicher/dat eȳ
Wale vyſſ Vranckrijch/genant Nicolaus genſon haue alre eyrſt deſe meyſterliche kūſt
vonden/mer dat is offenbairlich gelogen.want Sij ſyn noch im leuen die dat getzugē
dat men boicher druckte tzo Venedige/ee der vurß Nicolaus genſon dar quame/dair he
began ſchrifft zo ſnijden vnd bereyden.Mer der eyrſte vynder der druckerye is geweſt eyn
Burger tzo Mentz.ind was geboren vā Straiſburch.ind hieſch joncker Johan Gudenburch
Itē vā Mentz is die vurß kūſt komen alre eyrſt tzo Coellē.Dairnae tzo Straiſ/
burch/ind dairnae tzo Venedige.Dat begynne ind vortganck der vurß kunſt hait myr
mūtlich vertzelt d Eirſame man Meyſter Vlrich tzell vā Hanauwe.boichdrucker zo
Coellē noch zertzijt.anno.MCCCCxcix.durch den die kunſt vurß is zo Coellē komē.
Item idt ſyn ouch eyndeill vurwitziger man.vnd die ſagen.men haue ouch vurmails
boicher gedruckt/mer dat is niet wair.want men vynt in geynen landen der boicher die
tzo den ſeluen tzijden gedruckt ſyn.Duch ſyn vill boicher vertzuckt vnd verloren/die men
nyrgens vynden kan/omb dat der ſo wenich geſchreuē was/as dat groiſte deyll die Ti
tus Liui' gemacht hait.Item die boicher vā dem gemeynē gode die Tulli' gemacht
hait. Item die boicher van den ſtrijden der Duytſchen mit den Romeren ꝛc.die Pli/
nius gemacht hait van den men wenich off gātz niet vint Itē deſe nutzliche ind gotliche
kunſt hait achterſprecher/as all and dynge.ind dat geſchuyt as mich duckt altzo vnbil/
lich.want die dynge die men leirt ind die verdienſtlich ſyn tzo ouerleſen vnd zo ouerdēc/
ken/die ſall men niet verbieden.wat is nutzlicher ind heylſamer/dan ſich bekūmerē mit
den dyngen die got antreffen ind vnſer ſelicheit.Sij verſtain niet all die billige ſchrifft
in latijn/die ſij kunnē leſen.Alſo geſchiet ouch den die die ſelue ſchrifft geduytſcht leſen.
Mer wolden ſij beyde vlijſſ ankeren/ſo ſulken beyde d latijnſch ind d duytſch groiſſen ver
ſtant ind ſueſſicheit kriegen.as ich dick ind vill vā geiſtlichen perſonē gehoirt haue/dye
altzo ynnichlich ind dapperlich vā geiſtlichē dyngē ſpraich hielden. Ind deſe vngunſti/
cheit geſchiet d groiſte deyl vā den vngeleirden/die vā rechter latwicheit ind vnwiſſen/
heit/niet kunnē antwerden wan ſij gefraeget werdē vā goidē luden vā den vurß dyngen
ind alſo vſchemt werdē.Eyndeill and beſorgē idt kōme eȳ dwalinge vnd yrrung dair
vyſſ. Mer dat is ſo balde widderlacht durch die geleirdē off dat alſo queme. Item it is
niet vill geſyen off gehoirt dat ketzerie ſij entſprūgē vā dē gemeynē volck.mer gemeyn/
lich ind allermeyſt vyſſ dē vurwitzigē geleirdē.Deſgelijchē ſyn eyndeill die meynē die
menichfeldigūge d boicher ſij ſchedelich.ich wolde gerne hoirē warūb.Vā d gener we/
gen die kunſt ind ere lieffhauē.is idt nu eȳ angeneme guldē ind ſelige tzijt/dat ſij den ac
ker yrs verſtantz moegē plantzē vn̄ beſeen mit ſo vntzelligem wūderlichen ſaemē off ouch
verluchtē yrē verſtant mit ſo mānchen gotlichē ſtralen. Mer vā den genē die kunſt niet
lieffhauē noch yr ſele/ſage ich. Willē ſij/ſij moegē mit haluer arbeit ſo vill lerē/in eyn/
hh ij

FIGURE 2. *The rather unreliable account of the invention of printing in the* Kölner Chronik *of 1499.*



Universis Cristifidelibꝫ pñtes lr̃as inspecturis Paulinus Chappe Cõsiliario Ambasiatoꝝ ⁊ procuratoꝝ generalis Serenissimi Regis Cypri in hac parte Salm̃ in dño Ill̃i Sãctissimo in xpo pr̃ ⁊ dñs nr̃ dñs Nicolaus diuina puidẽtia pp quitq; afflictiõi Regni Cypri miseric oꝛditer cõpatiẽs cõtra pfidissiõs crucis xpi hostes Theucros ⁊ Sarracenos gratis cõcessit oñibꝫ xpifidelibꝫ vbilibet ꝛstitutis ipos p aspsionẽ sanguis dñi nr̃i ihu xpi pie exhortãdo qui infra triẽniũ a prima die Maij Anni dñi Mccccly iapiẽdũ p defẽsiõe catholice fidei ⁊ regni pdicti de facultatibꝫ suis magis uel mino ꝑut ipoꝝ videbitur ꝛsciẽtie pcũtoribꝫ uel nũcie substitutis pie erogauerint ut ꝛfessores ydonei seculares uel regulares p ipos eligẽdi ꝛfessionibꝫ coꝝ auditis ⁊ p cõmissis etiã sedi aplice reseruatis excessibꝫ criminibꝫ atq; delictis quãtũcũq; grauibꝫ p vna vice tãtũ debitã absolutionẽ impẽdere ⁊ penitẽtiã salutarem iniũgere Recnõ si id hũiliter petierit ipos a quibusc̃ũq; excõicationum suspensionũ ⁊ interdicti alijsq; sentencijs cẽsuris ⁊ pnis ecclesiasticis a iure uel ab hoie ꝑmulgatis quibꝫ forsan innodati existũt absoluere. Iniũcta p modo culpe penitẽtia salutari uel alijs q̃ de iure fuerit iniũgẽda ac eis vere penitẽtibꝫ ⁊ ꝛfessis uel si forsan ꝓpter amissionẽ loq̃le ꝛfiteri nõ poterit signa ꝛtricõnis ostẽdẽdo plenissimã oĩm pcõꝝ suoꝝ de quibꝫ oꝛe ꝛfessi ⁊ corde ꝛtriti fuerint Indulgentiã ac plenariã remissionẽ semel in vita ⁊ semel in mortis articulo ipis aũcte aplica ꝛcedere valeãt. Satisfactione p eos facta si supuixerint aut p eoꝝ heredes si tũc trãsierit Sic tamẽ qp p ꝛsit indultũ ꝛcessum p vnũ annũ singulis fexijs ferijs uel quadã alia die ieiunẽt. legittimo impedimẽto ecclesie pcepto regulari obseruãtia pnia iniũcta voto uel alias nõ obstañ. Et ipis impeditis in dicto ãno uel eius parte anno sequẽti uel alias quam primũ poterint ieiunabũt Et si in aliquo annoꝝ uel eoꝝ parte dictũ ieiuniũ cõmode adimplere nequiuerit Confessoꝛ ad id electus in alia ꝛmutare poterit caritatis opa q̃ ipi facere etiã teneãtur Dũmodo tũ ex ꝛfidentia remissionis hmõi quod absit pcãre nõ ꝑsumãt alioquĩ dicta ꝛcessio quo ad plenariã remissionẽ in mortis articulo et remissio quo ad pcã ex ꝛfidentia ut ꝑmittitur ꝛmissa nullius sint roboris uel momenti Et quia deuoti ac religiosi [illegible] abbas ceteriq; cõuentuales Cõuentꝰ mõsterij sc̃i Godehardi ordinis sc̃i Benedicti Hildesiñ iuxta dictum indultũ de facultatibus suis pie erogarent merito huiusmodi indulgentijs gaudere debet. In ventatis testimoniũ sigillũ ad hoc ordinatũ pñtibꝫ lr̃is testimonialibꝫ est appensum Datũ In Cimbeckhusen Anno dñi Mccccl quito die vero Cimbeckhusen mensis Marcij

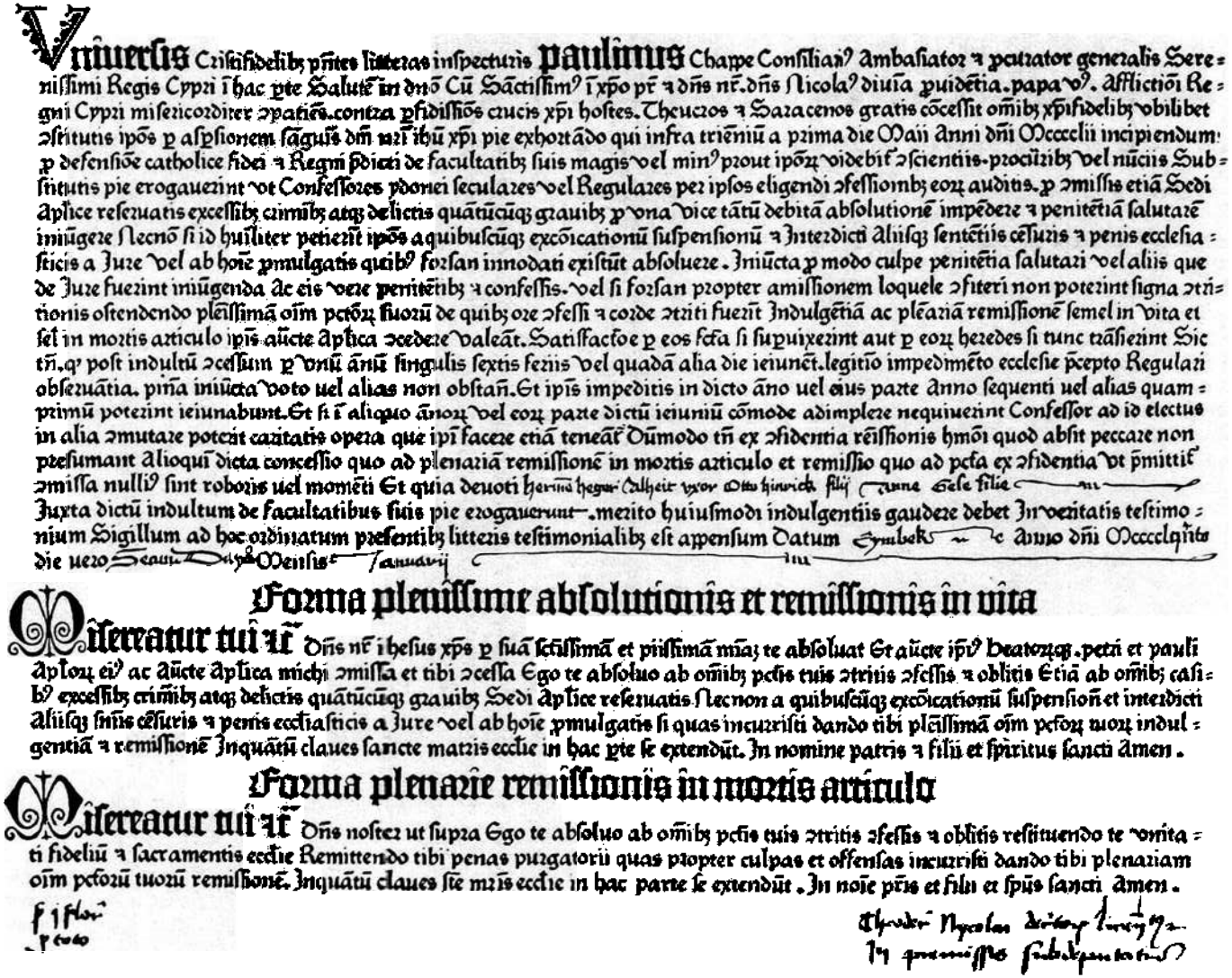
Forma plenissime absolutionis et remissionis in vita

Misereatur tui ac Dñs noster ihesus xps p suã sanctissimã et pissimã miã; te absoluat Et aũcte ipis beatoꝝq; petri ⁊ pauli aplorum eis ac aũcte aplica michi ꝛmissa ⁊ tibi ꝛcessa Ego te absoluo ab oñibꝫ pcis tuis ꝛtritis ꝛfessis ⁊ oblitis Etiã ab oñibꝫ casibꝫ excessibꝫ criminibꝫ atq; delictis quãtũcũq; grauibꝫ sedi aplice reseruatis Recnõ a quibusc̃ũq; excõicationũ suspensionũ ⁊ interdicti alijsq; sentencijs censuris ⁊ penis ecclĩasticis a iure uel ab hoie ꝑmulgatis si quas incurristi dando tibi plenissimã oĩm pcõꝝ tuoꝝ indulgentiã ⁊ remissionẽ Inquãtũ claues sancte matris ecclie in hac parte se extendũt. In noie patris ⁊ filij ⁊ spiritus sancti Amen.

Forma plenarie remissionis in mortis articulo

Misereatur tui ac Dñs noster ut supra Ego te absoluo ab oñibꝫ pcis tuis cõtritis ꝛfessis et oblitis restituendo te vnitati fideliũ ⁊ sacramentis ecclesie Remittendo tibi penas purgatorij quas ꝓpter culpas ⁊ offensas incurristi dando tibi plenariã oĩm pcõꝝ tuoꝝ remissionẽ. Inquantũ claues sancte matris ecclie in hac parte se extendũt. In noie patris ⁊ filij ⁊ spiritus sancti Amen.

FIGURE 3. *Thirty-line indulgence (Mainz, 1454/1455), formerly in the Hannover Staatsarchiv.*



Vniuersis Cristifidelibꝫ pñtes litteras inspecturis **paulinus** Chappe Consiliarꝰ ambasiator ⁊ procurator generalis Sere-
nissimi Regis Cypri i hac ꝑte Salutē in dnō Cū Sācissimꝰ i xp̄o pr̄ ⁊ dñs nr̄. dñs Nicolaꝰ diuīa puidētia. papa vꝰ. afflictiōi Re-
gni Cypri miserecorditer ꝯpatiēs. contra pfidissiōs crucis xp̄i hostes. Theucros ⁊ Sarracenos gratis cōcessit oīmibꝫ xp̄ifidelibꝫ vbilibet
ꝯstitutis ipōs ꝑ aspsionem sāguis dñi nr̄i ihū xp̄i pie exhortādo qui infra triēniū a prima die Maii anni dñi Mcccclii incipiendum
ꝑ defensiōe catholice fidei ⁊ Regni ꝑdicti de facultatibꝫ suis magis vel minꝰ prout ipōz videbit ꝯscientiis. procūrib vel nūciis Sub-
stitutis pie erogauerint vt Confessores ydonei seculares vel Regulares per ipsos eligendi ꝯfessionibꝫ eoz auditis. ꝑ missis etiā Sedi
apl̄ice reseruatis excessibꝫ crimibꝫ atq; delictis quātūcūq; grauibꝫ p vna vice tātū debitā absolutionē impēdere ⁊ penitētiā salutarē
iniūgere Necnō si id huiusmodi petierīt ipōs a quibuscūq; excōicationū suspensionū ⁊ Interdicti aliisq; sentētiis cēsuris ⁊ penis ecclesia-
sticis a Jure vel ab hoīe ꝓmulgatis quibꝰ forsan innodati existūt absoluere. Iniūcta ꝑ modo culpe penitētia salutari vel aliis que
de Jure fuerint iniūgenda ac eis vere penitētibꝫ ⁊ confessis. vel si forsan propter amissionem loquele ꝯfiteri non potuerint signa cōtri-
tionis ostendendo plēissimā oīm pcōz suoz de quibꝫ ore ꝯfessi ⁊ corde cōtriti fuerīt Indulgētiā ac plēariā remissionē semel in vita et
sel in mortis articulo ipis aūcte ap̄lica ꝯcedere valeāt. Satisfactoe p eos fcta si supuixerint aut p eoz hēredes si tunc trāsierint Sic
tñ. q; post indultū ꝯcessum p vnū ānū singulis sextis feriis vel quadā alia die ieiunēt. legitio impedimēto ecclesie p̄cepto Regulari
obseruātia. prīa iniūcta voto uel alias non obstañ. Et ipis impeditis in dicto āno uel eius parte anno sequenti uel alias quam-
primū potuerint ieiunabunt. Et si i aliquo ānoz vel eoz parte dictū ieiuniū cōmode adimplere nequiuerint Confessor ad id electus
in alia ꝯmutare potuit caritatis opera que ipī facere etiā teneāt Dūmodo tñ ex ꝯfidentia rēissionis hmōi quod absit peccare non
ꝓsumant alioquī dicta concessio quo ad plenariā remissionē in mortis articulo et remissio quo ad pcta ex ꝯfidentia vt p̄mittit
ꝯmissa nulliꝰ sint roboris uel momēti Et quia deuoti [illegible] filij [illegible] filie [illegible]
Juxta dictū indultum de facultatibus suis pie erogauerunt. merito huiusmodi indulgentiis gaudere debet In cuius veritatis testimo-
nium Sigillum ad hoc ordinatum presentibꝫ litteris testimonialibꝫ est appensum Datum [illegible] anno dñi Mcccclqñto
die vero [illegible] Januarij

Forma plenissime absolutionis et remissionis in vita

Misereatur tui ac dñs nr̄ i hesus xp̄s ꝑ suā sctissimā et piissimā mīaz te absoluat Et aūcte ip̄i beatozq; petri et pauli
apl̄oz ei⁹ ac aūcte ap̄lica michi ꝯmissa et tibi ꝯcessa Ego te absoluo ab oīmibꝫ pcīs tuis ꝯtritis ꝯfessis ⁊ oblitis Etiā ab oīmibꝫ casi-
bꝰ excessibꝫ crimibꝫ atq; delictis quātūcūq; grauibꝫ Sedi ap̄lice reseruatis Necnon a quibuscūq; excōicationū suspensionū et interdicti
aliisq; sñis cēsuris ⁊ penis ecclīasticis a Jure vel ab hoīe ꝓmulgatis si quas incurristi dando tibi plēissimā oīm pcōz tuoz indul-
gentiā ⁊ remissionē Inquātū claues sancte matris ecclie in hac ꝑte se extendūt. In nomine patris ⁊ filii et spīritus sancti āmen.

Forma plenarie remissionis in mortis articulo

Misereatur tui ac dñs noster ut supra Ego te absoluo ab oīmibꝫ pcīs tuis ꝯtritis ꝯfessis ⁊ oblitis restituendo te vnita-
ti fideliū ⁊ sacramentis ecclie Remittendo tibi penas purgatorii quas ꝓpter culpas et offensas incurristi dando tibi plenariam
oīm pcōz tuoz remissionē. Inquātū claues sc̄e matris ecclie in hac parte se extendūt. In noīe p̄ris et filii et spūs sancti āmen.

[illegible]

[illegible]

FIGURE 4. *Thirty-one line indulgence (Mainz, 1454/1455), in the Murhard'sche Bibliothek, Kassel.*

tion of a title page—"Ein manung der cristenheit widder die durken") has a direct relationship to the period, a fact from which we may date it in 1455. The typographical anonymity of Gutenberg's imprints is the result of the inventor's studied silence. We don't even have authentic evidence for the greatest work ascribed to Gutenberg (today, to be sure, the predominant opinion specifies the 42-line Bible, from which, as we can ascertain from the text, the 36-line Bible was reprinted). Gutenberg had developed a whole system of ligatures in order to attain proper distribution of type on the printed page of the magnificent 42-line Bible, which is distinguished by evenness and balance of the layout. We do not know how many copies of the work were printed. The conclusions which scholars have attempted to draw in view of the variety of types of paper used have led to singularly varying opinions, and many scholars have changed their opinions in the course of their studies. Schwenke, whom Ruppel follows explicitly, ultimately argued for 150 paper copies and 35 on vellum. In any event we cannot calculate the press run from the number of copies that have been preserved. Today we have a record of 4 complete and 8 incomplete vellum copies, 17 complete and 18 incomplete paper copies, and, in addition, 167 fragments, a disgraceful example of how excessively industrious booksellers have repeatedly cut up copies in order to peddle them for profit as partial copies or single leaves.

The captions of the individual books of the Bible were to be written by hand, and for this purpose Gutenberg drew up a special list, the so-called rubrication table. An early attempt to avoid writing the headings by hand may be seen in a psalter (*Psalterium Moguntinum*) printed by Fust and Schöffer in 1457, 1 or 2 years after the 42-line Bible. From the standpoint of the history of printing, the *Psalterium Moguntinum* is not only epoch-making with its typographical quality approaching that of the 42-line Bible, but it is also distinguished by the fact that it is the first European imprint with a concluding paragraph in which the printer identifies himself. Here we have an encomium for "die kunstvolle Erfindung des Druckens und Lettergiessens"; but there is no mention of the man to whom the invention is owed (and who most probably provided the font for this work).

In connection with the chronology of Gutenberg's life we have touched on the question of what and how much Gutenberg printed after the litigation of 1455. In addition to the smaller items he may have printed in these years, there are two larger ones, the 36-line Bible and the *Catholicon* composed by Johann Balbus of Ianua in 1286 and widely read in numerous manuscript copies, printed in Mainz in 1460 according to the statement at the end. Suppositions about the printer of the 36-line Bible range from Gutenberg to less well-known early printers. Geldner has shown in his book on Bamberg that it is probable for various reasons that the 36-line Bible was printed there. Among other Bamberg printers whom we must bear in mind is Heinrich Keffer, mentioned in the Helmasperger Notarial Instrument as Gutenberg's representative. In Geldner's opinion he was the director of the Bamberg press.

Up to the present time the question of who printed the *Catholicon* in 1460 has no sure solution. Many scholars maintain with dogmatic severity that the man who printed the monumental 42-line Bible would not also have printed cheap things

for popular consumption (all sort of calendars, prognostica, school grammars). Thus with reference to the *Catholicon* (GW 3182) it has been argued that the poor types used for this work would hardly have been used by the same printer who produced the handsome 42-line Bible. But this is not a tenable argument: an encyclopedia is an article for practical use for which "bread-and-butter type" (as the printer's jargon goes) is spread out carefully to use all available space, in contrast with liturgical works which had their models in deluxe manuscripts.

Although the concluding paragraph of the 1460 *Catholicon* gives us no clue to the printer, it is nevertheless a valuable document for cultural history: The encomium of the city of Mainz and the German nation, which were distinguished by God's grace with the gift of printing, is combined with humble thanks for the new art by which books can be made "non calami stili aut pennae sed mira patronarum formarumque concordia proportione et modulo" (the concluding paragraph ends with a hymn to the Trinity). The very fact that Gutenberg's name is not mentioned here is for many (including the writer) an indication that Gutenberg was the printer of this work. Just as in other works he printed, he is inclined to withhold his name, in marked contrast to the 1457 psalter in which Fust and Schöffer give their names. (As a correction for misleading ideas about the situation, e.g., in the *Archiv für Geschichte des Buchwesens*, **8**, 1331–1339, 1967, it should be pointed out here that Schöffer was not imitating Gutenberg's practice in his concluding paragraph, rather that Schöffer, together with Fust, first used the printer's identification, also called colophon, at the end of a book.) In any event it is significant that in 1457, 2 years after the suit which resulted in the separation of Gutenberg and Fust, Gutenberg is not mentioned, although the famed "kunstvolle Erfindung" mentioned in the concluding paragraph of the psalter was his work. At this early time we see how Gutenberg's fame and name were to be handled soon after his death, passed over in order to transfer to others the credit for the invention that justly belonged to him. Here is a reflection of the *comédie humaine*, a none-too-pleasing picture of human perversity. Johann Schöffer, a son of Peter Schöffer the Elder, alleged that his grandfather, Johann Fust, was the inventor of printing, a statement he printed openly at the end of a work he printed toward the end of 1502 or the beginning of 1503. The notion that Johann Fust, Schöffer's grandfather, was the inventor of printing could even be suggested to the Emperor Maximilian. In the excerpt from a German translation of Livy printed in Mainz in 1518, the grandson of Johann Fust received privileges (i.e., protection from piracy) for 10 or 6 years on the basis of the allegation that he was the grandson of the inventor of printing.

Gutenberg's Program: Acceptance by Contemporaries

If we ask the ultimate questions about the *intentions* of the inventor, we have the primary obstacle in the fact that there is no line by Gutenberg to indicate his motivations. Was it Gutenberg's purpose to create the oldest of the "mass media"? (More than three centuries later Friedrich Schiller wrote in his *History of the Fall of the United Netherlands*, 1788, that printing enabled a single demagogue to speak

to millions.) Was Gutenberg destined "to lift the medieval world from its rusty hooks" as A. Ruppel often put it? The fact that the first larger work printed by Gutenberg was a Latin Bible is not quite the exact symptom for a motive to reform medieval Europe. At this point it must be pointed out that Gutenberg himself did not completely foresee all of the results of his invention. But contemporaries quickly realized the effectiveness of the new art through experience. The critical point about Gutenberg's invention lies in the fact that it was now possible to disseminate information more rapidly and more widely than ever before, thanks to the new technology. "In one day he prints more than could be written in a year" are the words of an Italian humanist in the second half of the 15th century, praising the productivity of the shop of a German printer in Italy; and similar statements about the purpose are frequently found in the early period of printing. In addition to the rapidity of printing, there was the possibility of a theoretically unlimited press run. Further, if intentional changes in the composition or the printing were not made, all copies were supposed to have the same text, in contrast to production by copyists, where each text is individual.

The statement that a printed text, in the form of "multiplicatio," reaches the public more quickly and more readily than before, and, above all, a larger public, we hear insofar as I can find for the first time in 1470 in the words of the Carthusian Werner Rolevinck, who says in his work *De praesentatione Beatae Mariae Virginis* that he entrusted his work to the printer Arnold Therhoernen in Cologne with this consideration in mind. The expression "multiplicatio" ("production of a large number of similar copies") is found in the same sense in a publisher's prospectus of Peter Schöffer of Gernsheim; and I have ascertained that this specific term goes back to Cassiodorus, who once used it for the copying of manuscripts, a duty he assigned to monks in the monastery of Vivarium founded by him in the middle of the sixth century.

An important prerequisite for mass production was the availability of a relatively inexpensive material on which one could print. Vellum was far too expensive for use in mass production. Thus at the precisely correct moment the spread of papermaking came to the aid of printing. After paper was invented by the Chinese, the formula was long kept secret, but it reached Samarkand in 751 through Chinese prisoners of war and spread with the Arab conquest through middle and western Asia and finally reached Spain through the Moors. The oldest paper mill in the country where printing was invented is that of the Nuremberg patrician Ulman Stromeier, established in 1389/90. (That there was a paper mill in operation as early as 1290 in Ravensburg near Lake Constance is not definitely proven.) Around the middle of the 15th century, when paper was needed for printing, it was available, and its use by printers naturally brought a vastly larger market to the paper industry. However, as we have seen in the case of the 42-line Bible, vellum was used by printers to a limited extent. That this was the exception is reflected in a condescending remark of the bibliophilic abbot, Johann von Trittenheim (Trithemius), who throws off on printing as "something on paper" ("res papirea") in his *De laude scriptorum* (Mainz, 1494), although, to be sure, he refers soon thereafter to the invention of printing as a "marvelous art" ("ars mirabilis").

Over the centuries little was changed in Gutenberg's basic technology of print-

ing, neither the preparation of dies and matrices for the forms of individual letters and symbols, nor the casting of metal letters by hand. It was not until the 19th century that there were significant changes in printing technology when processes previously carried out by hand were transferred to machines: machines for composition as well as for printing, and machines for making paper, previously done by hand (as it still is today in special cases).

That contemporaries looked on printing as a divine gift has already been seen in the concluding words of the 1460 *Catholicon*. These words of praise go on through the centuries, and in the Reformation there is a special note: Printing was for the dissemination of the true Gospel throughout the world. But in the beginning of printing the Roman Church also saw the possibilities in it. Cardinal Nikolaus von Kues (Nicolaus Cusanus) wished "that this holy art risen in Germany be brought to Rome" ("ut haec sancta ars, quae oriri tunc videbatur in Germania, Romam deduceretur"), since he could be assured through its use of a uniform text for missals, a matter of greatest concern to him.

But upon a close look it also becomes obvious that in addition to the praise of printing there is here and there also a reservation about the new art. There were the conservatives who rejected modern technological progress, such as Duke Federigo da Montefeltro of Urbino, who, according to the report of a biographer was "ashamed" to shelve a printed book among the manuscript treasures of his library. Then there was the great philologist Desiderius Erasmus, who to be sure, praised the art in handsome language and was even the consultant of the publisher Johannes Froben in Basel, but who did not suppress the reservation that a single typographical error could mutilate a whole edition of a thousand copies. And finally there was censorship. It was recognized soon enough that the divine gift, as printing had been greeted with so much praise, also could be misused in customary human style (*abuti*, "misuse," is the customary formula in the pertinent documents). As early as 1479 there was ecclesiastical censorship in Cologne. In 1485 the archbishop of Mainz, Elector Berthold von Henneberg, issued in the very city where printing was invented, a prohibition against abuse of this divine art ("abuse" being defined by the Church), and he repeated it in 1486. In 1487 the pope issued an edict in the same sense to all Christendom, and this was not the first, for there were several others. The German emperor and the pope issued jointly the Edict of Worms (1521), a condemnation not simply of the writings of Luther and his followers, as is generally believed, for that edict was designed as a general preventive censorship. The history of the censorship of literary works does not begin with the introduction of printing, for it can be identified in fifth-century democratic Athens; but with the rise of printing and concomitant mass production, both the book trade and the censors faced new conditions.

Fust's and Schöffer's Part in the Invention

Even though Gutenberg's position as inventor is assured by contemporary evidence, the roles played by Johannes Fust and Peter Schöffer have given rise to all

manner of discussion and supposition. Undoubtedly it was unilateral coloration of history when, immediately after Peter Schöffer's death (between December 20, 1502, and April 8, 1503) his son Johann, as already indicated, boasted in the closing paragraph of the *Hermes Trismegistus* of 1503 that he was descended from the inventor of the art of printing. Indeed, in the closing words of both editions of the Mainz breviary of 1509, Johann Schöffer names his grandfather Fust without reservation "the first inventor and discover of the art of printing" ("impressum Moguntie impensis et opera . . . viri Ioannis Scheffer civis Moguntini. Cuius avus primus artis impressorie fuit inventor et autor"). This statement was elaborated in Trithemius' *Breviarium annalium francorum* (1515), where it is stated that the work was printed in Mainz "by Johann Schöffer, the grandson of the . . . late Johannes Fust, a citizen of Mainz, the first to develop the new art," who in 1450 had "thanks to his own talent begun to think about it and figure it out, brought it to practical application in 1452." (It is also worth noting that the "collaboration of Peter Schöffer, his helper and adopted son," is mentioned; infra). The story that Fust was the inventor was finally firmed up by that imperial decree of 1518 specifically assuring privileges to Johann Schöffer as the grandson of the inventor, official recognition of the story he had already propagated. In Trithemius' *Annales Hirsaugienses* it is indeed related that the "marvelous art of printing and type casting" was invented by Johann "Gutenberger, a citizen of Mainz," but with fantastic confusion the passage adorns Johannes Fust at the same time with the attribute of "first inventor." From there on the scene becomes more and more motley. In the 16th century Fust dominates the field in the role of the inventor, but in many instances Johannes Fust of Mainz is confused with the magician Fust (Faust). For the tricentennial commemoration of the invention—for which the 40th year of a century has been determined, although it is somewhat too early in exact terms—the Göttingen historian Johann David Köhler composed his *Ehren-Rettung Johann Gutenbergs* (1741); but during the same period the Germanist Gottsched, who delivered a ceremonial speech at an academic memorial celebration in Leipzig, considered Gutenberg only a helper. It is not possible to determine from available sources just what Fust may have contributed to the technical perfection of the invention; but in any case consideration should be given to the possibility that Fust was not simply a businessman and financier but also must have known something about technical matters, especially if he was a goldsmith (according to many sources; and Gutenberg was not a goldsmith).

As far as Peter Schöffer the Elder is concerned, he was originally a copyist and as such is known to have been in Paris in 1449, thus making any part he may have had in the invention hard to date. Ruppel represented the opinion that Schöffer, as a former copyist, had no role in the technology of typography, but this notion may be properly refuted by the consideration that Schöffer, with his earlier professional training, may have made the special contribution of an eye and a feeling for type and page design. Thus in the distichs of the terminal poem of his edition of Justinian's *Institutiones* (1468) he is described as "experienced in the art of metalwork"("sculpendi lege sagitus.")A very significant phase of the technical development of printing was reached in the *Psalterium Monguntinum* of 1457 with its

color printing, and the references in the later literature to the supplementary "inventions" of Peter Schöffer may refer to this development.

Competitors Outside of Mainz for the Honor of the Invention

In various places other names of inventors of printing have been named: Strassburg, Johann Mentel(in); Feltre (Italy), Pamfilo Castaldi; Bruges, Johann Brito; Avignon, Prokop Waldfoghel (Waldvogel). While careful study has shown the claims of those first named as without basis, an association between Gutenberg and Waldfoghel may not be excluded; but Waldfoghel never designated himself as the inventor, nor was the honor claimed for him by others, and no printed work is traceable to his activity.

On the other hand, a tradition that Laurens Janszoon Coster (or Koster, which is Dutch for sexton; or simply Laurens Janszoon), sexton of the church in Haarlem, made the invention before Gutenberg has long been considered. Otto Furhmann (*Gutenberg and the Strassburg Documents of 1439*) tells the story in this version: Printing with type was being done in Holland before Gutenberg's active period, only much more primitively than Gutenberg's initial efforts. Even the Dutch scholars, for example, Kruitwagen and recently Wytze Hellinga, professor at Amsterdam University, have pointed out the many implausible aspects, indeed, anachronisms and contradictions, of the situation.

After the Invention

There were presses in some 260 places in Europe before 1500, and their production ran to some 27,000 works according to recent calculations. The number of copies in each edition was low in the beginning, between 100 and 300 copies. (The indulgences with their high press runs were not books; they were imprints for a specific purpose and public.) The printer, who was also publisher in the beginning, bore the risks of the businessman in the production of books, since he could not figure with certainty what kind of sale a book he produced would have. If the printers had been copyists, they had to rethink the whole matter of business, since manuscripts were prepared for individual orders, but a minimum edition was always a prerequisite for the production of printed books. If one considers the market for printed books (quite expensive in the beginning), it must be remembered that the great majority of printed books were in Latin in the beginning. Likewise in Latin were the announcements for books which the traveling *Buchführer* ("salesmen") would post on a church door or in a market place. In view of this we can't say that the invention of printing made education available to the masses at once. Printing became a device for influencing the masses only in the time of the Reformation in the great struggle for the faith, in which not only Bibles and secondary theological literature but also polemical writings, letters, and similar literature were distributed widely among the people by both sides.

If we follow Gutenberg's biography, insofar as the evidence permits, we find the career of an inventor characterized by an inflexible will to overcome new obstacles that appeared constantly: repetition of fruitless experiments until success was reached, dealing with financial difficulties, steadfastness through continuing disappointments. And Gutenberg's fate as an inventor is also seen here, for he, like so many other seekers and inventors, had to fight through his own way, while others enjoyed the profits of the work after the experiments were successful. Jacob Wimpfeling reports in Chapter 65 of his *Geschichte Deutschlands* (Strassburg, 1505) concerning the Strassburg printer-publisher J. Mentel(in) that Gutenberg "became very prosperous," and this also applies to the firm of Fust and Schöffer and many other early printers. But there were also those who were not so fortunate, particularly the wandering printers who tried their luck from place to place.

It has often been asked whether Gutenberg's invention, at least at the period when it took place, was really a necessity, since the need for books could have been handled by the scriptoria. Indeed, they did cover the need for books in a day when few men could read and write. It was precisely toward the end of the 15th century that there was a chorus of voices lauding printing, for then even the unlearned and the man with small means had access to treasures of the mind (book prices were lowered between 1470 and 1480). Thus we have the prerequisite for what a later period has viewed as the "democratization of education."

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HANS WIDMANN
English version by Lawrence S. Thompson

THE 15TH CENTURY

Printing in German-speaking Countries Before 1501*

GUTENBERG'S IMMEDIATE SUCCESSORS

It was undoubtedly Gutenberg's intention to handle his new invention of printing as a secret of his partner and himself and to prevent any further disclosure insofar as possible. When Gutenberg and his backer and partner, Johannes Fust, fell out for reasons still unknown to us, Fust dared make the break only because he was certain that Peter Schöffer, unquestionably Gutenberg's ablest student and collaborator, was on his side and was prepared to take over the direction of the original Gutenberg–Fust business. Thus the earliest date on a European imprint, August 14, 1457, on the great *Psalterium Moguntinum* in three colors, names only the Mainz citizen Johannes Fust and Peter Schöffer of Gernsheim as responsible for the production (see Figure 1). The *Psalterium Benedictinum*, printed with the same type, appeared on August 29, 1459; and the 48-line (Latin) Bible, for which

* The Bibliography for this section begins on page 315.

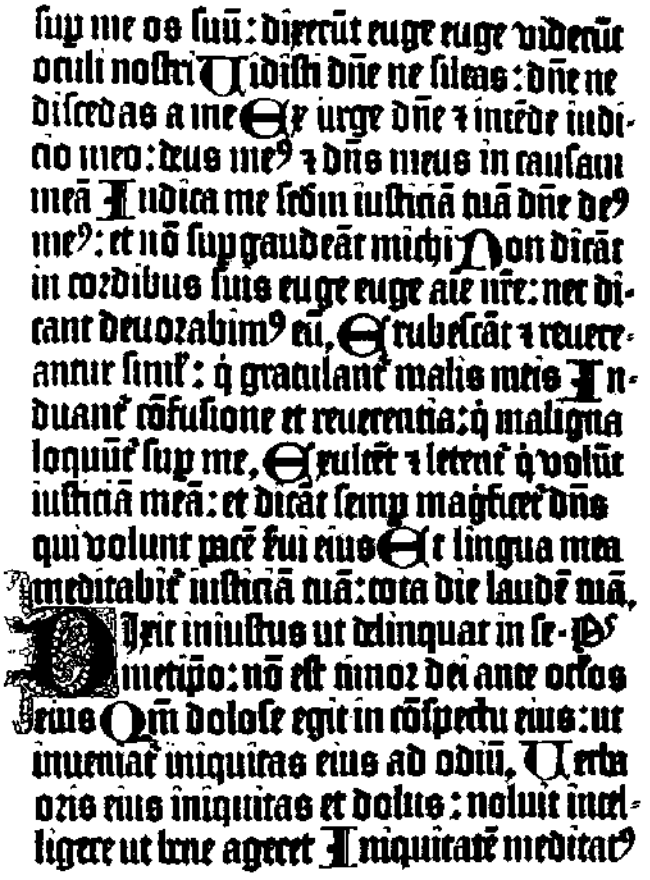
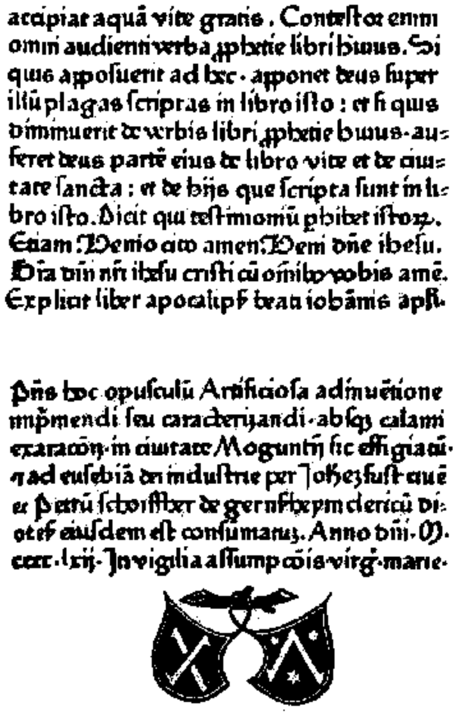


FIGURE 1. *Fust's and Schöffer's Psalter (Mainz, 1457).*



accipiat aquā vite gratis. Contestor enim
omni audienti verba ꝓphetie libri huius. Si
quis apposuerit ad hec · apponet deus super
illū plagas scriptas in libro isto : et si quis
diminuerit de verbis libri ꝓphetie huius · au-
feret deus partē eius de libro vite et de ciui-
tate sancta : et de hijs que scripta sunt in li-
bro isto. Dicit qui testimoniū phibet istoꝝ.
Etiam. Venio cito amen. Veni dñe ihesu.
Gratia dñi nři ihesu cristi cū omnibꝰ vobis amē.
Explicit liber apocalipš beati iohānis apłi.

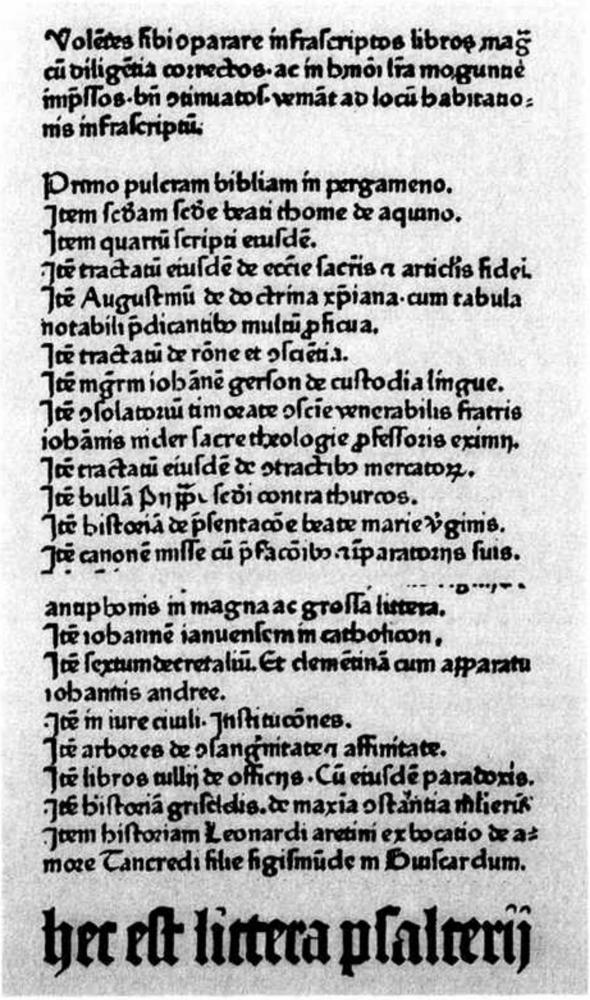
Pñs hoc opusculū Artificiosa adinuētione
impmendi seu caracterizandi · absqȝ calami
exaracōne in ciuitate Moguntī sic effigiatū ·
et ad eusebiā dei industrie per Iohez fust ciuē
et Petrū schoiffher de gernßheym clericū di-
ocef eiusdem est consumatū. Anno dñi · M ·
cccc · lxij · In vigilia assumpcōis virg · marie ·

FIGURE 2. *Last page of the 48-line Bible (Mainz 1462) with Fust's and Schöffer's printer's mark.*

the famous Fust–Schöffer printing and publishing symbol was created, appeared on August 14, 1462 (see Figure 2). A much smaller type was used for the printing of Durandus' *Rationale divinorum officiorum*. While Fust obviously handled the sale of the books (he died in 1466 on a business trip to Paris), the printing office, under the competent direction of Peter Schöffer (who managed the business by himself after 1466), produced a number of impressive works up to the end of the century: parts of the *Corpus iuris civilis* and of the *Corpus iuris canonici*, liturgical works, and some books in the vernacular with wood engravings such as the *Chronecken der Sassen* and the *Gart der Gesundheit* (see Figure 3). After 1503 Johann Schöffer, Peter's son, directed the business successfully.

After Gutenberg was forced out of the business by Fust by devices that might be considered questionable, he had not the slightest interest in seeing Fust establish a monopoly in the printing business and thus be the sole beneficiary of the fruits of the revolutionary invention. In the period 1456–1458 Gutenberg apparently continued to work with his Urtype ("earliest fonts"), and, if the evidence is not deceptive, operated a second printing house after about 1459. It was financed by Dr. Konrad Humery and produced the famous *Catholicon* in 1460. After 1467 the brothers Heinrich and Nicolaus Bechtermünze in Eltville, Rheingau, used the "Catholicon type," which they probably acquired directly or indirectly from Gutenberg. Later they printed the third edition of the *Vocabularius ex quo* with a type very closely related to that of the 31-line indulgence of 1454/55, the oldest positively dated printed work, probably from Gutenberg's earliest press.

Outside of Peter Schöffer we know the names of only two of Gutenberg's other


Volētes sibi oparare infrascriptos libros mag̃ cū diligētia correctos. ac in h̄moi l'ra moguntiñ impssos. bñ ōtinuatos. veniāt ad locū habitato: nis infrascriptū.

Primo pulcram bibliam in pergameno.
Item scd̄am scd̄e beati thome de aquino.
Item quartū scripti eiusdē.
Itē tractatū eiusdē de ecc̄ie sacris ꝛ articlis fidei.
Itē Augustinū de doctrina xp̄iana. cum tabula notabili p̄dicantibꝫ multū p̄ficua.
Itē tractatū de rōne et ōsciētia.
Itē mg̃rm iohānē gerson de custodia lingue.
Itē ōsolatoriū timorate ōscie venerabilis fratris iohānis nider sacre theologie p̄fessoris eximij.
Itē tractatū eiusdē de ōtractibꝫ mercatorꝫ.
Itē bullā Pij pp̄. scd̄i contra thurcos.
Itē historiā de p̄sentacōe beate marie v̄ginis.
Itē canonē misse cū p̄facōibꝫ ꝛ p̄paratorijs suis.
...
anupbomis in magna ac grossa littera.
Itē iohannē ianuensem in catholicon.
Itē sextum decretaliū. Et clemētinā cum apparatu iohannis andree.
Itē in iure ciuili. Institucōnes.
Itē arbores de ōsanguinitate ꝛ affinitate.
Itē libros tullij de officijs. Cū eiusdē paradoxis.
Itē historiā griseldis. de maxia ōstāntia mulierū.
Item historiam Leonardi aretini ex bocatio de a: more Tancredi filie sigismūde in Guiscardum.

hec est littera psalterij

FIGURE 3. *Peter Schöffer's first publisher's list of 1470 includes 21 titles, headed by the 42-line Bible (item 1); and also including the* Catholicon *of 1460 (item 14), the* Canon Missae *of 1458 (item 12), three works by St. Thomas Aquinas (items 2, 3, and 4), two by St. Augustine (items 5 and 11), Justinian's* Institutiones *(item 17), Cicero's* De officiis *(item 19), Petrarch's* Griseldis *(item 20), and Leonardo Aretino's* Tancred *(item 21).*

journeymen, Heinrich Keffer of Mainz and "Bechtolff of Hanauwe," who has been correctly identified with the first Basel printer Berthold Ruppel. On November 6, 1455, Gutenberg sent them to the Discalced Monastery in Mainz so that they, as eye witnesses, could report on the sworn statement of Fust that was to be so fateful for him. They were loyal to their master and were later successful as disciples of the black art.

Actually Heinrich Keffer's name first appears at the beginning of the 1470s in a work printed in Nuremberg, where he set up the first printing house together with Johann Sensenschmidt (likewise an employee of Gutenberg?). It is highly probable that Keffer can be associated with the printing of the most extensive work of the earliest period, the 36-line Bible. The type of the latter is a somewhat improved form of the "Donatus Calendar type" with which the earliest small Mainz imprints were produced. It may be assumed that around 1458 Gutenberg ran into financial problems, sold the type in Bamberg, and that the prince-bishop of Bam-

berg, Georg I von Schaumberg, put up printing costs, while Heinrich Keffer, probably with the collaboration of other former pupils of Gutenberg, produced the work. The type, already worn, was acquired by Albrecht Pfister, secretary of the prince-bishop, and he produced with it nine books in German (among them the famous *Ackermann aus Böhmen* in two editions; Ulrich Boner's *Edelstein* [see Figure 4], also in two editions; and German and Latin editions of the *Biblia pauperum*). Most of these books are decorated with wood engravings, and Pfister enjoys the fame of being the first printer to produce illustrated books. It was not until 15 years after Pfister's shop ceased in 1464 that Johannes Sensenschmidt, the first printer of Nuremberg, continued the printing history of Bamberg and brought carefully produced liturgical works on the market. From the "cupboard printeries" (*Winkeldruckereien*) of Marx Ayrer, Hans Bernecker, and, particularly, Hans Sporer, we have quite small German-language imprints of a popular character.

STRASSBURG

Johannes Mentel(in), originally a *Goldschreiber* and notary, is the first printer of Strassburg (after 1458). Apparently the first Strassburg shop was established with

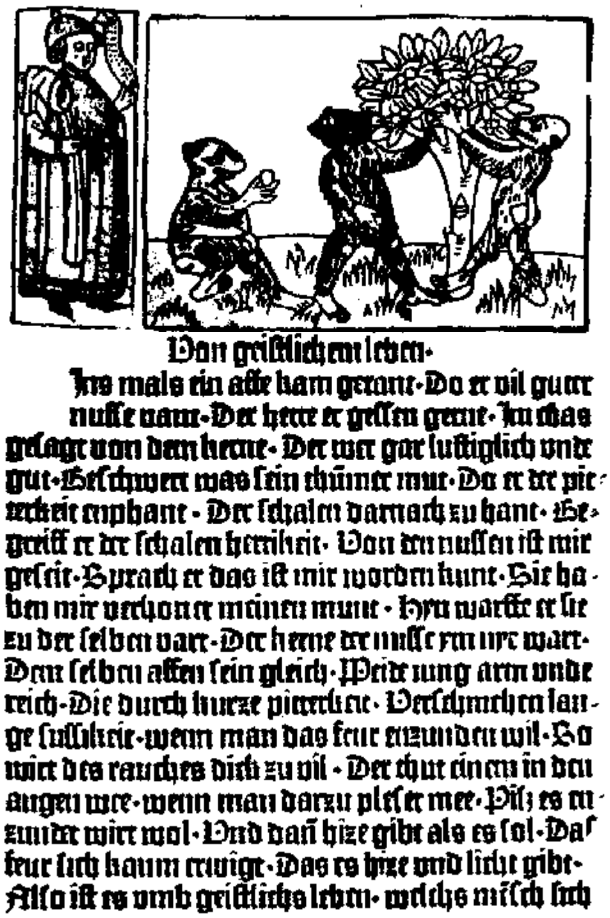

Von geistlichem leben·
Ins mals ein affe kam gerant·Do er vil guter
nusse vant·Der hette er gessen gerne·Im was
gesagt von dem kerne·Der wer gar lustiglich unde
gut·Beschwert was sein thumer mut·Do er der pit-
terkeit emphant·Der schalen darnach zu hant·Be-
greiff er der schalen hertikeit·Von den nussen ist mir
geseit·Sprach er das ist mir worden kunt·Sie ha-
ben mir verhonet meinen munt·Hyn warffe er sie
zu der selben vart·Der kerne der nusse im nye wart·
Dem selben affen sein gleich·Peide iung arm unde
reich·Die durch kurze pitterkeit·Verschmehen lan-
ge sussikeit·wenn man das feur enzunden wil·So
wirt des rauches dick zu vil·Der thut einem in den
augen wee·wenn man darzu plaset mee·Piss es en-
zundet wirt wol·Und dann hize gibt als es sol·Das
feur sich kaum erzeigt·Das es hize und licht gibt·
Also ist es umb geistlichs leben·welchs mensch sich

FIGURE 4. *Boner*, Edelstein (*Bamberg, 1461*).

the financial support of the prince-bishop, Ruppert (from the Palatine Wittelsbach family), and was operated jointly by Mentel(in) and Heinrich Eggestein. It is highly probable that the latter learned printing in the shop of the inventor (and apparently also worked on the *Türkenkalender*). The first Strassburg imprint is a Latin Bible (called the 49-line Bible). The copy in the library of the University of Freiburg im Breisgau was rubricated in 1460 and 1461. Mentel(in)'s name appears for the first time in Augustine's *De arte predicandi* (GW 1465). He used hardly any decorative features (even on printed initials); and he specialized in theological and philosophical works which, supervised by scholarly editors, are distinguished by superior textual quality. The only exceptions are Vergil's *Opera*, Terence's *Comoediae*, and some noteworthy books in German such as the first Bible in German (1466), Wolfram von Eschenbach's *Parzifal*, and the *Jüngere Titurel*. Mentel(in) died on December 12, 1478. His two daughters married printers, Adolf Rusch and Martin Schott.

Heinrich Eggestein, a "magister artium liberalium," operated his own shop after 1464. He, too, rarely used wood engravings for decoration, since his field included Latin Bibles, and, particularly, single parts of the civil and canon law and classical works. Neither did he produce many works in German, except the second German Bible, Lucian's *Golden Ass*, and the *Ackermann aus Böhmen*. His *Historia ecclesiastica gentis Anglorum* (ca. 1475–1478) of the Venerable Bede points to connections with England. Eggestein began to print lists of his books about the same time as Peter Schöffer and Mentel(in) for salesmen to use in the cities they visited and to attract customers. Adolf Rusch, Mentel(in)'s son-in-law and business associate, never used his name in an imprint and is known as the "R-printer." His specialty was classical and humanistic literature, notably Avicenna's *Canon*

FIGURE 5. *Memorial of Johann Mentel(in), died 12/12/1478.*

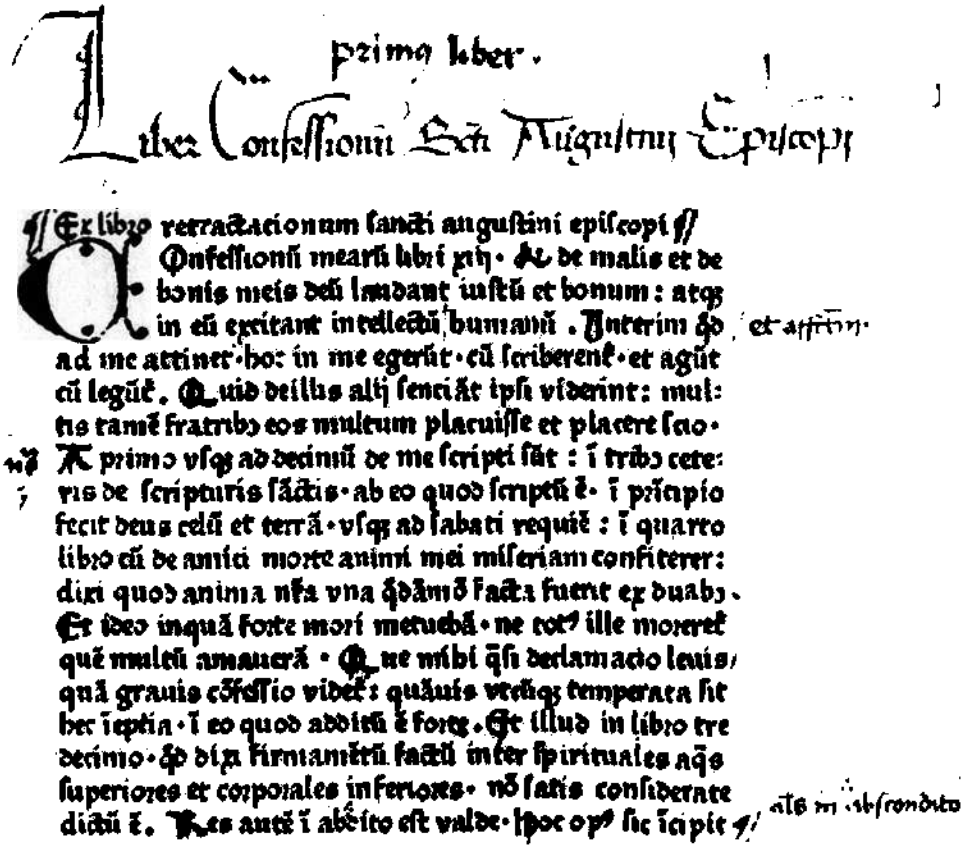
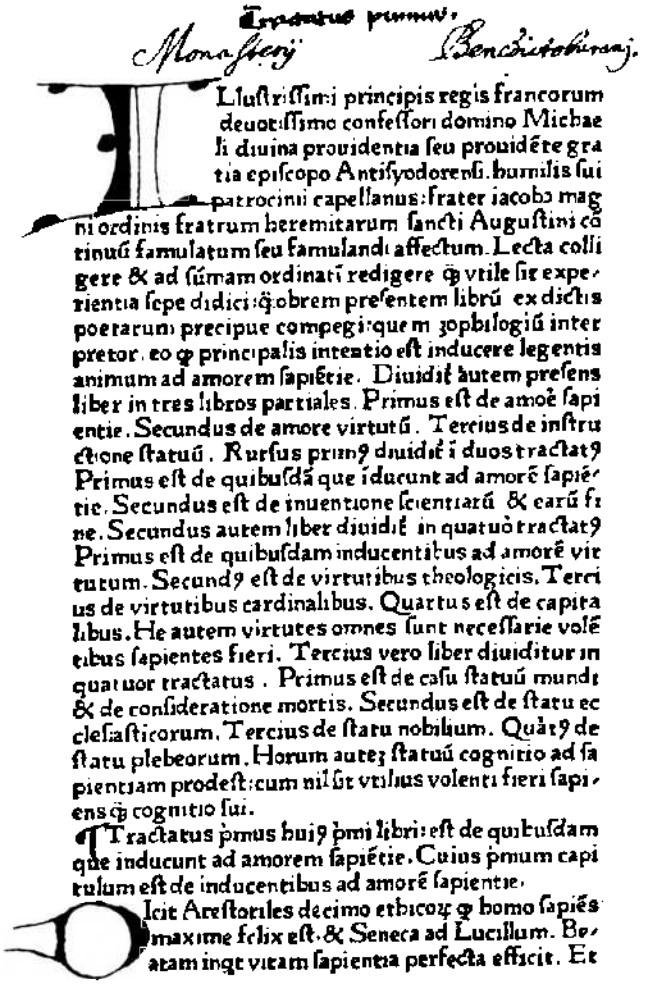


FIGURE 6. *St. Augustine*, Liber confessionum *(Johann Mentel(in), Strassburg, ca. 1470).*

de medicina (before 1475) and two large editions of Vincentius Bellovacensis, the *Speculum naturale* and the *Speculum doctrinale*. Mentel(in) printed the latter's *Speculum historiale* and *Speculum morale*.

With some 28 active presses in the 15th century, Strassburg ranked with Cologne, Basel, Nuremberg, and Augsburg in the first line of printing centers in the German-language area. Strassburg had a singularly large number of presses whose proprietors are unknown ("Printer of the Entchrist," "Printer of the Vitas Patrum," "Printer of the Barbatia" et al.), or whose identities are established in varying degrees of certainty from certain indicators ("Printer of Henricus Ariminensis" = Georg Reyser, "Printer of the Jordanus of Quedlinburg" = Georg Husner, etc.). On the other hand, the registers of Strassburg citizens reveal the names of numerous printers that appear in no imprint but some of whom were surely independent printers.

Martin Schott, Mentel(in)'s second son-in-law, produced numerous Latin works and also about a dozen books in German illustrated with wood engravings. His son, Johann Schott, continued the old press after 1499 and died in 1548 at the latest. In 1536 he printed a rhymed chronicle which may be his own composition. In it he honors his grandfather Johannes Mentel(in) as the inventor of printing, a counter-piece to the argument of Johann Schöffer that the honor belonged to his grand-



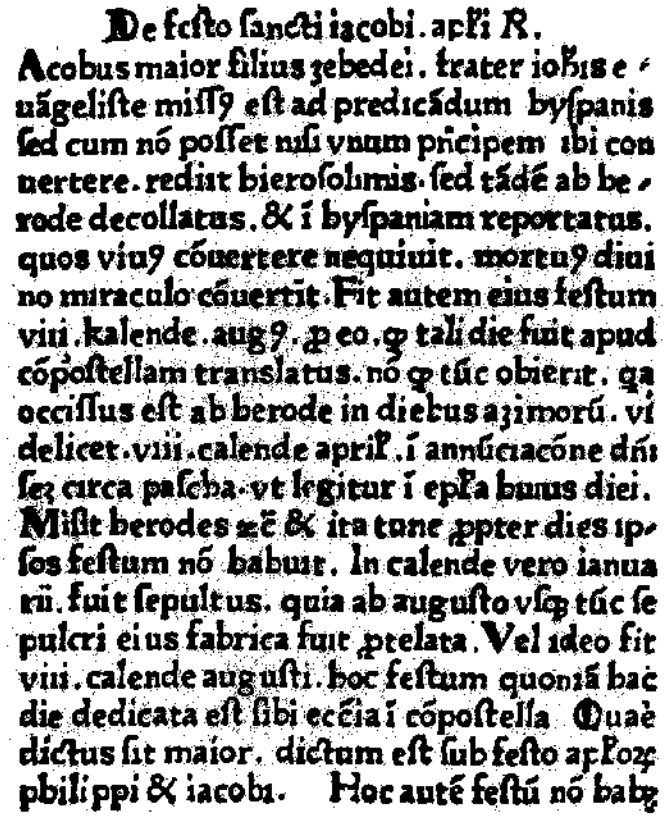
Illustrissimi principis regis francorum deuotissimo confessori domino Michaeli diuina prouidentia seu prouidēte gratia episcopo Antisyodorensi. humilis sui patrocinii capellanus: frater iacobꝰ magni ordinis fratrum heremitarum sancti Augustini cōtinuū famulatum seu famulandi affectum. Lecta colligere & ad sūmam ordinatī redigere q̄ vtile sit experientia sepe didici: q̄obrem presentem librū ex dictis poetarum precipue compegi: quem ʒophilogiū inter pretor. eo q̄ principalis intentio est inducere legentis animum ad amorem sapiētie. Diuidit autem presens liber in tres libros partiales. Primus est de amoē sapientie. Secundus de amore virtutū. Tercius de instructione statuū. Rursus primꝰ diuidit i duos tractatꝰ Primus est de quibusdā que inducunt ad amorē sapiētie. Secundus est de inuentione scientiarū & earū fine. Secundus autem liber diuidit in quatuò tractatꝰ Primus est de quibusdam inducentibus ad amorē virtutum. Secundꝰ est de virtutibus theologicis. Tercius de virtutibus cardinalibus. Quartus est de capitalibus. He autem virtutes omnes sunt necessarie volētibus sapientes fieri. Tercius vero liber diuiditur in quatuor tractatus. Primus est de casu statuū mundi & de consideratione mortis. Secundus est de statu ecclesiasticorum. Tercius de statu nobilium. Quārtꝰ de statu plebeorum. Horum autē statuū cognitio ad sapientiam prodest: cum nil sit vtilius volenti fieri sapiens q̄ cognitio sui.

¶ Tractatus p̄mus huiꝰ p̄mi libri: est de quibusdam q̄ inducunt ad amorem sapiētie. Cuius p̄mum capitulum est de inducentibus ad amorē sapientie.

Scit Aristoteles decimo ethicoꝝ q̄ homo sapiēs maxime felix est. & Seneca ad Lucillum. Beatam inqt vitam sapientia perfecta efficit. Et

FIGURE 7. *Jacobus Magnus*, Sophologium *(Rusch, Strassburg, ca. 1470).*

father Johannes Fust. Books illustrated with woodcuts that are in high esteem today come from the presses of Johannes Prüss the Elder (succeeded in 1510 by his son J. Prüss the Younger); Heinrich Knoblochtzer (later in Heidelberg); Matthias Hupfuff (1498 to 1516); and above all Johannes Grüninger (1482 to about 1530). Grüninger printed theological, legal, and liturgical books (the woodcuts of his *Missale speciale* of 1493, reprinted 1498, come from Albrecht Dürer); the ninth German Bible; Terence's *Comoediae*; Horace's *Opera*; a German *Hortus sanitatis*; the *Destillierbuch* of Hieronymus von Braunschweig; and many other significant works. The new style of wood engraving was fully developed in the Terence of 1496. Borrowing from the copper engravings of Martin Schongauer with their heavy use of wavy parallel lines, the artist created a distinctive pictorial effect which rendered superfluous the generally customary practice of coloring wood engravings. Between 1487 and 1500 Martin Flach the Elder produced some hundred titles. The business was continued by Johann Knobloch, the second husband of his wife. The shops of Jacob Ebner, Johannes von Nördlingen (Johannes Muscatblut), Thomas



De festo sancti iacobi. apli R.

Acobus maior filius zebedei. frater iohis e- uãgeliste missꝰ est ad predicãdum hyspanis sed cum nõ posset nisi vnum pricipem ibi con uertere. rediit hierosolimis. sed tãdẽ ab he- rode decollatus. & i hyspaniam reportatus. quos viuꝰ cõuertere nequiuit. mortuꝰ diui no miraculo cõuertit. Fit autem eius festum viii. kalende. augꝰ. p eo. q tali die fuit apud cõpostellam translatus. nõ q tũc obierit. qa occisus est ab herode in diebus azimorũ. vi delicet. viii. calende apriꝳ. i annũciacõne dñi sez circa pascha. vt legitur i epla huius diei. Misit herodes zc̃ & ita tunc ꝓpter dies ip- sos festum nõ habuit. In calende vero ianua rii. fuit sepultus. quia ab augusto vsq tũc se pulcri eius fabrica fuit ꝓtelata. Vel ideo fit viii. calende augusti. hoc festum quoniã hac die dedicata est sibi eccia i cõpostella Quae dictus sit maior. dictum est sub festo apꝳoz ꝓbilippi & iacobi. Hoc autẽ festũ nõ habꝫ

FIGURE 8. *Duranti*, Rationale *(Rusch, the "R"-printer, Strassburg, 1470).*

Anshelm (later in Pforzheim, Tübingen, and Hagenau), Bartholomäus Kistler, Friedrich Ruch, Wilhelm Schaffner, and Matthias Brant were rather modest.

The anonymous "Printer of the Lotharius" may have worked around 1470 in Hagenau, north of Strassburg. Heinrich Gran, active in Hagenau after 1489, printed theological books, academic treatises, and, particularly, homiletic works (after 1497 for the publisher Johann Rynman von Öhringen). In 1515 his proofreader Wolfgang Angst printed the first edition of the *Epistolae obscurorum virorum* with type from Gran's shop.

Marcus Reinhard, a brother of the important Strassburg incunabula printer Johannes Grüninger, printed some didactic books illustrated with woodcuts in Kirchheim around 1490. Today they are much sought after. The place of printing is designated as "clein Troya" or "Neu Troyga," since Kirchheim was supposed to have been as strongly fortified as Homeric Troy in the early Middle Ages. It was probably in 1497 that Mathis Hupfuff (later in Strassburg) printed two popular books in Kirchheim.

COLOGNE

The prototypographer of Cologne, Ulrich Zell of Hanau, probably a journeyman in the Fust–Schöffer shop, has become significant for the earliest history of printing

as a result of his providing the author of the *Kölner Chronik* (1499) with a report of the invention of printing, obscure in many details. Zell, who matriculated in the Faculty of Arts at Cologne on June 17, 1464, and set up his shop in the same year, was a determinative factor in the characteristics of early printing in Cologne. He produced numerous works, mainly in Latin, and most of them theological. The quarto format is unusually frequent. Woodcuts are relatively infrequent; and metal engravings, unusual in other German-speaking territories, are typical of Cologne imprints.

Just as in Strassburg, a good many Cologne printing houses are known only under an eponymous designation, and the person who commissioned the work rather than the printer appears in the imprint. Hence, the exact number of Cologne printing shops existing before 1501 is not known, but we estimate about 30. Arnold Therhoernen (identical with Arnold Horn, a cleric from the diocese of Utrecht?), a disciple of Zell, printed after 1470, and his best-known products are the works of the Carthusian Werner Rolewink, whose *Fasciculus temporum* was a best seller of the time. Johannes Koelhoff the Elder, of Lübeck, probably learned how to print from Wendelinus de Spira at Venice, to judge from his earliest types. His son, Johannes Koelhoff the Younger, conducted his father's business after 1493, and he published the *Cronica van der hilliger Stat van Coellen* on August 23, 1499. Heinrich Quentell of Strassburg produced some 400 separate works between 1479 and 1500. His most important imprint is the illustrated Cologne Bible (in west Low German and Low Saxon editions) with more than a hundred woodcuts, although it is now again being attributed to Bartholomäus von Unckel (just as it was several decades ago). Johannes Schilling (Solidi) of Winternheim belongs to the not inconsiderable group of incunabula printers who met financial disaster, and as early as 1475 he had to flee to Basel, then to France, on account of unpaid debts. Konrads Winters, one of Zell's workmen, was probably an independent entrepreneur in 1472, and his editions of the Cologne and Utrecht missals are worthy of notice. Ludwig von Renchen and Hermann Bungart deserve mention for their liturgical books. The products of Johannes von Landen and of Cornelius van Zyrickzee belong mainly to the 16th century. Nicolaus Götz, originally a goldsmith, then a law student (legum doctor in 1483), introduced numeration by pages instead of leaves.

From the summer of 1471 until the end of 1472 William Caxton learned printing in Cologne. His teacher was the "Printer of the Flores s. Augustini," whose identification with Johannes Schilling has not yet received general acceptance. In general there was relatively little printing in northwest Germany in the 15th century. In 1477 the imperial mintmaster Erwin von Stege at Castle Fautsberg near Bingen commissioned the printing of a derogatory tract against the Cologne city council (an early example of the use of printing for political purposes) with the type of Nicolaus Götz. In Trier the Carmelite Johannes Colini and one Gerardus de Nova Civitate (both active also in Metz in 1482) were probably the printers of two small works in 1481. Johann Limburg of Aachen had little success in Münster/Westfalen. Between 1485 and ca. 1489 he printed some small pieces and a breviary for the diocese of Münster.

BASEL

The earliest printing in Basel is intimately associated with that of Mainz, for the Basel prototypographer Berthold Ruppel is generally assumed to be identical with the Bertold von Hanauwe of the Helmasperger Notarial Instrument. Among Ruppel's earliest imprints is a Latin Bible (GW 4207—Vulgate editions were also the earliest imprints in Mainz, Bamberg, and Strassburg) and the *Moralia in Job* of Pope Gregory I, probably to be dated 1467. Ruppel produced theological works and canon law in particular until about 1480. In 1477 he printed, together with Michael Wenssler and Bernhard Richel, the enormous commentary on the Decretals by Nicolaus Panormitanus, but it was a failure financially. The Strassburger Wenssler and Friedrich Biel appended to the end of the *Epistulae* of Barzizius (ca. 1472) a poem in which it was maintained boldly but without proof that, while printing was indeed invented in Mainz, Basel rescued the art from degradation ("mud"—"e limo"). However, Wenssler, a competent printer, was accused of keeping a sloppy house ("liederlich huss"). In May 1491 he fled from Basel, abandoning his family in poverty; worked as a printer in Cluny, Macon, and Lyon; and in March 1499 attempted to return to Basel with assurance of safe conduct. Among printers of the usual Latin books were Martin Flach (not identical with the Strassburg printer of the same name); Johannes Schilling (see account of printing in Cologne, supra); Peter Kollicker; Johann Koch (called Meister), to whom Allan H. Stevenson ascribed the *Missale speciale Constantiense*, long thought to be a Gutenberg imprint; and Nicolaus Kessler (from Bottwar in Württemberg), who also printed theological works and canon law as well as humanistic books such as the *Facetiae* of Poggio Florentinus, the *Epistolae* of Franciscus Philelphus, and the *Cosmographia* of Laurentius Corvinus.

The great reputation of Basel printing in the 15th and early 16th centuries was established by Johann Amerbach of Amorbach in Lower Franconia, "a magister artium liberalium" of Paris. In his teacher from Paris, Johannes a Lapide (Johannes Heynlin of Stein, who lived in the Basel Carthusian monastery after 1484), and in Johannes Reuchlin, Sebastian Brant, and Beatus Rhenanus, he had the best scholarly advisers and proofreaders. Amerbach, frequently called Hans Venediger or Hans von Venedig on account of an early sojourn in Venice, was not only a highly gifted and well-informed man but also a masterful printer, bold publisher, and skillful businessman. His press was in the service of the humanistic tradition especially with the printing of Latin Bibles and the works of Church fathers such as Augustine and Ambrose, as well as of those of such humanists as Petrarch, Eneas Silvius, Baptista Mantuanus, Marsilius Ficinus, and others. His most important contemporary business colleague, Johannes Froben from Hammelburg in Lower Franconia, was active as an independent printer after 1491. He began his publishing career with an octavo Latin Bible and thus continued successfully the lines of development started by Amerbach; and up to his death in October 1527 he was one of the most important master printers in the old German-language area, above all as the printer of Erasmus of Rotterdam. His partner was Johannes Petri from Langendorf near Hammelburg, founder of the important printing family of

Henricpetri. He should not be confused with the Mainzer J. Petri who was active in Florence.

Illustration with woodcuts did not play the same role in Basel printing of the 15th century that it did in Strassburg and Augsburg, but there were considerable achievements, for example, in some of B. Richel's imprints (*Spiegel menschlicher Behaltnis*, 1476; *Melusine* and Balther's *Leben des hl. Fridolin* of 1480; and Johannes de Monteville's *Reisebuch*, ca. 1481). Woodcuts were not significant in the Amerbach imprints, but they were more numerous in the books printed by Lienhart Ysenhut and, especially, those of Michael Furter with the *Meinrads-Legende*, *St. Brandans wunderbare Meerfahrt* of 1491, and the *Ritter von Turn* of 1493 with 46 woodcuts ascribed to Dürer. The publisher of the *Ritter von Turn* was Johannes Bergmann from Olpe in the Sauerland, chaplain of the Basel cathedral after 1482, minister and rector at Sewen in Alsatia from 1483 to 1524. He had intimate connections with Reuchlin, J. Locher, Jakob Wimpheling, and especially Sebastian Brant, and printed some of their works in bibliophilic style (was an active printer between 1494 and 1499). Brant's *Narrenschiff* first appeared on February 11, 1494, was reprinted in 1495 and 1499, and was issued in Locher's Latin translation in 1499. Bergmann also printed Verardus' *Historia Baetica* with the Columbus letter and had the admiral's letter printed separately by M. Furter.

On November 10, 1470, an edition of J. Marchesinus' *Mammotrectus* appeared in Beromünster in Canton Luzern. The Augustinian Helyas Helyae named in the imprint only commissioned the work, and today it is assumed that Ulrich Gering was responsible for the few books printed in Beromünster. In 1475/76 an unknown printer issued six didactic works in Burgdorf in Canton Bern. Sigmund Rot, called Langschnitter, printed a few slight pieces in the Dominican monastery of Zürich between 1479 and 1482. On January 14, 1500, an unidentified printer in Sursee, Canton Luzern, produced Niclas Schradin's *Chronik des Krieges*, a rhyming chronicle of the war waged by Maximilian and the Schwäbischer Bund against the Swiss Confederation. The missals and breviaries needed for the widespread diocese of Constance were printed in Basel for the most part. However, it is highly probable that a printing shop was operating in Constance itself around 1470, and from it came a Constance breviary and gradual. The "Printer of the Remigius" was possibly also located in Constance.

AUGSBURG AND OTHER SOUTH GERMAN CITIES

The bishop-cardinal of Augsburg, Peter von Schaumberg, promoted the establishment of a printing house in his city. In the first great Augsburg imprint, Johannes Balbus' *Catholicon* of April 30, 1469, there is an encomium to the cardinal: "qui libro preludia dedit." The printer, Günther Zainer of Reutlingen, learned his craft from Mentel(in) in Strassburg and produced his first work in Augsburg on March 12, 1468. Although there was a quarrel between the Augsburg printers, on the one hand, and the punch cutters and painters of letters and cards (who saw a threat to their business life), on the other—which was resolved by the local abbot, Melchior von Stamhaim, who persuaded the printers to forego printed initials and

illustrations—Augsburg nevertheless became the most important center for printing wood engravings in all the German-speaking lands. Zainer began the tradition with his *Heiligenleben*, completed on October 25, 1471, and April 27, 1472. He also produced the first or second Bible in German that was illustrated with woodcuts (the third or fourth one in that language; 2nd edition, 1477). Jodocus Pflanzmann printed at about the same time as Zainer (1475/76) the third or fourth edition of the German Bible. Anton Sorg (editions of 1477 and 1480) and Johann Schönsperger (editions of 1487 and 1490) followed him. Zainer's work, with his alphabet of initials engraved in wood was exemplary, especially the famous "Mayflower alphabet." Johann Schüssler produced important works after 1470 such as Flavius Josephus' *Opera*, Cassiodorus' *Historia tripartita*, Paulus Orosius' *Historiae adversus paganos*, Ambrose's *Hexameron*, and others. He sold his five presses to the imperial monastery of St. Ulrich and Afra, whose abbot, Melchior von Stamhaim, set up a complete printing shop at a cost of 702 gulden. In the years 1472–1474 he had several scholarly works printed, such as Vincentius Bellovacensis' *Speculum historiale* and Burchard von Ursperg's *Historia Friderici Imperatoris* (the first edition of a chronicle from the high Middle Ages). The initials of a St. Gall manuscript served as a model for the decorated conture-initials.

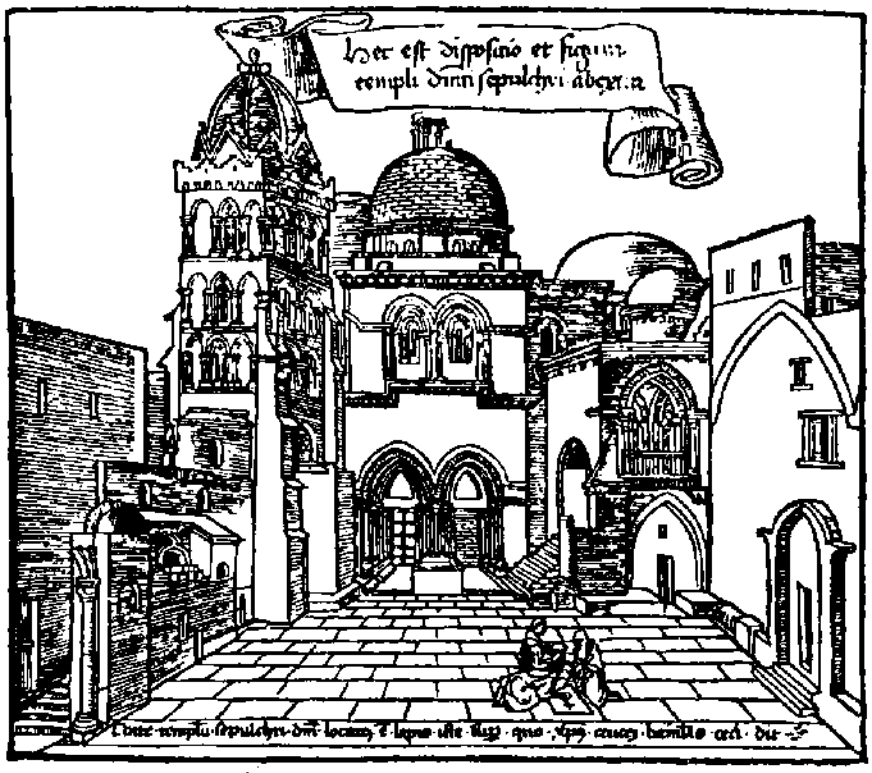
Johann Bämler, originally a copyist, later a rubricator, printed a *Chronik von allen Kaisern, Königen und Päpsten* with a text composed by himself in part, three editions of the *Heiligenleben*, two *Plenaria*, and Konrad von Megenberg's *Buch der Natur*, inter alia. Far more German-language books were produced by the former letter and card painter Anton Sorg, who produced some 180 works between 1475 and 1493, some in special editions, for example, *Spiegel menschlicher Behaltnis* (twice), *Histori vom grossen Alexander* (twice), *Heiligenleben* (three times), *Plenarium* (four times), Ortolff's *Arzneibuch*, the *Schwabenspiegel*, the *Buch Seusse*, Konrad von Megenberg's *Buch der Natur*, Bernhard von Breydenbach's *Heilige Reisen*, and Ulrich Richental's *Geschichte des Konzils von Konstanz* with over 1,110 woodcuts including many armorial devices. Quantitatively, even though not in the quality of production, Sorg's output was exceeded by that of Johann Schönsperger the Elder, the most typical example of the ruthless reprinter. However reprehensible his business methods may have been, Schönsperger's publishing program best illustrates what was demanded by readers, and many scarce texts were also handed down under his imprint. He caused considerable damage to the Nuremberg publishers of the first editions of Hartmann Schedel's *Weltchronik* by his cheap reprint. In 1508 he was appointed printer to Emperor Maximilian, and even though his ambitious plan remained a torso, Schönsperger created two of the most beautiful works of the 16th century with the *Gebetbuch des Kaisers Maximilian* (1513) and the *Theuerdank* (1517; reprint, 1519).

In 1486 the Augsburger Erhart Ratdolt returned to his native city after a decade of outstanding achievements in Venice, and with his press he brought new life to printing in Augsburg. He produced strictly scholarly works such as those of Regiomontanus, Albumasar, Hyginus, Johannes Angeli's *Astrolabium planum*, and Johannes Thurocz' *Chronica Hungarorum*; and he specialized more and more on

Yn ſolicher maß rytten die Turcken zů frydſammer zyt wanſie ettwas triumph oder ſüſt freud vnd luſt wollen gebruchen vnd haben Aber zů kriegs zyten bruchen ſie gar by ſollich gewandt doch etlich ander gewere.

FIGURE 9. *Bernhard von Breydenbach,* Peregrinationes in terram sanctam, *German edition (Peter Schöffer, Mainz, 1486) with wood engravings by Erhard Reuwich.*

printing breviaries, mass books, obsequialia, and other liturgical works for numerous dioceses. His specimen sheet of 1486 with round gothic type in ten sizes, roman in three, and one Greek type is unique for the time. He used his famous Venetian woodcut initials (white on black—"Litterae florentes") in Augsburg and added to them. We may only give the names of other Augsburg printers, even though some of them produced some books which are important for cultural history: Johannes Wiener, Ludwig Hohenwang, Johannes Blaubirer, Johann Keller, Ambrosius Keller, Hermann Kaestlin, Peter Berger, Christoph Schnaitter, Lucas Zeissenmair (who also printed the German translation of a work of Savonarola), and Johannes Froschauer. In 1491 Johann Schaur, the first printer in Munich (the German edition of the *Mirabilia Romae* in 1482) moved to Augsburg. Johann Schobser, who had printed some 30 titles, largely in German, in Augsburg between 1485 and 1498, moved to Munich in 1499 and earned his niche in history as the first important printer of that city.



¶ De ingressu in templum dñici sepulcri et processione ibidem facta ad loca sacra.

Die .xi. Julii hora vesperarum in ipsum venerandũ dñici sepulcri templũ a paganis id est rectoribus ipius ciuitatis sancte Jerosolime fuimus admissi et numerati ostijs per eos apertis. pro qua re vnusquisque nostrũ quinque exsoluit ducatos nec vnq̃ alias hoc aperitur templũ ab eis nisi vel propter aduenientes peregrinos vel fratres mutandos qui ibi pro custodia deputãtur. Moxque nobis intromissis templũ clauserũt. Intrauerũt autẽ nobiscũ Gardianus ipse et plures suorum cõfratrũ. Quiprimũ autẽ deuotus quisque xpianus vel peregrinus in templũ hoc pedem posuerit. plenariã cõsequitur remissionem.

¶ Est autẽ hec dispositio templi eiusdem sacratissimi. Ecclesia ipa rotũda est et habet p diametrũ inter columnas septuaginta tres pedes. absidesque que habent p circuitũ a muro exteriori ecclesie decẽ pedes super sepulcrũ dñi. quod in mediũ eiusdem ecclesie est apertura rotunda ita vt tota cripta sancti sepulcri sit sub diuo. Galgathana autẽ ecclesia adheret isti et est oblonga loco chori ecclesie sancti sepulcri adiũcta sed paulũ demissior. sunt tamẽ ambe sub vno tecto. Spelunca in qua est sepulcrũ dñi habet in lõgitudine octo pedes in latitudine similiter octo vndique tecta marmore exterius. sed interius est rupes vna sicut fuit tpe sepulture

FIGURE 10. *Bernhard von Breydenbach,* Peregrinationes in terram sanctam, *Latin edition (Peter Schöffer, Mainz, 1486), with wood engravings by Erhard Reuwich.*

Johann Zainer, undoubtedly a brother of Günther Zainer, began to print in Ulm in 1472. (See Figure 11.) His association with Heinrich Steinhöwel, a native of Ulm, lent a pronounced humanistic color to his list (Petrarch's *Griseldis,* Boccaccio's *De claris mulieribus* translated by Steinhöwel, and the famous Latin–German edition of Aesop around 1476). Although Zainer was quite active and decorated his work with tasteful initials (in partial imitation of romanesque models), borders, and woodcuts, he was compelled to leave Ulm on account of his unpaid debts. Lien-

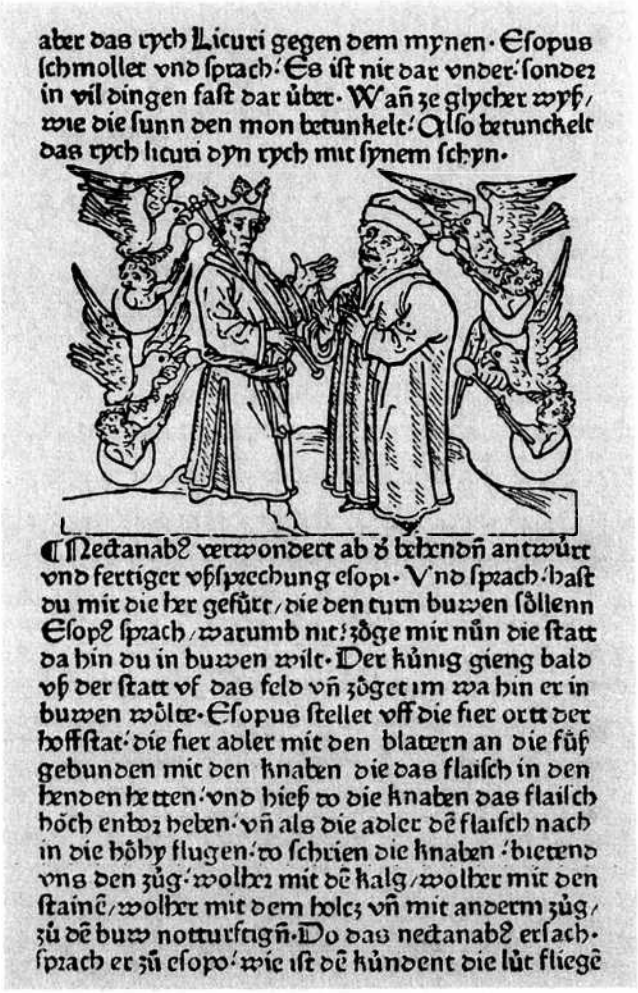


FIGURE 11. *Heinrich Steinhöwel's translation of Aesop's* Fables *(Johann Zainer, Ulm, 1476–1477).*

hart Holl—who completed Claudius Ptolomaeus' *Cosmographia* on February 16, 1482, with 32 double-paged maps engraved in wood, and also printed the Golden Bull of Emperor Charles IV—had to leave town for the same reason. In 1486 Johannes Reger produced a new edition of the Ptolemy. The books of the other Ulm printers were somewhat less striking.

Albrecht Kunne, previously in Trient, began to print in the imperial city of Memmingen in 1480 and produced some 130 titles, most of them fairly short, some of them interesting on account of the medical subject matter. Konrad Fyner began his printing career in the imperial city of Esslingen in 1472 and had close relations with Heinrich Eggestein in Strassburg. Eleven works previously ascribed to Fyner are now considered to be the work of Eggestein. After 1478/79 Fyner was in Urach and printed there theological works and books in German illustrated with woodcuts. The printer who was working in Stuttgart in 1486 used equipment from Fyner's shop.

Beginning in 1476 Michael Greyff developed a substantial business in the imperial city of Reutlingen, including the printing of a *Spiegel menschlicher Behaltnis*

with 260 woodcuts. His son, Sebastian Gryphius, was one of the most important printers in Lyon in the 16th century. After 1482 Greyff had a competitor in Reutlingen, Johann Otmar, a "magister artium liberalium." In 1497 Otmar moved to Tübingen, where he printed particularly the work of professors there, among them Gabriel Biel and Johannes von Staupitz. Between 1475 and 1478 the bookbinder and printer Konrad Mancz printed in Blaubeuren, among other titles the *Ehebüchlein* of the early humanist, Albrecht von Eyb. An unidentified itinerant printer was working in the Premonstratensian monastery of Schussenried in 1478 (Terence's *Comoediae* and Aretino's *Gracchus et Poliscena*). Another itinerant printed in Lauingen in 1473, possibly in the Augustinian monastery.

Johannes Sensenschmidt, who settled in Bamberg in 1479, was called to various episcopal sees to print textually accurate missals. He completed the *Missale Ratisbonense* on March 5, 1485 (Regensburg), the *Missale Frisingense* on August 31, 1487 (at Freising), and the *Missale Augustanum* on January 10, 1489 (at Dillingen). Matthäus Roriczer, the cathedral architect in Regensburg, printed there in 1486 the *Büchlein von der Fialen Gerechtigkeit*, the earliest architectural work printed in Germany (facsimile edition, 1965), and a *Geometriebüchlein*. The rather unimportant printing shops of the university city of Ingolstadt were mostly anonymous in the beginning. The prototypographer of Ingolstadt ("Printer of the Lescherius") was probably Bartholomaeus Golsch, who had already operated a short-lived press in Rome about 1474 with Georg Sachsel. Johann Kachelofen, most probably a half brother of the important Leipzig incunabula printer Konrad Kachelofen, is probably identical with the "Printer of the Celtis" and the "Printer of the Psalter."

Benedikt Mayr appears as a printer in Passau after 1480, and after 1482 he had as partners, first, Konrad Stahel, then Johann Alakraw. The latter was working in Winterberg in Bohemia in 1484. Johann Petri, not identical with the Basel printer of the same name, printed a *Herbarius* in 1485 (second edition, 1486) and various theological and liturgical works until 1493/94. In Vienna, seat of kings and emperors, printing was unimportant in the 15th century (from 1485 to 1490 the city was in the power of the Hungarian king Matthias Corvinus!). It is debated whether the almanac for 1462, based on the meridian of Vienna, was also printed there (by Ulrich Han?). Stephan Koblinger (Koglinger), who was known to have been printing in Vicenza in 1479, completed only 11 books in Vienna from 1482 to 1486. The first important Viennese typographer was Johann Winterburger (from Winterburg near Bad Kreuznach), who developed a fairly varied production after 1492. In addition to classics he also printed for the professors at the university (Konrad Celtis, Georg Peurbach, and others) and hired himself out as a salaried printer (for Johann Hertzog and Theobald Feger in Ofen). He died in the fall of 1519.

NUREMBERG

Johannes Sensenschmidt of Eger set up the first printing shop in Nuremberg, probably about 1468/69. His backer was the local patrician Heinrich Rummel, and

his associate was first Heinrich Keffer (a disciple of Gutenberg) and later the Leipzig professor Dr. Andreas Frisner. He printed important Latin works, a *Heiligenleben* with 257 woodcuts in 1475, and about 1476/78 the fifth German Bible (the third illustrated one, with 73 pictorial initials). Although he was a competent craftsman, Sensenschmidt moved to Bamberg in 1479, where there was much less opportunity. The reason lay in the powerful competition of Anton Koberger. The latter, a baker's son who managed to wed two patrician ladies in succession and was a member of the city council, was one of the first to realize the industrial possibilities of Gutenberg's invention. He operated effectively a unified printing, publishing, and bookselling business. The report that he had a hundred employees, including trained proofreaders, binders, and illuminators, at the peak of his business is not documented but is surely worthy of belief. The main source of his wealth was probably his far-flung bookselling business. He employed many salesmen, participated in all the great fairs, and had affiliates in Venice, Milan, Florence, Como, Lyon, Paris, Strassburg, Prague, Cracow, and Ofen (Budapest). He printed some 250 volumes up to the end of the 15th century, especially the current Latin literature, also some classical and humanistic texts, and relatively few, but important German works: the ninth German Bible In 1483 with 109 woodcuts from the original blocks used for the Cologne Bibles; in 1488 a two-volume *Heiligenleben* with 259 woodcuts; in 1491 a *Schatzbehalter* with 96 full-page woodcuts from drawings by Michael Wolgemuth and Wilhelm Pleydenwurff; in 1493 Hartmann Schedel's *Weltchronik* with over 1,800 woodcuts by the same masters, the Latin edition of the *Liber chronicarum* (completed on July 12, 1493; see Figure 12) and the German *Buch der Chroniken* (completed on December 23, 1493—the 23 views of German cities are valuable because they were drawn in situ); and in 1498 the Latin and German *Apocalypse* with Dürer's monumental wood engravings. Koberger died in 1513. His heirs discontinued the publishing house in 1526 and the retail business in 1532, some time after the press itself had ceased operation.

The production of Friedrich Creussner was rich and varied, with some 140 titles between 1472 and 1500, including Tacitus' *Germania*, Albrecht von Eyb's *Ehebüchlein*, and the first German edition of the travels of Marco Polo. The great mathematician and astronomer Johannes Regiomontanus (Johannes Müller of Königsberg in Franconia) set up an observatory in Nuremberg with Berhard Walter, a shop for manufacturing astronomical operations, and a printing shop for which he outlined an ambitious publishing program for his own works and those of others. Between 1474 and 1475 nine works appeared. In 1475 he was called to Rome by Sixtus IV to revise the calendar, and he succumbed to the plague there on July 6, 1476.

Georg Stuchs, who printed in Nuremberg from 1484 to 1518, produced missals, breviaries, and other liturgical works almost exclusively after 1490 for numerous dioceses and monastic orders within and without the Germanies (including Gran, Skara, Prague, and Olomouc). The *Fialenbüchlein* composed by Hans Schmuttermayer is a counterpart to the *Büchlein von der Fialen Gerechtigkeit* of Matthäus Roriczer (Regensburg, 1486). In the period 1491–1498 Kaspar Hochfeder printed in Nuremberg, mainly Latin works and some German ones such as Bertholdus'

FIGURE 12. *Hartmann Schedel,* Liber chronicarum *(Anton Koberger, Nuremberg, 1493), with seven of the 1,800 wood engravings in the book.*

Zeitglöcklein (1495) and Issickemer's *Zuflucht zu Maria in alden Oding* (1497). In 1498 he moved to Metz and printed there, inter alia, two editions of *Florio und Bianceffora*; he then operated in Cracow and was again in Metz from about 1509 to 1517.

In addition there were other, still smaller presses in Nuremberg, but many of the items they brought on the market have textual and cultural significance, for example, those of Hans Folz (some *Schwänke* and *Fastnachtsspiele*), Augustinerere-

miten (Jörg von Nürnberg's *Nachricht von den Turken*), Konrad Zeninger (*Tractatus quidam de Turcis* and Hans Tucher's *Reise zum heiligen Grab*, 1482), Peter Wagner (also the same book of Jörg von Nürnberg and two German translations of Savonarola's writings), Hans Hoffman (*Die nicklashausser Fart*), Hans Mayr (several *Heiltumbücher* and *St. Meinrats Legend*), Ambrosius Huber, and Wilhelm Winter.

WÜRZBURG, HEIDELBERG, AND FREIBURG/BREISGAU

Georg Reyser, who probably directed the "Druckerei of the Henricus Ariminensis" even if he did not own it, printed the first breviary for the diocese of Würzburg, in 1479 in that city, with the collaboration of the Strassburg canon Stephan Dold and the Mainz priest Johann Beckenhub. After this consortium was dissolved in the same year, Reyser (who probably died in 1504) operated the press alone, specializing in liturgical works. His brother Michael Reyser established a printing shop in Eichstätt, specializing in official and liturgical works. In the old episcopal and imperial city of Speyer there were two small anonymous shops after 1471. Peter Drach (first P.D. the Elder, then P.D. the Younger) started a press in 1475 at the latest. The business activities of the younger Drach, who died in 1503/04, are recorded in parts of his account books preserved in bookbindings. They give impressive evidence of his achievements in the last two decades of the 15th century as one of the most successful German master printers, publishers, and jobbers (over 50 *Buchführer* ["salesmen"] are known). He printed mainly the customary Latin literature, including the first edition of the notorious *Malleus maleficarum* and such important illustrated works as the *Spiegel menschlicher Behaltnis* (about 1480), one Latin and two German editions of Petrus de Crescentiis' *Ruralia commoda*, and three reprints of Bernhard von Breydenbach's *Peregrinatio*. The brothers Johann and Konrad Hist printed rather small works for the most part, including Richard de Bury's *Philobiblon*. Georg Gessler operated a very modest printing shop in Zweibrücken between 1492 and 1495.

Heinrich Knoblochtzer, the first printer in the university city of Heidelberg, had been active in Strassburg until 1484, and on April 9, 1486, he matriculated in the University of Heidelberg. Among his Latin imprints are many classical and humanistic works; and those in German, such as the *Totentanz*, *Dietrich von Bern*, *Melusine*, and the *Ackermann aus Böhmen*, are illustrated in part with wood engravings of superior quality. There is a record of Friedrich Misch as a printer in Heidelberg from 1488 to 1490. Konrad Schellig's *In pustulas malas morbum, quem malum de Francia vulgus appellat, consilium*, a tract that is most interesting for cultural history, is indeed printed with the types used by Misch; but, according to historians of medicine, it was not actually printed until 1495/96. Heinrich Seligmann printed in Heidelberg as early as 1499, not beginning in 1501, as scholars have previously assumed.

Between 1492 and 1495 Kilian Fischer printed a few Latin works in Freiburg im Breisgau, whose university was established in 1457. In 1495/96 he worked in Offenburg, from 1497 to 1499 in Basel. The press of Friedrich Riederer in Freiburg served humanists such as Jacob Locher, Jacob Mennel, and Franciscus Niger.

The woodcut on the title page of his *Spiegel der wahren Rhetorik* is ascribed to Dürer by many scholars. Whether Thomas Anshelm, who was in Strassburg in 1487/88, started his activity as a printer in Pforzheim in 1496 or 1500 is uncertain. He printed Reuchlin's works, among others, and moved to Tübingen in 1511. Jacob Köbel, "Baccalaurius artium liberalium utriusque iuris," was both a writer and editor and printed Johannes Virdung's *Practica für 1500* in Oppenheim, probably after 1499. He died on January 31, 1533.

MIDDLE AND NORTH GERMANY

Printing was less significant in middle and north Germany than in the south in the 15th century. The four brothers(?) Lucas, Matthäus, Marcus, and Moritz Brandis were productive and significant in these regions. Marcus, who began to print in Merseburg in 1479, set up the first printing shop of which there is any record in the university city of Leipzig in 1481. Leipzig printing of the 15th century was distinctly adjusted to the needs of professors and students (e.g., interleaved editions of classics in which students could insert commentaries). More important typographical achievements were liturgical works. Konrad Kachelofen, the most significant Leipzig printer of the 15th century, is typical for book production of the time in that city, with his dictionaries and textbooks, classical and German texts (among them the *Ackermann aus Böhmen*), and liturgical works. Kachelofen apparently did not die until 1529, but as early as the end of the 15th century his son-in-law Melchior Lotter the Elder had assumed direction of the press. Martin Landsberg ("Printer of the Capotius") was equally productive. Moritz Brandis began to print in Leipzig in 1488. In July 1490 he completed a High German edition of the *Sachsenspiegel*, but he had to flee to Magdeburg on account of indebtedness. Arnold (Neumarkt) of Cologne and Gregor Boettiger, called Werman, operated for a few years only. Wolfgang Stoeckel (Müller) married the widow of Arnold of Cologne and continued the direction of his shop. In 1498 Jacob Thanner began a rather fruitful activity. He did not die before 1538, and he printed (illegally) many of Luther's writings.

In Erfurt, where a university was founded in 1392, there are records of a number of presses, mainly anonymous ("Printer of the Aristeas," "Printer of the Bollanus," "Printer of the Hundorn," and others). The beginnings are obscure. In 1479 a *Lectionarium* was printed in the monastery on the Petersberg. Printers known by name are Paul Wider, Hans Sporer (previously in Bamberg where he printed small popular works), Marx Ayrer, Wolfgang Schenck, and Paul von Hachenburg.

In Magdeburg, Bartholomäus Ghotan set up the first printing house, and he probably moved to Lübeck in 1483. The activity of Albert Ravenstein and Joachim Westfal was short-lived. More significant were the printing houses of Simon Koch, active from 1485/86 to 1503, printer of the *Missale Magdeburgense* (1486) and of didactic and amusement literature in Low German; and that of Moritz Brandis, who was well received in Magdeburg in 1490 after his flight from Leipzig and who printed liturgical works in particular, also Low German works illustrated with woodcuts.

In Meissen an unidentified printer (Simon Koch?) produced a *Brevarium Misnense* in 1483. Joachim Westfal, previously in Magdeburg, printed in Low German a *Sachsenspiegel* among other works. Konrad Kachelofen, who fled the plague in Leipzig in the summer of 1495, printed a *Missale Misnense* (completed on November 9, 1495) in Freiberg, Saxony. In the Cistercian monastery of Zinna an unnamed printer (probably Johannes Luce) produced a *Novum B. M. V. psalterium* of Hermann Nitzschewitz, illustrated with good woodcuts. In Breslau the canon of the cathedral, Kaspar Elyan, had some journeymen working in a small shop opened in 1475 to print a few theological and pastoral works and also the notorious *Facetiae* of Poggio Florentinus.

Lübeck, a capital of the Hansa at the end of the Middle Ages, still a flourishing commercial center and one of the most populous cities of the empire, was the one great north German "book city" in the last decades of the 15th century. On August 5, 1475, Lucas Brandis, previously in Merseburg, completed the *Rudimentum novitiorum*, a very extensive universal history which was also translated into French and was printed in Paris in 1488 under the title of *La mer des hystoires*. Although Brandis was an enterprising printer, with Latin and Low German books as well as liturgical works on his list, he had to struggle constantly with financial problems, and he had to leave Lübeck in 1500 on account of unpaid debts. His brother, Matthäus Brandis, who printed, among other things, a *Jutisch Lowbok* and two editions of Saxo Grammaticus' *Denske Kroneke*, was likewise burdened with financial difficulties. The output of the so-called *Mohnkopfdruckerei* included Low German works, some of which had rather good woodcuts (e.g., St. Birgitta's *Openbaringe*, 1496; *Reyneke de Vos*, 1498; *Dodestantz*, 1499; and Brant's *Narrenschyp*, 1497). Previously ascribed to Matthäus Brandis alone, we now separate these works into several groups, since the Mohnkopfdruckerei was only a company of printers directed by Hans van Ghetelen. One segment, the "Steffen Arndes Group," is named for the most important Lübeck printer of the late 15th and early 16th centuries. Especially noteworthy among his Low German books are the *Passionael* (1492, with 259 woodcuts based on the Koberger edition of 1488, and 1499); the *Gaerde der Suntheit* (1492, in which the 542 woodcuts are copies of those in Schöffer's *Herbarius* of 1484); and the Low German Bible of November 19, 1494, one of the most important German illustrated works of the 15th century. The woodcuts, only some of which come from Bernt Notke, resemble those of the "Cologne Bibles" in format and iconography, but they excell the latter in their closeness to life and the earnest dignity of composition. Johann Snell, who was active in Lübeck for a short time in 1480, became Denmark's first printer when he issued G. Caoursin's *Obsidionis Rhodiae urbis descriptio* at Odense in 1482. He completed Maynus de Mayneriis' *Dialogus creaturarum moralisatus* at Stockholm on December 20, 1483, and thus also became Sweden's first printer. Bartholomäus Ghotan, who printed in Magdeburg from 1480 to 1483, began to print Low German books in Lübeck in 1484. Like Snell, he too went to Sweden and printed the *Missale Strengnense* and the *Psalterium Upsalense* in 1486/87 as well as other titles. However, fate denied him the distinction of being the first printer of Russia. He was a bookseller at Novgorod in 1493/94 and was planning to establish a press; but when Ivan III closed

the Novgorod Hansa office, he lost his life. It has been argued that he went to Moscow on the invitation of the czar, but there is no proof.

The press of the Brüder vom gemeinsamen Leben (Fratres communis vitae) in the "House of the Green Garden at St. Michael's" in the Hanseatic and university city of Rostock was probably established and directed by Snell. The first accurately dated work is Lactantius' *Opera* of August 9, 1476. Subsequently the press brought out theological and homiletic works, a *Missale Sverinense*, and Ovid's *Fasti*. More for the sake of completeness than for importance, the following printers should be noted: the brothers Johannes and Thomas Borchardes, Hamburg, 1491 (first imprint is Jacobus de Voragine on November 10, 1491); Johannes Luce, Lüneburg (Thomas a Kempis' *Imitatio Christi*, May 22, 1493; Hermann Nitzschewitz' *Gulden Rosenkrans;* a Low German translation of the *Novum Psalterium B. M. V.* printed in Zinna; and a few others); Johann Karweysse, Marienburg (only two small imprints of 1492 are known); and Konrad Baumgarten, Danzig, 1499, who moved to Olomouc in the same year, in 1503 to Breslau, and in 1506 to Frankfurt on the Oder.

Even before Gutenberg's death in 1468, presses were active in Italy in Subiaco and Rome. Seven years later, in 1475, there were 36 cities in Italy as against 22 in the Germanies where there was printing. At the end of the century, 80 Italian localities had presses as against 62 in the Germanies. Qualitatively the Italian presses were definitely superior to the German. Publishing and the book trade in Italy were also much better developed. The early use of Roman types in Italy assured a much wider market for books printed in Italy than for those printed in the more difficult Gothic types of the Germanies. In Italy, classical and humanistic texts were printed much more frequently, while theological, scholastic, and homiletic works were more commonly printed in the old German-language area.

Italian wood engraving was marked by the maturity of Renaissance art. In the Germanies the Gothic style was predominant, although it did produce first-rate works of art. We may see a "modern" spirit in the fact that in Italy (as well as in France, Spain, and England) relatively more works were printed in the national idiom than in the Germanies, and this fact also reflects the different cultural development of the two countries.

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FERDINAND GELDNER
English version by Lawrence S. Thompson

Printing in Italy Before 1501*

SUBIACO AND ROME

It is possible that the earliest printed work in Italian is a fragment on the Passion, which Konrad Haebler identified with an otherwise unknown, undated German work, the *Sieben Freuden Mariae und die Leiden Christi*. Since the type of the latter was also used in the Vienna Almanach for 1462 (GW 1287), Haebler had an approximate date for the *Sieben Freuden* and consequently for the Italian Passion. But the Passion and the Almanach are not in the same typeface, even though the presswork is similar; and therefore we cannot be absolutely sure about Haebler's dating of the fragment of the Passion.

The earliest Italian printed books came from the famous old monastery founded by St. Benedict's sister, Santa Scholastica, in Subiaco in the Apennines of Latium. The German printers Konrad Sweynheim (who may have learned to print in Mainz) and Arnold Pannartz were active there in the years 1465–1467 and produced a Cicero, *De oratore* (GW 6742), a Lactantius (Hain 9806; dated by the corrector on October 29, 1465), and St. Augustine's *De civitate Dei* (GW 2874; dated June 12, 1467). (See Figures 1 and 2.) The printers do not give their names, and the place is mentioned only in the Lactantius. That Subiaco was the locality cannot be doubted, since the Augustine is based on a manuscript still in Subiaco. All are in a rather heavy roman type, probably designed by the printers under the influence of gothic letters in use in Italy at the time.

Sweynheim and Pannartz moved to Rome in 1467, and we first see their names

* The Bibliography for this section begins on page 341.

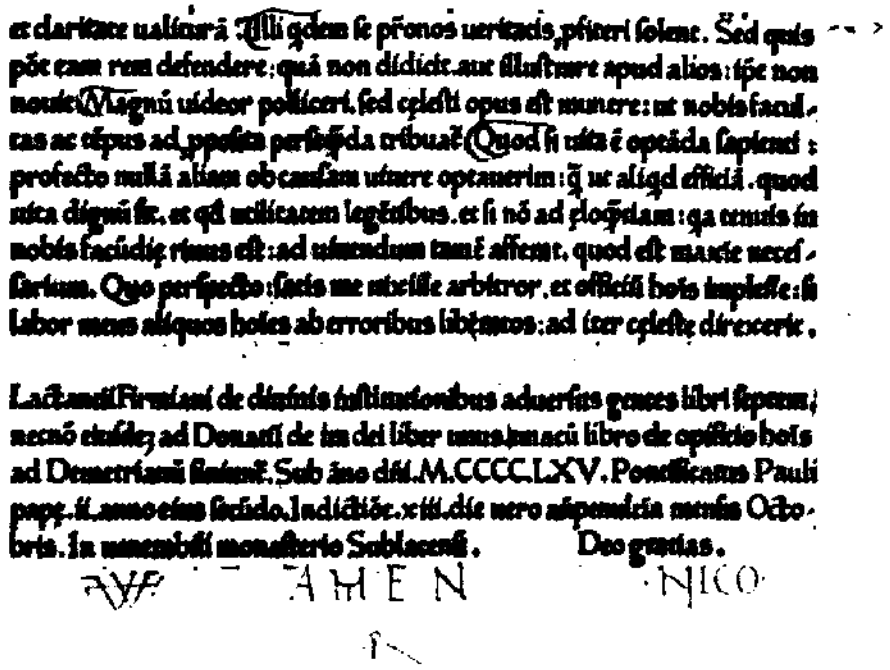


FIGURE 1. *Lactantius*, De divinis institutionibus *(Sweynheim and Pannartz, Subiaco, 1465).*

in Cicero's *Epistulae familiares* (Rome, 1467; GW 6799). The press was in the residence of Pietro and Francesco de Maximis, and they had an extraordinarily helpful consultant and patron in Johannes Andreae de Bussis, bishop of Aleria, theologian, humanist, and after 1471 librarian of Pope Sixtus IV. His relationship with the two German printers is strongly reminiscent of the later position of Erasmus with the house of Johann Froben. The production of Sweynheim and Pannartz in Rome was both prolific (12,475 volumes up to 1472, according to their own record) and significant for scholarship. They printed both classical texts and patristic works. (See Figures 3, 4, and 5.) After the partners broke up in 1473, Sweynheim even attempted a Ptolemy with maps, although his death in 1477 did not permit him to see the completion of this monumental work, with 27 maps by Arnold Bucking in 1478 (Hain 13537), as the latter's only known imprint. Pannartz continued to print until 1476 "in domo Petri de Maximis iuxta campum Florae," and his last known book is an edition of the letters of St. Jerome (Hain 8555).

The second printer in Rome was Ulrich Han (Uldaricus Gallus) of Ingolstadt, who began printing in Rome almost simultaneously with Sweynheim and Pannartz in 1467. His oldest dated work is Johannes de Turrecremata, *Meditationes vitae Christi* (1467; Hain–Copinger 5724). Until his death in 1479 he printed almost 80 books. The first group were largely classical and humanistic works published with the advice of Johannes Campus. After 1471 Han's association with the wealthy publisher Simon Nicolai Chardella of Lucca inspired him to print legal and theological works. In 1476 he printed two editions of the *Missale romanum* (Hain 11364 and 11366), the first works in which musical notes were printed typographically. His successor was Stephan Planck (Plannck), who so designated himself in his first

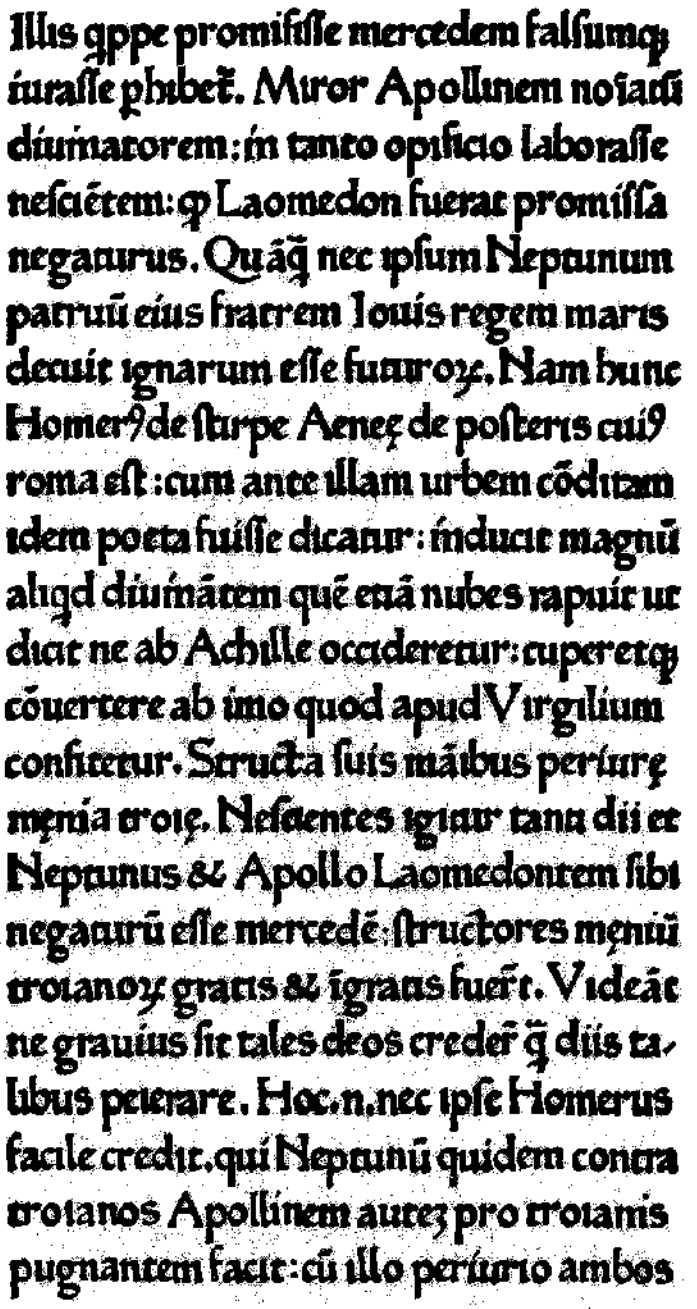

Illis qppe promiſiſſe mercedem falſumq;
iuraſſe phibeť. Miror Apollinem noſtri
diuinatorem: in tanto opificio laboraſſe
neſciętem: q Laomedon fuerat promiſſa
negaturus. Quãq nec ipſum Neptunum
patruũ eius fratrem Iouis regem maris
decuit ignarum eſſe futuroꝝ. Nam hunc
Homerꝰ de ſturpe Aeneę de poſteris cuiꝰ
roma eſt: cum ante illam urbem cõditam
idem poeta fuiſſe dicatur: inducit magnũ
aliqd diuinãtem quẽ etiã nubes rapuit ut
diceret ne ab Achille occideretur: cupereteq;
cõuertere ab imo quod apud Virgilium
confitetur. Structa ſuis mãibus periturę
mœnia troię. Neſcientes igitur tanti dii et
Neptunus & Apollo Laomedontem ſibi
negaturũ eſſe mercedẽ: ſtructores mœniũ
troianoꝝ gratis & īgratis fuerĩt. Videãt
ne grauius ſit tales deos credẽ q̃ diis ta-
libus peierare. Hoc.n.nec ipſe Homerus
facile credit. qui Neptunũ quidem contra
troianos Apollinem autęq; pro troianis
pugnantem facit: cũ illo periurio ambos

FIGURE 2. *Augustine*, De civitate Dei *in the first type of Sweynheim and Pannartz (Subiaco, 1457).*

imprint, Bonus Accursius, *Compendium elegantiarum Laurentii Vallae* (1479–80; GW 172). Planck was very productive, with some 300 books (most of them smaller pieces) before 1500; and he was the only 15th-century printer who made extensive use of the same type font in different sizes. He printed the *Mirabilis Romae* in several editions, the first in 1489, with wood engravings, otherwise infrequent in his work. (See Figure 6.) Mathematics and astronomy were among Planck's specialties, and one of his first imprints was the *Ludus arithmomachiae* of the Englishman John

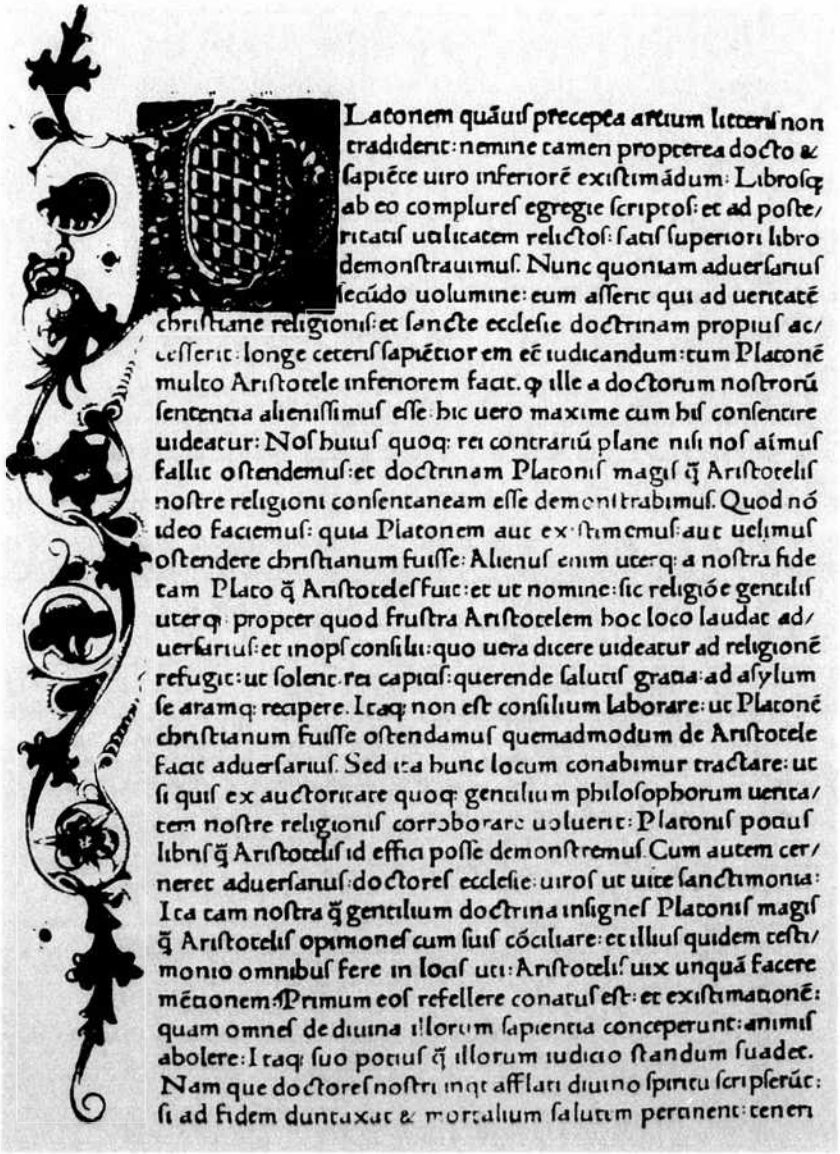

Latonem quãuis precepta artium litteris non
tradiderit: nemine tamen propterea docto &
sapiẽte uiro inferiorẽ existimãdum: Libros-
ab eo complures egregie scriptos: et ad poste-
ritatis utilitatem relictos: satis superiori libro
demonstrauimus. Nunc quoniam aduersarius
secũdo uolumine: eum asserit qui ad ueritatẽ
christiane religionis: et sancte ecclesie doctrinam propius ac-
cesserit: longe ceteris sapiẽtior em eẽ iudicandum: tum Platonẽ
multo Aristotele inferiorem facit. q; ille a doctorum nostrorũ
sententia alienissimus esse: hic uero maxime cum his consentire
uideatur: Nos huius quoq; rei contrariũ plane nisi nos aimus
fallit ostendemus: et doctrinam Platonis magis q; Aristotelis
nostre religioni consentaneam esse demonstrabimus. Quod nó
ideo faciemus: quia Platonem aut existimemus: aut uelimus
ostendere christianum fuisse: Alienus enim uterq; a nostra fide
tam Plato q; Aristoteles fuit: et ut nomine: sic religiõe gentilis
uterq; propter quod frustra Aristotelem hoc loco laudat ad-
uersarius: et inops consilii: quo uera dicere uideatur ad religionẽ
refugit: ut solent rei capitis: querende salutis gratia: ad asylum
se aramq; recipere. Itaq; non est consilium laborare: ut Platonẽ
christianum fuisse ostendamus quemadmodum de Aristotele
facit aduersarius. Sed ita hunc locum conabimur tractare: ut
si quis ex auctoritate quoq; gentilium philosophorum ueritа-
tem nostre religionis corroborare uoluerit: Platonis potius
libris q; Aristotelis id effici posse demonstremus. Cum autem cer-
neret aduersarius: doctores ecclesie: uiros ut uite sanctimonia:
Ita tam nostra q; gentilium doctrina insignes Platonis magis
q; Aristotelis opiniones cum suis cõciliare: et illius quidem testi-
monio omnibus fere in locis uti: Aristotelis uix unquã facere
mẽtionem: Primum eos refellere conatus est: et existimationẽ:
quam omnes de diuina illorum sapientia conceperunt: animis
abolere: Itaq; suo potius q; illorum iudicio standum suadet.
Nam que doctores nostri inqt afflati diuino spiritu scripserũt:
si ad fidem duntaxat & mortalium salutem perunent: tenen

FIGURE 3. *Bessarion,* Adversus Platonis calumniatorem *(Sweynheim and Pannartz, Rome, 1469).*

Sherwood, one of the few original works from his press. The last dated work under his imprint is the *Historia et descriptio urbis Romae,* July 22, 1500.

Like Planck, Eucharius Silber (also known as Franck) started printing in 1480, served the publication needs of the Roman Curia, and was responsible for a large number of smaller works (the ones relating to Savonarola are particularly important). Pico della Mirandola's controversial *Conclusiones DCCCC dialecticae* carries Planck's imprint. Most famous, perhaps, is his publication of the Columbus letter on the discovery of America, typical of his concern for issuing smaller works on contemporary events. He remained in touch with his native Germany and was in contact with many important German humanists of the day. Marcellinus Silber, presumably his son, continued the business until 1527.

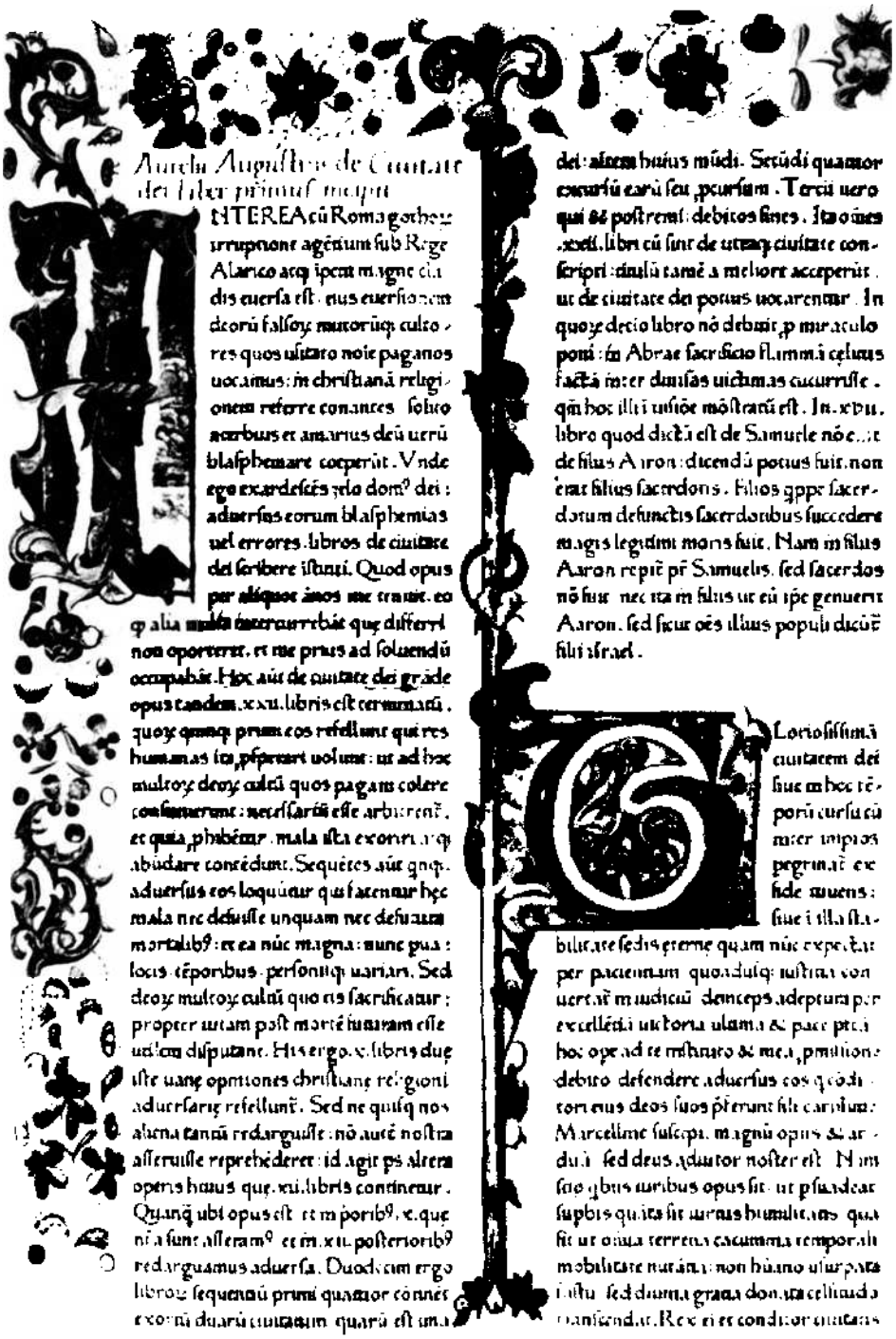
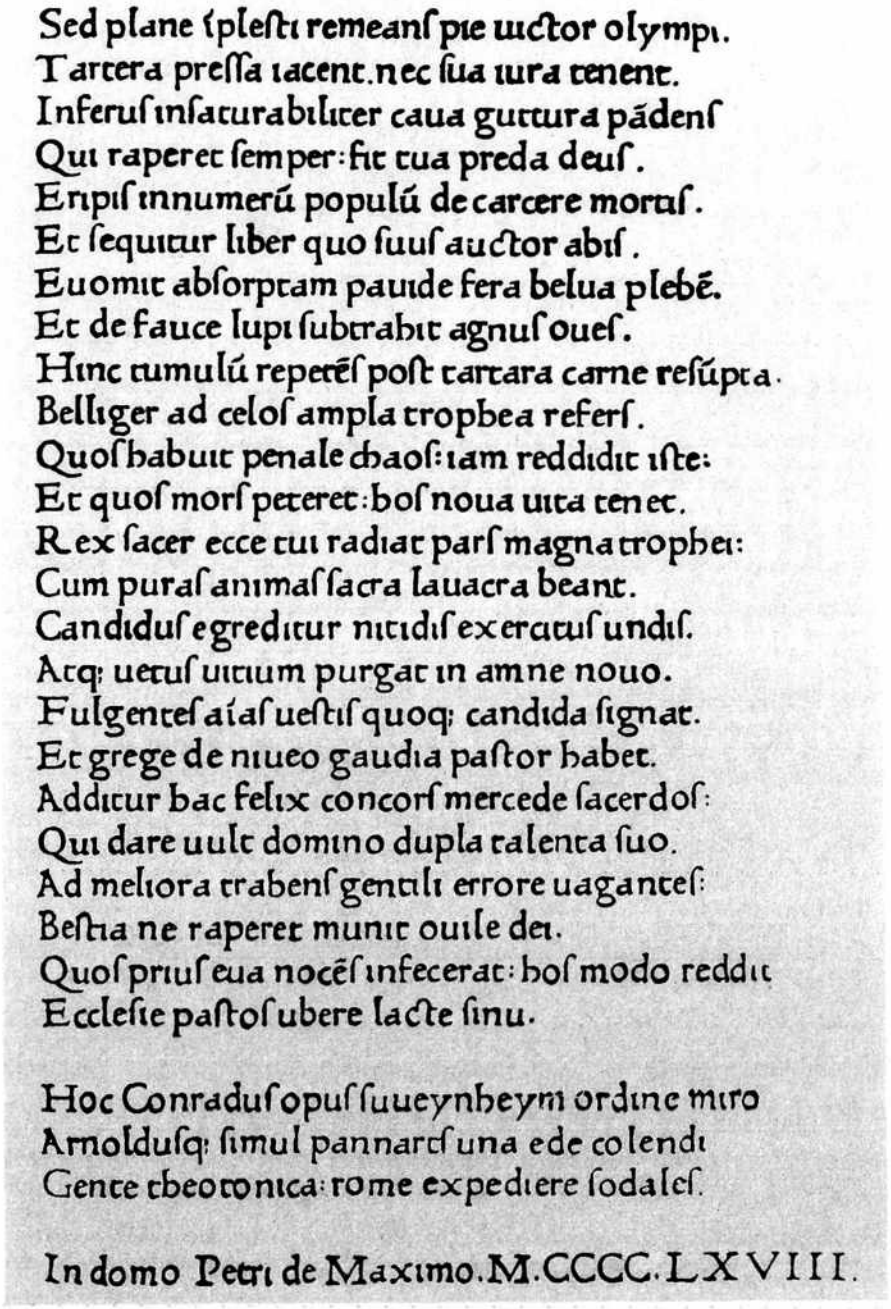


FIGURE 4. *Augustine,* De civitate Dei *(Rome, 1467).*

Georg Lauer of Ratisbon printed in Rome from 1470 to 1481, and after 1474 he was associated with Leonhard Pflugl. His adviser was the Milanese jurist Johannes Aluisius Tuscanus. He specialized in legal works, and his last imprint is the *Repertorium juris* of Bertachinus (1481; GW 4152). Adam Rot, who printed in Rome from 1471 to 1474, described himself as a clergyman from Metz. Most


Sed plane ſpleſti remeanſ pie uictor olympi.
Tartera preſſa iacent.nec ſua iura tenent.
Inferuſ inſaturabiliter caua guttura pădenſ
Qui raperet ſemper:ſit tua preda deuſ.
Eripiſ innumerũ populũ de carcere moruſ.
Et ſequitur liber quo ſuuſ auctor abiſ.
Euomit abſorptam pauide fera belua plebẽ.
Et de fauce lupi ſubtrahit agnuſ oueſ.
Hinc tumulũ repetẽſ poſt tartara carne reſũpta.
Belliger ad celoſ ampla tropbea referſ.
Quoſ habuit penale chaoſ:iam reddidit iſte:
Et quoſ morſ peteret:boſ noua uita tenet.
Rex ſacer ecce tui radiat parſ magna trophei:
Cum puraſ animaſ ſacra lauacra beant.
Candiduſ egreditur nitidiſ exeratuſ undiſ.
Atq; uetuſ uitium purgat in amne nouo.
Fulgenteſ aiaſ ueſtiſ quoq; candida ſignat.
Et grege de niueo gaudia paſtor habet.
Additur bac felix concorſ mercede ſacerdoſ:
Qui dare uult domino dupla talenta ſuo.
Ad meliora trabenſ gentili errore uaganteſ:
Beſtia ne raperet munit ouile dei.
Quoſ priuſ eua nocẽſ infecerat:boſ modo reddit
Eccleſie paſtoſ ubere lacte ſinu.

Hoc Conraduſ opuſ ſuueynheym ordine miro
Arnolduſq; ſimul pannartz una ede colendi
Gente theotonica:rome expediere ſodaleſ.

In domo Petri de Maximo.M.CCCC.LXVIII.

FIGURE 5. *The second edition of Lactantius,* Opera, *in the second type of Sweynheim and Pannartz (Rome, 1468).*

of his imprints were of legal works, although he was responsible for an important Sallust edition (Hain 14191). Rome had about 40 printing offices in the 15th century, nearly all of which were manned by Germans.

VENICE

Printing came to Venice 3 years after it reached Rome, but the former city had more printers (over 150) and produced more books (some 4,000) than any other

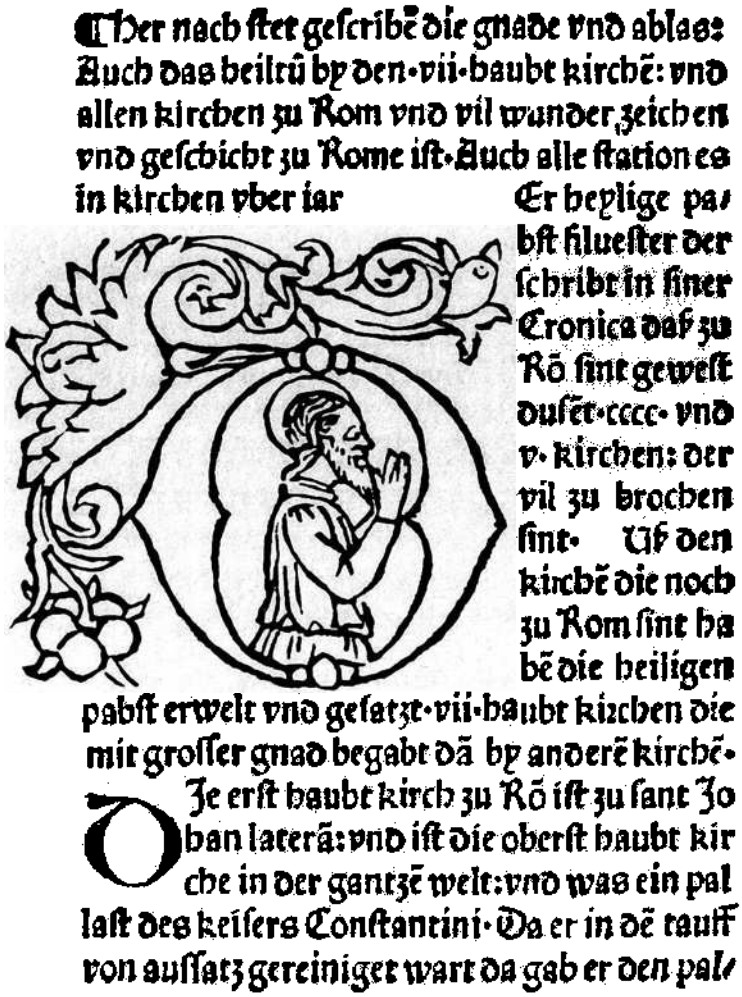
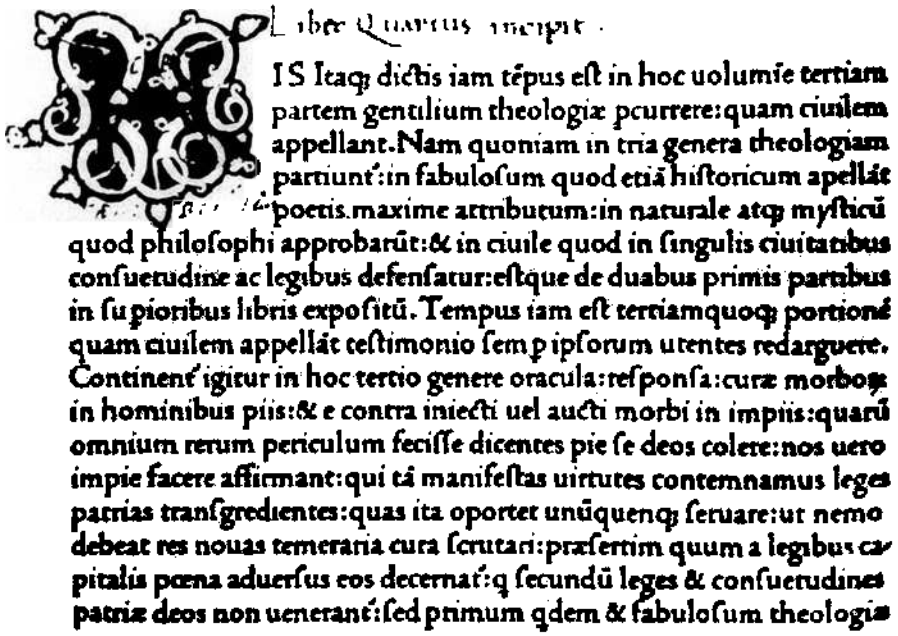


FIGURE 6. Mirabilia urbis romanae *(Stephen Planck, Rome, 1489), a guidebook for pilgrims and other visitors to Rome.*

European city of the 15th century. The first Venetian printer was Johannes de Spira (Speyer), whose edition of Cicero's letters (GW 6800) is dated September 18, 1499. He produced another edition of the same work and Pliny's *Historia naturalis*, received a monopoly from the Signoria for 5 years, and died soon thereafter. His brother Wendelin took over and finished Augustine's *De civitate Dei* (GW 2877), begun by Johannes. Wendelin was quite productive, with many editions of classical authors, legal works (for which he used gothic type), and a Bible in 1471. The work of both Johannes and Wendelin shows some of the best typography and presswork in the early years of printing.

The Frenchman Nicolaus Jenson from Sommevoire near Troyes probably learned to print from Johannes de Spira and was active from 1470 until his death in 1480. Jenson is distinguished for the typographical excellence of his work and his energetic business methods. He specialized in humanistic and legal works. The roman types in the former and the round gothic in the latter are among the most beautiful fonts of the period. Both Jenson and Wendelin de Spira were closely



Liber Quartus incipit.

IS Itaq; dictis iam tẽpus eſt in hoc uolumĩe tertiam partem gentilium theologiæ pcurrere: quam ciuilem appellant. Nam quoniam in tria genera theologiam partiunt': in fabuloſum quod etiã hiſtoricum apellãt poetis maxime attributum: in naturale atq; myſticũ quod philoſophi approbarũt: & in ciuile quod in ſingulis ciuitatibus conſuetudine ac legibus defenſatur: eſtque de duabus primis partibus in ſupioribus libris expoſitũ. Tempus iam eſt tertiamquoq; portionẽ quam ciuilem appellãt teſtimonio ſemp ipſorum utentes redarguere. Continent' igitur in hoc tertio genere oracula: reſponſa: curæ morbo⁹ in hominibus piis: & e contra iniecti uel aucti morbi in impiis: quarũ omnium rerum periculum feciſſe dicentes pie ſe deos colere: nos uero impie facere affirmant: qui tã manifeſtas uirtutes contemnamus leges patrias tranſgredientes: quas ita oportet unũquenq; ſeruare: ut nemo debeat res nouas temeraria cura ſcrutari: præſertim quum a legibus capitalis pœna aduerſus eos decernat': q ſecundũ leges & conſuetudines patriæ deos non uenerant': ſed primum qdem & fabuloſum theologiæ

FIGURE 7. *Eusebius*, De evangelica praeparatione *(Jenson, Venice, 1470)*.

associated with Johannes de Colonia (Cologne), who married the widow of Johannes de Spira in 1474. Colonia, Jenson, and the Frankfurt merchant and book collector Peter Ugelheimer (d. 1488) founded the firm of Nicolaus Jenson Sociique (first mentioned in 1480).

Other important presses appeared in Venice in the 1470s. Erhard Ratdolt left his native Augsburg in 1462 at the age of 15 to go to Venice. Together with Bernhard Maler (Pictor) and Peter Luslein, he founded a printing firm. In 1478 he began to print independently, and produced many important books until 1486 when he returned to his native city and printed there until he died in 1528. Ratdolt's Venetian imprints are noteworthy for their decorative features, especially the singularly handsome initials. The breviaries and missals he produced later in Augsburg were equally significant for the colored wood engravings. He brought back with him from Venice his famous "litterae florentes," decorative letters in white on a black background with branches and flowers. The influx of German printers slowed down somewhat after the early years of printing in Venice. In the 1490s Johann Hermann (Hertzog) of Landau and Johannes Emericus of Speyer printed some distinguished liturgical works.

After the first decade of printing in Venice, native Italian printers moved in. Gregorius and Johannes de Gregoriis of Forli printed many classical texts as well as legal and medical works; and some, such as the Herodotus of 1494, may be reckoned among the most beautiful books of the day. (See Figure 10.) Their edition of Johannes Ketham, *Fasciculus medicinae* (1491, facsimile, 1923) is noteworthy for its wood engravings. From 1505 to 1519 Gregorius printed alone and produced many handsome missals. Baptista de Tortis from Nicastro (Calabria) was active from 1481 to 1514 and also printed ancient classics and medical legal books. His

P.VIRGILII MARONIS BVCOLICA.
AEGLOGA PRIMA:INTERLOCVTORES
MELIBOEVS ET TITYRVS AMICI. ME.

ITYRE TV PATVLAE RECV
t BANS SVB TEGMINE FAGI
Silueſtrẽ tenui muſã meditaris auena.
Nos pñæ fines:& dulcia lĩquimus arua.
Nos pñã fugĩus:tu Tityre lẽtus ĩ ũbra
F ormoſam reſonare doces amaryllida ſiluas. TI.
O melibœe deus nobis hæc ocia fecit.
N anq; erit ille mihi ſemper deus:illius aram
S æpe tener noſtris ab ouilibus imbuet agnus.
I lle meas errare boues(ut cernis)& ipſum
L udere quæ uellem calamo permiſit agreſti. ME.
N on equidem inuideo:miror magis:undiq; totis
V ſq; adeo turbatur agris:en ipſe capellas
P rotinus æger ago:hanc etiam uix Tityre duco.
H ic inter denſas corylos modo nanq; gemellos .
S pem gregis ah ſilice ĩ nuda cõnixa reliquit.
S æpe malum hoc nobis:ſi mens non leua fuiſſet:
D e cælo tactas memini prædicere quercus.
S ed tamen iſte deus qui ſit da Tityre nobis. TI.
V rbem quam dicunt romam Melibœe putaui
S tultus ego huic noſtræ ſimilẽ:quo ſæpe ſolemus
P aſtores ouium teneros depellere fœtus.
S ic canibus catulos ſimiles:ſic matribus hædos
N oram;ſic paruis componere magna ſolebam.
V erũ hæc tantum alias inter caput extulit urbes:
Q uãtum lenta ſolent inter uiburna cupreſſi. ME.
E t quæ tanta fuit romam tibi cã uidendi? TI.
L ibertas quæ ſera tamen reſpexit inertem
C andidior:poſtq̃ tondenti barba cadebat.
R eſpexit tamen:& longo poſt tempore uenit.

FIGURE 8. *Vergil*, Bucolica *(Nicolas Jenson, Venice, 1475).*

severe gothic type was widely used, and "letra de Tortis" was the common term in Spain for gothic fonts. Andreas Torresano (Torresanus, de Asula, Asolanus) of Asola printed from 1479 to 1529, and specialized in legal and liturgical works, including a breviary in Glagolitic for the Croatian diocese of Senj (GW 5171). In 1508 he worked with his son, Giovanni Francesco Torresano. Bernardino Stagnino of Trino produced several editions of Dante and Petrarch and a breviary for Mainz (1495). Bernardini Benali of Bergamo printed classics, legal books, and liturgical

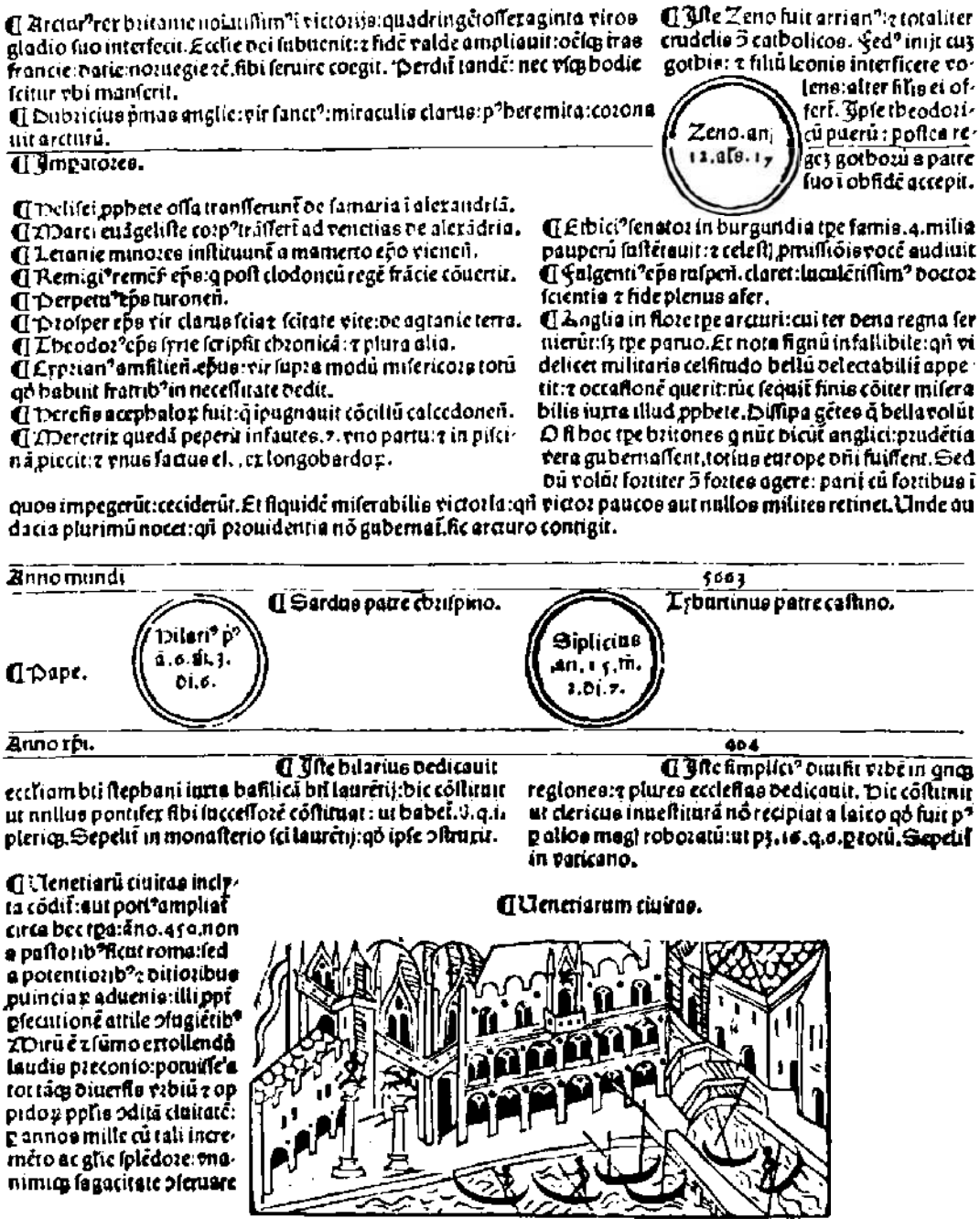


FIGURE 9. *Rolevinck*, Fasciculus temporum *(Ratdolt, Venice, 1480)*.

works. Occasionally he, Giorgio Arrivabene (Rivabenus, also Parens) of Mantua, Paganino de Paganinis of Bresciu, and Simon Bevilaqua (also Simon de Gabis) of Pavia were associated. Bevilaqua had printed in Vicenza in the period 1487–1491, and from 1515 to 1518 he worked in Lyon.

The best-known member of the great printing and publishing house of Giunta (Junta), which operated in Venice and Florence with branches in Lyon, Rome, London, Salamanca, and Burgos, was Lucantonio (1457–1538), born in Florence.


HERODOTI HISTORICI INCIPIT.
Laurentii Vallen. conuersio de Greco in Latinum.

ERODOTI Halicarnasei historie explica-
tio hec est: ut neq; ea que gesta sunt: ex rebus
humanis obliterentur ex uno: neq; ingentia &
h admiranda opera: uel a Grecis edita uel a Bar
baris gloria fraudentur: cum alia: tum uero: qua
de re isti inter se belligerauerūt. Perfarū eximii
memorāt dissensionū auctores extitisse Phœ-
nices qui a mari quod Rubrum uocatur in hoc nostrum profici-
centes: & hanc incolentes regionem: quam nunc quoq; incolunt:
longinquis continuo nauigationibus incubuerunt: faciendaq;
Aegyptiarum & Assyriarum mercium uectoris in alias plagas: pre-
cipueq; Argos traiecerunt. Argos &enim ea tempestate omni-

FIGURE 10. *Herodotus in Lorenzo Valla's Latin translation (Gregorius de Gregoriis, Venice, 1494), with arabesque vignette.*

One of several shops in Venice affiliated with him, that of Giovanni Ragazzo, produced the first important Venetian illustrated books, Niccolo Malermi's Italian translation of the Bible (1490; GW 4317). (See Figure 11.) Among many important illustrated books he published was the first illustrated classical text, a Livy of 1495 (Hain 10141). He provided numerous bishoprics and monasteries with liturgical works, some of monumental proportions (e.g., a gradual and an antiphonal in 1499 and 1500 by Johannes Emericus of Speyer). (See Figure 12.)

The most famous of the Venetian printers—indeed, perhaps of all time—is Aldus Manutius (1449–1515) from Bassiano near Velletri. (See Figure 13.) He established himself in Venice in 1494 and began a career of two decades of printing Greek, Latin, and Hebrew books which were recognized throughout Europe as the finest

FIGURE 11. *Wood engravings in the Malermi Bible (Venice, 1490).*

available. Twenty-eight first-printed texts of classical authors came from his shop, and by 1503 there were 33 Greek titles on his list. Greek type had been used as early as 1465 by Johann Schöffer in his Cicero, *De officiis* (GW 6921), and by Sweynheim and Pannartz in their Lactantius of the same year (Hain 9806). After 1471 Wendelin de Spira and Jenson used Greek quotations in their editions of Latin authors; but the first work by a Greek author and completely printed in Greek was the grammar of Constantinus Lascaris printed by Dionysius Paravisinus in Milan in 1476 (Hain 9920), complete with capitals, accents, and even a few ligatures. Although Milan became the main center of Greek studies and Greek printing, Aldus was responsible for some remarkable works, beginning with his Lascaris

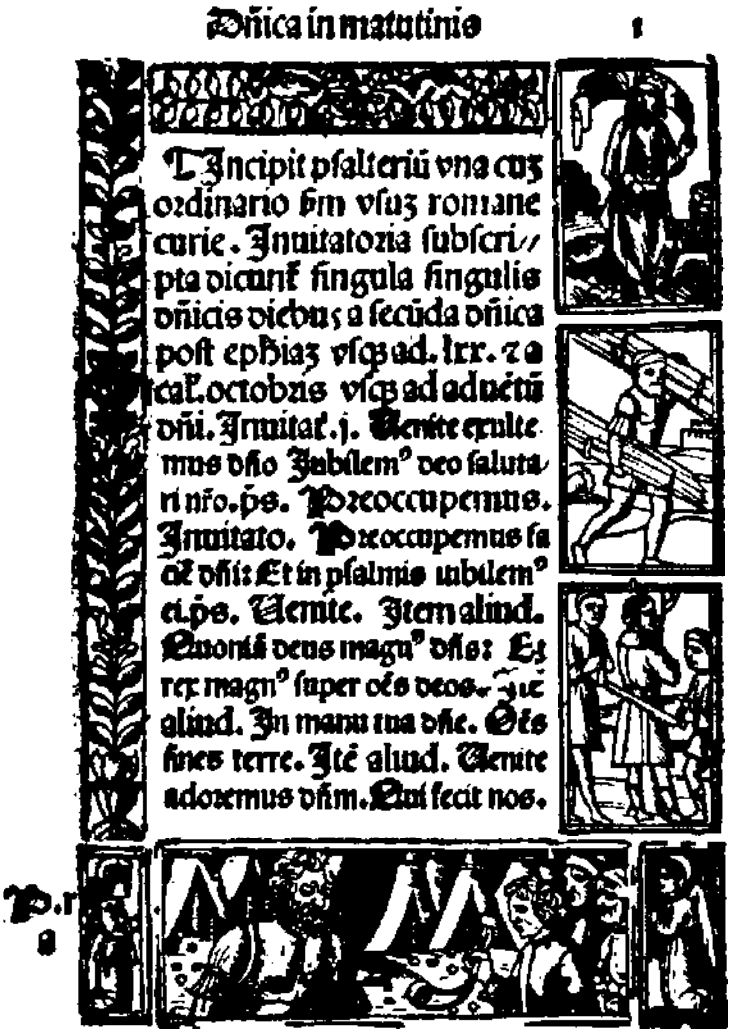


FIGURE 12. Diurnum Romanum *(L. Giunta, Venice, after 1500).*

of 1495 (Hain 9924). Noteworthy were his Aristotle of 1495–1498 in five folio volumes (GW 2354) and his editions of Aristophanes, Thucydides, Sophocles, Herodotus, Xenophon, Demosthenes, Plutarch, and Plato. His Greek types, like his others, were the finest of the age. His scholarship was the best of the period, for after his student years in Rome and Ferrara in 1482–1484 he dedicated himself to Greek studies in depth as a tutor in the home of Giovanni Pico in Mirandola. His editions of Latin classics such as Virgil, Horace, Juvenal, and Persius were renowned through Europe. The famous Latin cursive type characteristic of the Aldine editions is a development of the 16th century. Perhaps the most distinguished of all his imprints is the *Hypnerotomachia Poliphili* (1499; GW 7223), an allegorical romance in Italian by the Dominican Francesco Colonna. (See Figures 15 and 16.) The 170 wood engravings of extraordinary grace and esprit, and the handsome roman type, lend this work an enduring significance as a monument of book design and illustration. Aldus' printer's mark of the dolphin around an anchor, "In Aldi Romani Academia," has been frequently copied as one indication of the

FIGURE 13. *Aldus Manutius (1449–1515).*

permanence of his reputation. After Aldus' death his son-in-law, Andreas Torresano, took over the business for the minor children, and in the 16th century it blossomed again as a family business.

FLORENCE

Although printing spread to other parts of Italy in the early 1470s, the main centers other than Rome and Venice were Florence, Milan, Naples, and, to a lesser degree, Ferrara and Verona. The first printer in Florence was Bernardo Cennini, whose brief period of activity produced a Vergil in large roman type (1471–72; Hain 14707). Next came a German, Johannes Petri of Mainz, who printed Boccaccio's *Filocolo* in 1472 (GW 4462); then set up a shop in the Dominican nunnery, Apud Sanctum Jacobum de Ripoli, worked there until 1477; and later collaborated with other printers. His last book printed independently is dated 1497. Nicolaus Laurentii of Breslau also worked with Petri in the nunnery, where the sisters served as compositors and printers. He was the first printer to use copper engravings, and his first illustrated work, Antonio Bettini's *Monte Santo di Dio* (1477; GW 2204), has three engravings by an unidentified artist. His Dante of 1481 (GW 7966)

FIGURE 14. Scriptores astronomici veteres *(Manutius, Venice, 1499).*

has 19 engravings (possibly from drawings by Botticelli) of a projected 100, but few copies show all of them due to the technical problems of presswork. Probably in the same year he printed Francesco Berlinghieri's *Geographia* (GW 3870) with 31 maps from copper plates and based on those of the Sweynheim–Bucking Ptolemy of 1478 (supra).

The copper engraving was not cultivated nearly so intensively as the woodcut in Florence. Among the most important Florentine books with woodcuts are the *Epistole et Evangeli* (1495; Reichling 1514), printed by Petri and Lorenzo Morgiani; and Luigi Pulci's *Morgante Maggiore* (1500; Hain 13598). The Florentine printers of Savonarola's sermons—mainly Bartolomeo di Libri (see Figure 17), but also Petri, Lorenzo Morgiani, and Andrea Ghirlandi—in the fateful years immediately before his execution, made effective use of illustrations to reinforce their propagandistic value.

Bartolomeo di Libri (or Bartolommeo di Francesco di Libri) printed in Florence

FIGURE 15. *Colonna*, Hypnerotomachia Poliphili *(Manutius, Venice, 1499).*

from 1482 into the 16th century. He is distinguished particularly as the printer of the *editio princeps* of Homer, edited by Demetrius Chalcondylas with the support of the brothers Bernardo and Neri Nerli. Lorenzo de Alopa (or Laurentius Franciscus de Venetiis) printed a few books from 1492 to 1496 and later went into partnership with Antonio Tubini and Andrea Ghyrardengo; but he is particularly remembered for his editions of Greek texts, notably the Greek Anthology of 1494 (GW 2048) and Apollonius Rhodius' *Argonautica* of 1496 (GW 2271). Filippo Giunta had much the same role in publishing in Florence that his older brother Lucantonio had in Venice. He began his business in 1497 with Bartolomeo di Libri, who printed a Zenobius (1497; Hain–Copinger 16283) and an Orpheus (1500; Hain–Copinger 12106) for him. After his death in 1517 his sons continued as Haeredes Philippi Juntae.

MILAN

The first printer of Milan was Antonio Zarotto of Parma, although there are documents pointing to one Pamfilo Castaldi (from whom no book has survived) in the 1460s. Zarotto, supported by enterprising publishers, produced many well-printed books from 1475 to 1497, including many editions of Greek and Roman

FIGURE 16. *Colonna,* Hypnerotomachia Poliphili *(Manutius, Venice, 1499).*

authors and liturgical works such as the *Missale Ambrosianum* of 1475 and several editions of the *Missale Romanum.* Christoph Valdarffer of Regensburg spent a short time in Venice—where he printed the renowned first edition of the *Decameron* in 1471 (GW 4441)—before settling in Milan in 1474. He printed there until 1488, mainly theological and legal works, but also books in Italian such as Masuccio's *Novellino* (1483; Hain–Copinger 10885). He was closely associated with the Milanese publishers Filippo Lavagna and Petrus Antonius de Castelliono (Castiglione). Lavagna, who began printing in Milan in 1472, also published many important books, including classical authors, and provided business for Zarotto, Valdarffer, Leonhard Pachel, and Ulrich Scinzenzeler. Castelliono dealt with Pachel, Scinzenzeler, and Johannes Antoninus de Honate as well as Valdarffer in Milan and with Jenson in Venice. His specialty was legal literature.

Pachel, from Ingolstadt, and Scinzenzeler worked together, first with Lavagna, then independently. Their first book was a Vergil of 1478. At the end of their edition of Justinian's *Institutiones* (1478; Hain 9506) they add these words to their names: "ex industriosa gente theutonica patriaque Bavaria." The first illustrated book from Milan came from their press, the *Breviarium totius juris canonici, sive Decretorum breviarium* (1479; Hain 7159) by Paulus (Attavanti) Florentinus. It is also significant for containing the first known portrait of an author in any printed book; and, further, it appeared in Albrecht Kunne's Memmingen edition of the same

FIGURE 17. *Savonarola,* Sermone dell'orazione *(Bartolomeo di Libri, Florence, between 1490 and 1495).*

book (1486; Hain 7161), the first example of an Italian Renaissance wood engraving in a German book. Pachel and Scinzenzeler specialized in legal and theological works, including important editions of the *Missale romanum* in 1480, 1481, and 1482, probably the result of Pachel's interests. An important geographical work they printed was Santo Brasca's *Itinerario alla santissima città di Gerusalemme* (1481; Hain–Copinger–Reichling 3673; second edition, 1497), commissioned by Ambrosio Archinto as publisher. Other work included speeches such as Taccone's *Coronazione della Madama Bianca Sforza* (1493; Hain 15216). Pachel alone printed broadsides for Ludovico Maria Sforza in 1494, and for Louis XI of France in 1500, an edict with illustrations listing 34 coins forbidden in Milan.

Both Pachel and Scinzenzeler printed belletristic literature in the vernacular, but it seems to have been the special field of the latter. He was responsible for Petrarch's *Trionfi e canzonieri* (1494; Hain–Copinger–Reichling 12775), Boccaccio's *Filostrato,* and Tebaldeo's *Opere.* Books issued over the name of Heinrich

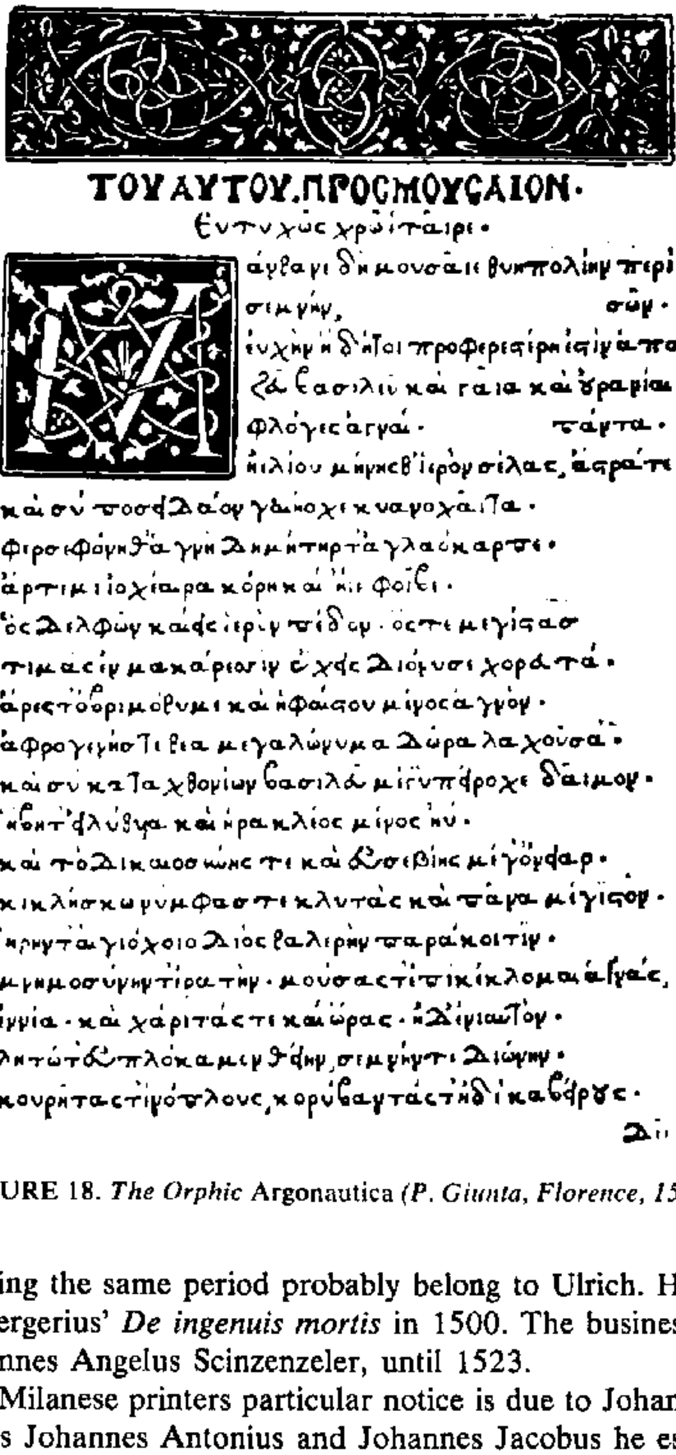


FIGURE 18. *The Orphic* Argonautica *(P. Giunta, Florence, 1500).*

Scinzenzeler during the same period probably belong to Ulrich. His last book was Petrus Paulus Vergerius' *De ingenuis mortis* in 1500. The business was continued by his son, Johannes Angelus Scinzenzeler, until 1523.

Among other Milanese printers particular notice is due to Johannes de Legnano. With his brothers Johannes Antonius and Johannes Jacobus he established a publishing firm comparable to those of Lavagna and Castelliono, lasting well into the 16th century. Guillaume Le Signerre of Rouen printed in Milan from 1496 to 1499. Best known are his editions of Franchino Gaffuri's *Practica musicae* (1496; Hain–Copinger 7407); Cicero's *Opera* (1498–99; Hain–Copinger–Reichling 5056), edited by Alexander Minutianus; and the handsomely illustrated Aesop (*Vita et Aesopus moralisatus*, 1498, GW 440). Johannes Antonius de Honate, who (with his brother Benignus) printed for Castelliono and others, specialized in legal works, but he moved to Pavia in 1491.

FIGURE 19. *Aesop's* Fables *(Naples, 1485).*

NAPLES

Printing came to Naples when Sixtus Riessinger (de Argentina), a pupil of Johann Mentel(in) in Strassburg and one-time student at the University of Freiburg im Breisgau, settled there in 1470. He was probably in Rome with Ulrich Han before moving south. He printed Georgius Fliscus' *Eubois* (Hain 7132) after July 12, 1470, and Albricus de Militio's *De testibus* (GW 517) about 1471. He was associated in Naples with the legal scholar Francesco del Tuppo as publisher and author of prefaces. Riessinger left Naples in 1478 and printed in Rome with Georg Herolt for a while en route back to Alsatia, where he held a pastorate until his death in 1502. Del Tuppo continued the business with German helpers ("Germani fidelissimi").

His Dante (GW 7962) and the handsomely illustrated Aesop (GW 441) of 1485 are among the best works from his shop. (See Figure 19.) For the latter, del Tuppo himself prepared the Italian text, and it is of interest to note the Hispanic–Moorish influence in the design of the ornamental borders around the 88 woodcuts.

Arnoldus de Bruxella was the second printer in Naples, active in this field from 1472 to 1477, but also as a copyist of manuscripts in which his signature reads Arnoldus de Steccatis of Lishout. Berthold Rihing of Strassburg printed from 1474 to 1477. Matthias Moravus of Olomouc printed in 1474 in Genoa; and in 1475, at the instance of Biagio Romero, he began to print in Naples, beginning with Junianus Maius' *De priscorum proprietate vocabulorum* (Hain 10539). A singularly large edition of 2,000 copies of Robertus Caracciolus' *Sermones de laudibus sanctorum* (GW 6051) appeared in 1489. Active until 1491, he specialized in liturgical and theological works. Jodocus Hohenstein from Speyer printed in 1475–1476; Heinrich Alding in 1476–1477; Konrad Guldenmond, Johannes Adam of Poland, Konrad Bonebach, and Werner Raptor in 1478; and, finally, in 1478–1480, an Italian, Francisco di Dino. Christian Preller (Bavarus) may have been trained by Riessinger. He was associated with del Tuppo in 1487 and was active as an independent printer as well as a contractor with local and foreign publishers until 1498. Ayolfo de Cantono printed from 1491 to 1496, the Frenchman Antoine Gontier in 1493, and the Germans Johann Tresser and Martin of Amsterdam in 1498. Josua Salomon of Soncino and Isaac Ben Judah Cattorzi printed in Hebrew in 1480 and 1491, respectively.

THE SPREAD OF PRINTING IN ITALY

Of the other Italian cities where printing took root at an early date, special note is due to Ferrara. Andreas Belfortis (de Francia, Gallus) printed a number of books from 1471 to 1493. There were several other competent printers: Augustinus Carnerius (1474–1476), Petrus de Arancejo and Johannes de Tornaco (1475), Severinus Ferrariensis (1475–1477), Abraham ben Chajjim de Tintori (1477), and Laurentius de Rubeis (de Rossi) (1485–1502 and, after a short interval in Sermide, again in Ferrara until he died in 1522). Ferrara owes its reputation in the annals of printing to two remarkable books printed by Rubeis, Jacobus Philippus Bergomensis' *De claris mulieribus* (1497; Hain 2813), and an Italian edition of Jerome's letters (1497; Hain 8566). The former is in a heavy, round gothic, but it is distinguished by finely drawn engravings of women, beginning with Eve and showing both Florentine and Venetian influence. The Venetian element is especially strong in the illustrations in the Jerome, in which the handsome title border is dated 1493 and is thus a key to the date of the original drawings.

The first Verona imprint is Robertus Valturius' *De re militari* (1472; Hain 15847), printed by Johannes Nicolai de Verona, also distinguished as the first illustrated book from northern Italy. The 84 wood engravings from the work of the Veronese artist Matteo de' Pasti show all manner of contemporary weaponry as well as human figures in striking naturalism. The brothers Johannes and Albertus Alvise printed in 1478–1479. Pierre Maufer (de Maliferis) of Rouen, an itinerant printer in

Padua (1474–1480), Venice (1480–1486), Modena (1492), and Cremona (1494), was in Verona in 1480 and produced there a good Josephus (Hain 9452). Antonius Cavalchabovis—in partnership with Johannes Antonius Novelli (1484)—and Paul Fridenperger of Passau were other significant printers in 15th-century Verona.

Printing came to Foligno in 1470 when Johann Neumeister (or Numeister) and Aemilianus de Orfinis issued Leonardus Brunus Aretinus' *De bello italico adversus Gothos gesto* (1470; GW 5600). (The restless Neumeister also appeared in Mainz in 1479 as the printer of Turrecremata's *Meditationes*, in Albi in France in 1480 as printer of another Turrecremata and a *Missale romanum*, in 1487 in Lyon where he printed a handsome missal and another for Uzès in 1495.) The old Umbrian town, now the fourth printing community in Italy after Subiaco, Rome, and Venice, was also the place where Neumeister and Evangelista Angelini produced the first edition of Dante's *Commedia* (1470; GW 7958). In spite of promising beginnings, Foligno remained without a printer for almost a century after Neumeister's departure.

Perugia is unusual among Italian cities in the 15th century in that printing was done by consortia whose members can be identified in surviving contractual documents but are not named in the books. In 1471 Braccio II Baglioni called the printers Petri de Colonia and Johann (Nicolai) of Bamberg to Perugia, where most of their production from 1471 to 1476 consisted of legal works. In 1475 Heinrich Klein of Ulm and Johann Vydenast brought out the first printed edition of Justinian's *Digestum vetus* with editorial help from the Saxon legal scholar Jakob Langenbeke. Stefan Arndes of Hamburg (also Steffen Arns, Arnes) printed with Neumeister in Foligno, in Perugia in the period 1477–1481 with Vydenast and others, in 1486 in Schleswig, and from that year until his death in 1514 in Lübeck. The Frenchman Laurent Berot printed in Perugia in the years 1481–1486. In the last year of the century Francesco Cartolari, a local man, set up a printing house operated by Damianus de Gorgonzola, continued after his death in 1518 by his sons, Gerolamo and Baldasarre, until 1560.

Chronologically, it is appropriate to note at this point five curious imprints from the small Piedmont community of Savigliano, which can be dated about 1470. They were probably printed by the German Johannes Glim, partly by himself, partly in partnership with Christofero Beggiamo (Beyamus) of Savigliano. No 16th-century printer is known in Savigliano. In Trevi, Johannes Reinhard printed two books in 1470–1471 before he moved on to Rome.

Another site of early printing in northern Italy is Treviso. Gerhardus de Lisa (Gerhardus Flandrinus) printed the Italian romance *Ipolito e Lionora* there in 1471 (Hain 9267), and he remained in Treviso until 1476 when he went to Venice. He returned to Treviso in 1494 after having been in Venice, Cividale, and Udine in the meanwhile. Michele Manzolo printed a number of books with a Treviso imprint from 1476 to 1480, among them the Italian translation of Juvenal of 1480 (Hain 9720). He was in Venice in 1481, but his last book was printed in Treviso in 1482. Hermann Liechtenstein of Cologne began to print in Vicenza in 1475, but he joined Manzolo in Treviso in 1477 to print Johannes Tortellius' *Orthographia* (Hain 15565), a Horace (Hain 8872), and a Terence (Hain 15408). He returned to Vicenza in 1480 and was in Venice from 1482 until his death in 1494 when his

nephew, Peter Liechtenstein, took over the shop. Peregrinius Pasquale was in Treviso in 1482, in Venice from 1483 to 1494, and in Scandiano from 1495 to 1500. Dionysius Bertochus was in Bologna in the period 1474–1476, in Treviso from 1481 to 1486, and later in Venice, Modena, and Reggio d'Emilia.

In Padua the first printing office was established in 1472 by a native, Bartolomeo di Valdezzocchio (Valdezoccho), with Martinus de Septem Arboribus, in association with the university. Among the seven imprints of this first year is the very rare first edition of Boccaccio's *Fiammetta* (GW 4456). In the period 1472–1475 Lorenzo Canozio produced an Aristotle in four volumes. Pierre Maufer (supra), Leonardus Achates, and Johann Herbort were other 15th-century printers in Padua.

Andreas Portilia of Turin began printing in Parma with Plutarch's *De liberis educandis* in 1472 (Hain–Reichling 13147) and continued his work there until 1482. He was in Bologna in 1473, in Reggio d'Emilia in 1484. Stephen Corallus printed several Latin classical authors from 1473 to 1479. The Carthusians had a press in 1477, and from 1473 to 1499 Angelo Ugoleto printed an imposing corpus of humanistic works. His son Francesco succeeded him and printed until 1526.

Bologna had more than 50 printing houses in the 15th century, although many were of short duration. Baldasarre Azzoguidi, active from 1471 until 1481, proudly and properly called himself "primus in sua civitate artis impressoriae inventor." Among other printers active for longer periods in Bologna may be mentioned Ugo Rugerius, Henricus de Colonia, Johann Schreiber, Francisco Plato de Benedictis, and Benedictus Hectoris. Henricus de Colonia (also Heinrich von Dalen, from his birthplace near Cologne) came to Bologna in 1477 as the first German printer in that city after 3 years in Brescia (1474–1477), and later he was in Modena, Lucca, Urbino, Siena, and Rome. A large proportion of early Bologna imprints were in jurisprudence, always a strong faculty of the university.

We know the early printing history of Genoa only from archival sources, not the books themselves. In 1471 Antoine Mathias of Antwerp and Lambert Laurenszoon of Delft established a printing house, and various other printers joined or succeeded them in the next 3 years. Mathias Moravus of Olomouc and Michael de Monacho are responsible for the first known Genoa imprint, Nicolaus de Ausmo's *Supplementum summae Pisanellae* (1474; Hain–Copinger 2152). The second Genoese printer, Baptista Cavallo, is known by a single work only, Johannes Annius' *De futuris Christianorum triumphis in Saracenos* (1480; GW 2017). Printing did not thrive in Genoa until the next century despite the promising start.

The second earliest edition of Boccaccio's *Decamerone* (GW 4442) is the first book printed in Mantua, by Pietro Adamo de Michele in 1472. In the same year Georg and Paul von Butzbach printed their well-known edition of Dante (GW 7959). Other German printers followed them, viz., Johann Burster of Kempten (1472–1473), Thomas of Hermannstadt (1475), and Johann Schall (1476). In 1476 Abraham Conath introduced Hebrew printing. Other Mantuan printers of the 15th century were Aloisius de Siliprandis and Vincentius Bertochus.

Lambert Laurenszoon (supra) established a press in Mondovi (Monteregale) in 1471 but sold out to Baldassare Corderius (Cordero), a native of the community

who printed Antoninus Florentinus' *Confessionale* in 1472 (GW 2088) with Antonius Mathiae, a refugee from the plague in Genoa. In 1476 Dominicus de Vivaldis, and in the years 1476–1495 Laurentius and Stephanus de Vivaldis printed in Mondovi. Two other smaller Italian communities had presses in 1472: Fivizzano, where the brothers Jacobus, Baptista, and Alexander de Fivizzano printed from 1472 to 1474; and possibly Santorso near Vicenza, of which the first known imprint is from the German Leonardus Achates in 1474.

Brescia (Brixia) was the place where an unidentified printer produced a Juvenal and Persius for Pietro Villa in 1473. Thomas Ferrandus, the Frenchman Statius Gallicus, and Henricus de Colonia followed; and a Latin *Iliad* (Hain 8774) bears the imprint of the last two. Boninus de Bononis (1483–1491), Angelus and Jacobus Britannicus (1483–1500), Baptista Farfengus (1490–1499), and Bernardinus Misinta (1495–1502) were other early Brescia printers. In Cremona, Dionysius de Paravisino and Stephanus de Merlinis printed Angelus de Ubaldis' *Super I parte Digesti novi* in 1473 (Hain–Copinger 15872). Misinta was printing there in 1492–1493 with Caesar Parmensis, Pierre Maufer in 1495, and Carolus de Darleriis after 1495.

In Pavia the first known printed book came from the press of Johannes de Sidriano of Milan in 1473 (Hain 1597). Another Milanese printer, Antonius Caseanus (Carchenus, de Carchano, Carcano), printed in Pavia from 1476 to 1497, mainly in the fields of law and medicine. Occasionally he was associated with Ripa Zaninus. The university attracted a number of other printers, of whom Jacobus de Paucisdrapis (active from 1499 to 1512) deserves special mention for the outstanding woodcuts he used. Later he went to Ticino, then to Lyon.

Johannes Fabri, a French itinerant printer, and Johanninus de Petro were brought to Turin in 1474 and produced a Roman breviary there in 1474 (GW 5124). Fabri remained there until 1490 except for a brief sojourn in Caselle. Jacobus Suigus (Suicus, or Giacomo Svigo) of San Germano, another itinerant printer, was in Turin from 1487 to 1495 when he moved to Lyon. Franciscus de Silva printed in Turin after 1488. Vicenza was the home of a press established by Leonardus Achates and Johannes de Reno in 1474, and the old Lombard city had a flourishing printing industry from then on. In Modena, Johann Burster or Wurster of Kempten printed a Vergil in 1474.

Of the 73 places where there were presses in 15th-century Italy—more than in any other European country in the period—further mention will be made here only of places where there was printing in Hebrew. (Italy, Spain, and Portugal were the main sources of Hebrew books before 1501.) Salomo Jizchaki's commentary on the Pentateuch (Reggio di Calabria, February 1475) was the first printed Hebrew book, followed by the ritual of the four Turim of the Spaniard Jacob ben Asher in Pievi di Sacco near Padua. Mantua, Ferrara, Casalmaggiore, Naples, Brescia, Barco, and, above all, Soncino had Hebrew presses. The Soncino family, named for their place of residence, was the most important group of printers, and subsequently some of them moved to other parts of Italy and even to Saloniki and Istanbul. The founder of the Soncino printing tradition was Israel Nathan. The most important printers in the family were Joshua, Solomon, and Gerson.

Although printing had its first development north of the Alps, it is significant that German craftsmen played such a large role in Italy during the 15th century. Italy, now in the High Renaissance, could furnish authors, editors, and readers, in greater abundance than any other country of Europe. The some 4,150 Italian incunabula that have been identified exceed the production of any other country. At no other time in world history has a technical revolution coincided so effectively with an intellectual revolution.

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LAWRENCE S. THOMPSON

Printing in France Before 1501*

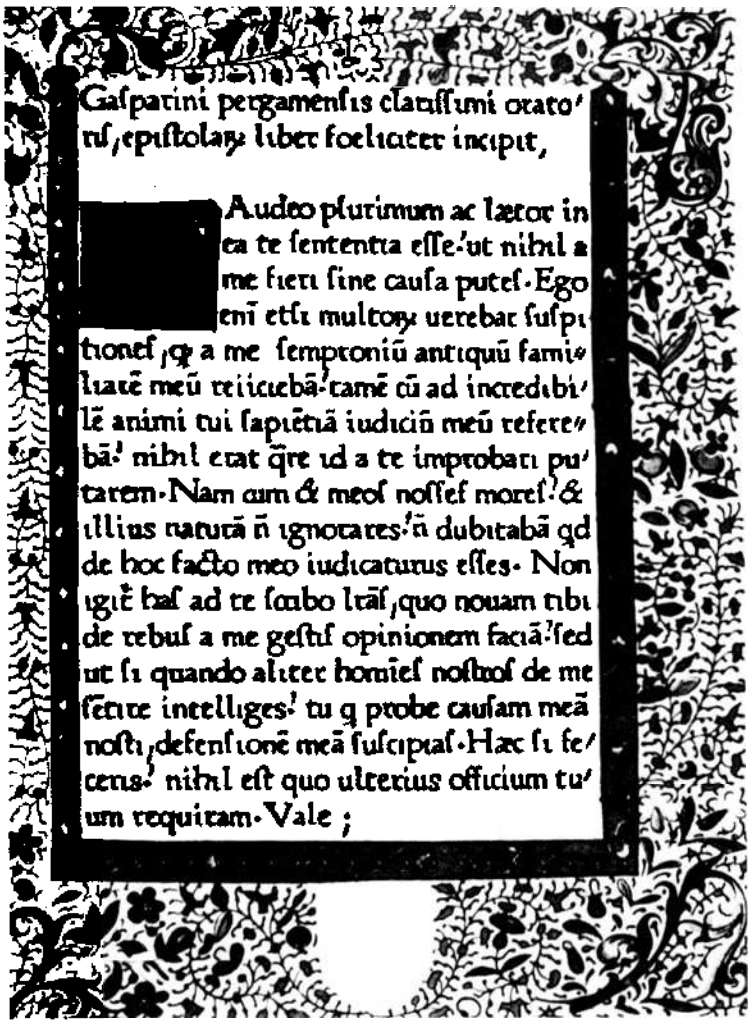
Printing was widespread in three areas in Europe—southern Germany, northern Italy, and the Low Countries—a quarter of a century after Gutenberg completed his Bible. Although some 40 French towns had printing before 1501, printing in France was concentrated in Paris and the rich commercial city of Lyon. It is also significant that at the dawn of typography France was beginning to recover from the Hundred Years' War and was under the vigorous rule of Louis XI, whose concern with diplomacy and strengthening royal power was matched by his wish to rehabilitate French trade and manufactures.

PARIS

However, it was not the desire to introduce new industry that brought printing to France. Rather it was the needs of the Sorbonne, which was beginning to regain some of the distinction it had enjoyed in past centuries. The prior of the Sorbonne, Johann Heynlin from Stein (hence Lapidarius) near Constance, and his associate Guillaume Fichet, a Savoyard who was professor of theology, arranged to bring in three German printers: Ulrich Gering of Constance, Michael Friburger of Colmar and master of arts from the University of Basel, and Martin Crantz, a compatriot of Heynlin from Stein. They set up their press in Heynlin's quarters, and their first book was Gasparinus Barzizius' *Epistolae* (1470; GW 3675), edited "per Joannem Lapidarium" and with a preface by Fichet. (See Figures 1 and 2.) In the 3 years until 1473 the Germans printed 23 books in Latin under Heynlin's editorial guidance, all in a rather large roman type.

In 1472 Fichet was called to Rome. Heynlin was to return to Basel, where he appeared later as an adviser of the great printer Johannes Amerbach. After 1473 the three printers became independent and moved their press to the rue Saint-Jacques, "Au Soleil d'or"; and there they turned to a broader public, producing theological works in gothic types. France has never had a true university press since 1473. The last book in which the name of all three printers appears is Leonardus de Utino's *Sermones quadragesimales de legibus dicti*, dated October 31, 1477 (Hain–Copinger 16118). Of Crantz and Friburger no more is known.

* The Bibliography for this section begins on page 353.

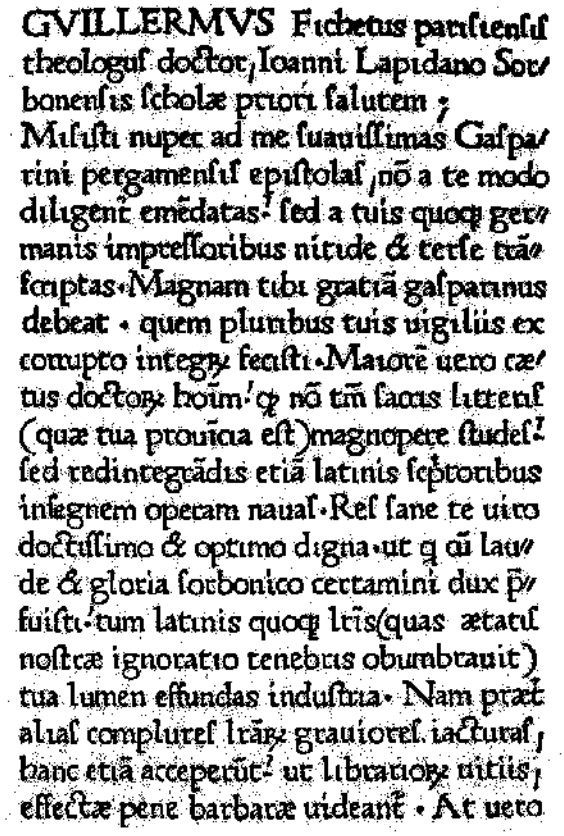

Gaſparini pergamenſis clariſſimi orato-
ris epiſtolarū liber feliciter incipit,

Audeo plurimum ac lætor in
ea te ſententia eſſe: ut nihil a
me fieri ſine cauſa putes. Ego
enī etſi multorū uerebar ſuſpi-
tionem, q a me ſemproniū antiquū fami-
liarē meū retinebā: tamē tū ad incredibi-
lē animi tui ſapiētiā iudiciū meū refere-
bā: nihil erat q̄re id a te improbari pu-
tarem. Nam cum & meos noſſes mores: &
illius naturā n̄ ignorares: n̄ dubitabā qd
de hoc facto meo iudicaturus eſſes. Non
igit̄ hāc ad te ſcribo lr̄am, quo nouam tibi
de rebus a me geſtis opinionem faciā: ſed
ut ſi quando aliter homines noſtros de me
ſentire intelliges: tu q probe cauſam meā
noſti, defenſionē meā ſuſcipias. Hæc ſi fe-
ceris: nihil eſt quo ulterius officium tu-
um requiram. Vale;

FIGURE 1. *Gasparinus Barzizius,* Epistolarum libri *(Friburger, Gering, and Crantz, Paris, 1470), the first book printed in France.*

The *Praeceptorium divinae legis* of Johannes Nider, dated April 20, 1478 (Hain–Copinger 11791), carries Gering's name only and, like subsequent works, it is printed in a roman type. In 1479–80 Gering took in the Frenchman Guillaume Maynial. In 1483 Gering bought a house in the Sorbonne and was designated as a bookseller in the closing papers. In 1484 Johann Higman (Hygman) of Utrecht printed for him in his quarters, and in 1489 Georg Wolf of Baden also worked for him. In 1493–94 Berthold Remboldt, a native of Strassburg who had studied at Tübingen, went into business with Gering and, after the latter's death in 1510, conducted the firm until 1519.

Printing houses began to proliferate in Paris after 1473. Petrus Caesaris (Keysere) and Johannes Stoll set up a press in the rue Saint-Jacques (for centuries the street of printers), "Au Soufflet vert." Although Caesaris has been confused with a native of Ghent by the same name, and also with the German Peter Wagner (also called Petrus Caesaris), the records show that a Petrus Caesaris was elected procurator of



GVILLERMVS Fichetus parisiensis theologus doctor, Ioanni Lapidano Sorbonensis scholæ priori salutem;
Misisti nuper ad me suauissimas Gasparini pergamensis epistolas, nō a te modo diligenter emēdatas: sed a tuis quoq; germanis impressoribus nitide & terse trāscriptas. Magnam tibi gratiā gasparinus debeat, quem plumbus tuis uigiliis ex corupto integru fecisti. Maiorē uero cæterus doctoru hoim/q; nō tm sacris litteris (quæ tua prouincia est) magnopere studes: sed tedintegrādis etiā latinis scriptoribus insignem operam nauas. Res sane te uiro doctissimo & optimo digna. ut q̄ ōi laude & gloria sorbonico certamini dux p̄fuisti. tum latinis quoq; lr̄is (quas ætatis nostræ ignoratio tenebris obumbrauit) tua lumen effundas industria. Nam præt alias complures lr̄ārū grauiores iacturas, hanc etiā acceperūt: ut librariorū uitiis, effectæ pene barbaræ uideant. At uero

FIGURE 2. *Gasparinus Barzizius*, Epistolarum libri *(Friburger, Gering, and Crantz, Paris, 1470), the first book printed in France.*

the German Nation seven times. The fact that he seems to have been the editor and to have given scholarly direction to the business seems to indicate that our Petrus Caesaris was identical with the procurator. Their first imprint was Guido de Monterocherii's *Manipulus curatorum* (1473; Hain 8173). They printed until 1478, usually giving both of their names in the imprint, but occasionally only one.

Pasquier Bonhomme printed from 1475 to 1477 "en la rue Neuve Notre Dame devant la grand église en lostel maison de Pasquier Bonhomme où pend pour enseigne l'Image de Saint-Christophe." He printed the first book in French, three volumes of *Les grandes chroniques de France* (1476; GW 6676) in a bastard gothic. Two-thirds of the first page of each chapter was left blank for decoration with miniatures or coats of arms (e.g., the Arsenal copy, with miniatures and the armorial bearings of Jean de Malestroit). Bonhomme's son Jean, active from 1484 to 1490, produced an illustrated book, *L'Histoire de la destruction de Troye la Grant*, in 1484, and in 1486, the first printed work on agriculture, Petrus de Crescentiis' *Livre des ruraulx prouffits du labour des champs* (GW 7830), illustrated with realistic vegetation.

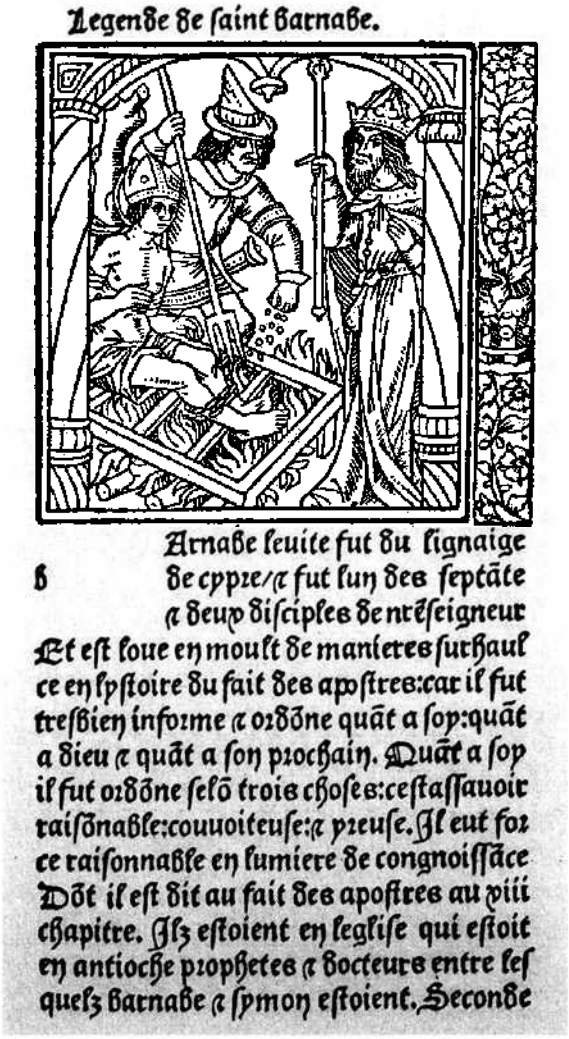
In 1476 Louis Simonel of Bourges was printing "Au Soufflet vert," and, with Richard Blandin and Jean Simon, printed 12 books up to 1479–80, "In vico S. Jacobi in intersignio follis viridis." Twenty-seven other books printed from 1475

to 1484 are in the same types used for the 12 known to have been printed "Au Soufflet vert."

Up to the end of the century about 60 presses were located in Paris. A large proportion of their output was in the vernacular and of a popular character, contrary to the work of the Italian printers, who served humanistic scholarship so faithfully. Courtly literature, chivalric romance, and translations and adaptations from Latin were common. Books of hours were a specialty, and Parisian printers served other French dioceses as well as foreign ones (e.g., the Salisbury missal produced in 1487 by Guillaume Maynial for William Caxton). The work of Antoine Vérard and Simon Vostre in this genre includes some of the finest books produced in Europe before 1501.

Jean du Pré (de Prato; same name as that of the printer active in Lyon from 1483 to 1495 and elsewhere) was the first Parisian printer distinguished for his missals. It may have been he and not the Lyon man who was in Chartres (1482) and Abbeville (1486) for short periods, but his principal seat of activity was Paris from 1481 to 1504. His first missals were the first two illustrated French books, the *Missale Parisiensis* of September 22, 1481, and the *Missale Virdunensis* of November 28, 1481. The borders with interlaced ornaments, flourishes, and animals lend a striking decorative effect. Du Pré printed several other missals, but he also printed work in the vernacular for a broader public. (See Figure 3.) In Abbeville he and Pierre Gérard printed Augustine's *De la cité de Dieu* (1480; GW 2891). In 1483–84 he printed Laurent de Premierfait's French translation of Boccaccio's *La ruyne des nobles hommes et femmes* (GW 4434). In 1488 he produced a *Lancelot du Lac* (Hain–Copinger, Addenda, 9489, II) and before 1493 a *Roman de la Rose* (Copinger 5153), typical of his efforts to print for a larger market.

Antoine Caillaut (1482–1498) was quite prolific, but most of his books had a scholastic orientation and few were in the vernacular. He had several associates at different times and also printed for outside publishers. His *Stella clericorum* (ca. 1482, Goff S–766; and 1488[?], Goff S–768) contains some curious verses he wrote with an acrostic spelling his name. Guy Marchant (Mercator) printed from 1483 to 1504 and produced books in all fields, including many translations into French. His *Compost et kalendrier des bergers* (1493; GW 5909) is the first illustrated French calendar. Pierre Levet printed some forty-odd books from 1485 to 1500, both for himself and for others, notably Antoine Vérard. The wood engravings in some of his books are among the best in 15th-century France. Pierre Le Rouge (not to be confused with Jacques Le Rouge, the printer of the same name, also from Chablis, who worked in Troyes, Embrun, Venice, and Pinerolo) began to print in 1478 in his native Chablis. In 1486 he settled in Paris and printed until 1492 for himself and others, particularly Vérard, holding the title of "impressor regius." His French translation of the *Rudimentum novitiorum* entitled *La mer des histoires* (1488; Copinger 3991) is distinguished for its handsome wood engravings. Johann Higman printed Dominicus Mancinus' *Carmen de passione Christi* in 1484 (Copinger 3814) with Gering's type, and after 1489 he had his own shop with Wolfgang Hopyl from The Hague. Some 68 books were wholly or partly his work until his death in 1500 (his widow married Henri Estienne). Higman printed for


Legende de saint Barnabe.

Barnabe leuite fut du lignaige
de cypre/ et fut lun des septãte
et deux disciples de nr̃e seigneur
Et est loue en moult de manieres surhaul
ce en lystoire du fait des apostres:car il fut
tresbien informe et ordõne quãt a sop:quãt
a dieu et quãt a son prochain. Quãt a sop
il fut ordõne selõ trois choses:cestassauoir
raisõnable:couuoiteuse:et preuse. Il eut sor
ce raisonnable en lumiere de congnoissãce
Dõt il est dit au fait des apostres au viii
chapitre. Ilz estoient en leglise qui estoit
en antioche prophetes et docteurs entre les
quelz barnabe et symon estoient. Seconde

FIGURE 3. *Jacobus de Voragine,* Legenda aurea *(Jean du Pré, Paris, 1489) in gothic type.*

publishers by commission, and some of his work is in English (partially) and Dutch, although in the Dutch translation of Brant's *Narrenschiff* he specifically says he is a German.

Georg Wolf of Baden printed a Vergil for Gering in 1489 (Copinger 6032), and from 1492 until he died (probably 1500) he printed independently and also with associates. He was an engraver and worked for and with Thielmann Kerver of Coblenz. The latter printed over 20 books of hours before 1500, some with Wolf's engravings, and continued to be active until 1522. André Bocard printed in Paris both for himself and for publishers, as did his sometime partner, Félix Baligault (Balligault, Balegault). Michel Le Noir (Niger) printed from 1489 to 1520, mostly smaller theological works but also some works in the vernacular, including translations. He married the daughter of Jean Trepperel, who printed mainly books in French from 1492 to 1500, and also printed for Trepperel. Nicole de La Barre (Barra) printer and bookseller for the University of Paris, was another printer for Trepperel. In all there were some 60 printers in Paris before 1501, some of whom printed works of superior quality in text and illustration.

The first great Parisian publisher was Vérard. He began printing in 1485 and won such distinction that in 1506 he was granted the title of "libraire juré de l'Université" and in the following year a royal privilege that protected him from piracy. Up to his death in 1512 (when his son Barthélemy took over), he published some 300 titles, including numerous books of hours. Seventy titles before 1501 bear his imprint. He had or had access to an enormous stock of wood engravings and initials. He presented deluxe copies of his books, often on vellum, to high personages, for example, the *Chroniques de France* (1493; GW 6677) to Charles VIII, with 951 miniatures. Some of his painted wood engravings are comparable to those of the best manuscripts of the immediately preceding age. There were other interesting, if not so elaborate, works in the vernacular such as Robert Gaguin's translation of Caesar's *Commentaries* (1488, GW 5877) with a dedicatory plate in which the author, Heynlin's successor at the Sorbonne, presents his work to the king; Olivier de la Marche's *Le chevalier délibéré* (1488; Hain–Copinger 4952; printed either by Marchant or Caillaut); and a *Mystère de la Passion* (Hain 11664) with 80 illustrations.

Next to Vérard, Simon Vostre was probably the most important Parisian publisher of the late 15th century. He is best known for the books of hours which were printed for him by Philippe Pigouchet and other local craftsmen. Gering and Remboldt printed a handsome missal in Paris for Vostre in 1497. Pigouchet, who printed and published from 1484 into the next century, developed a highly original style of illustration on copper plates in which small figures seem to move on a black background, with gothic architectural designs around them. In addition to Verard and Vostre, other leading Paris publishers were the Marnef brothers, Denis Roce, Jean Petit, and Francois Regnault.

LYON

Lyon, the prosperous city which was France's gateway to Italy, was a natural place for printing to take root at an early date. Guillaume Le Roy (Guillermus Regis, Regius) of Liège may have learned to print in Venice in the shop of Wendelin da Spira, and he came to Lyon on the invitation of a prominent merchant, Barthélemy Buyer, once a student in the faculty of arts in Paris. His first book was Lotharius' *Compendium breve* (1493; Hain 10215). His early work, mainly Bible translations, travel books, and romances of chivalry, was undistinguished. After Buyer's death in 1488, Le Roy operated independently, and his first book issued on his own was a French version of Vergil (1483; Hain 3363, II), possibly his own work. After 1483 his books were extensively illustrated with wood engravings. Of the some 40 books ascribed to him, most are in French, although in 1485 he printed a liturgical work, *Paschalia ecclesiae Lugdunensis* (Copinger 4615). His last book carries the date of 1488, and he appeared on Lyon's tax lists as late as 1493, when he was exempted on account of poverty.

After Le Roy there were more than 50 printers in Lyon before 1501. Martin Huss (Hus, Huz, Husz) of Botwar near Marbach in Swabia, who had learned to print in Basel, used type from Basel in his early works, for example, Matthaeus Silvaticus' *Pandectae medicinarum* (1478; Hain 15197), printed with Johann Siber.

FIGURE 4. The Roman de la Rose *printed by Guillaume le Roy, first printer in Lyon, about 1486.*

In the same year he printed alone the *Mirouer de la rédemption de l'humain lignaige* (*Speculum humanae salvationis*; Copinger 5582), the first illustrated book in France. It is in a new typeface, still in the Basel style, with 256 wood engravings which had already been used in Cologne in 1474 and in Basel in 1476. It was only in the books of Le Roy that wood engravings of local origin were used. He died about 1482, and his relative (brother?), Matthias, followed him. He was responsible for about 75 books.

Nicolaus Philippi (also Pistoris and Müller) of Bensheim printed Johannes Petrus de Ferrariis' *Practica nova juris* (Hain 6987) with Marcus Reinhart of Strassburg, a brother of Johann Grüninger. Their edition of Guido de Cauliaco's *Chirurgia*, illustrated with surgical instruments and claimed by some to antedate Huss' *Mirouer de la rédemption* as the first French illustrated book, appeared under Buyer's name. Their *Legenda aurea* of Jacobus de Voragine (Copinger 6476) and Aesop (GW

368) of 1480 and Rodericus Zamorensis' French translation of the *Speculum vitae humanae* (1482; Hain 13953) are extensively illustrated with wood engravings. Reinhart left in 1482 and appeared again in 1490 in Kirchheim in Alsatia, and Philippi continued to print until his death in 1488.

In 1488 Michel Topié, a German from Pyrmont, and Jacques Heremberck printed Le Huen's French translation of Bernhard von Breydenbach's *Peregrinatio in terram sanctam* (1488; GW 5080), 2 years after the famous Mainz edition printed and illustrated by Erhard Reuwich. The illustrations are based on those of the German book, but some are engraved on copper, the first use of this technique in France. In 1486 they printed Raoul Le Fèvre's *Recueil des hystoires troyennes* with some highly original illustrations, inter alia one of the marriage of Zeus and Hera with an officiating bishop. Topié later printed with Johann Numeister (the missal for Uzès of 1495), and his last known work is a breviary for the Augustinians of Saint-Ruf (1500; GW 5233), although he was alive as late as 1512.

Jean de Vingle was active in Lyon from 1491 to 1510. He printed Latin classics and some outstanding illustrated books, for example, four editions of the *Quatre fils Aymon* in the period 1493–1499 (GW 3135–3137, 3139), two of the *Legenda aurea* (1491 and 1497), the *Vigilles de la mort de feu roi Charles VII* (1498), and a Boethius (1498; GW 4569). Other printers of Lyon toward the end of the century who produced significant books are Pierre and Jacques Maréchal, Jean Faure, Jacques Arnouillet, Guillaume Balsarin, Janon Carcain, and Jacques Maillet (1489–1514 in Lyon, but also responsible for a missal for Besançon with a Venice, 1500, imprint; Copinger 4098).

Johann Trechsel was as significant as any printer of Lyon in the decade of his activity from 1489 to 1498. He had been a student at the University of Erfurt in 1454, and in 1488 he established himself firmly in Lyon when he married Philippi's widow. The first book with his name in the imprint is Robertus Caracciolus' *Sermones quadragesimales* (1488–89; GW 6082), and he dedicated himself thereafter to the publication of philosophical and theological works with a few exceptions, notably the remarkable Terence of 1493 (GW 3127, see Figure 5) with 159 wood engravings. It is the most important illustrated incunable published in Lyon, and it is significant that the illustrations are similar in style to those of the Lübeck Bible, although the techniques are French. Trechsel offers composed rhymed colophons for his books, and it is clear from these that he cut his own type. His most enduring contribution to French scholarly printing lay in his choice of advisers. It was on the recommendation of Johannes Trithemius, abbot of the Benedictine monastery of Sponheim near Trier, that Trechsel issued the works of William Ockam in single titles. His most important adviser was Jodocus Badius Ascensius (1462–1535) of Ghent, who joined Trechsel as a corrector in 1492. In 1503 he established his own press in Paris, Praelum Ascensianum (infra).

THE PROVINCIAL PRINTERS

After Paris and Lyon, printing spread throughout France in the following chronological sequence: Toulouse, Angers, and probably Albi, 1476; Chablis and Vienne,

Cherea. Antipho.

n Vnquis hic est: nemo est. Nunquis hic me
n sequtur: nemo hō est. Iā ne erūpe hoc mihi
licet gaudium: Proh iuppiter, nūc ē tēpus

Vnquis &c. In hac scæna uerba gestū multūq; i/dicant exeuntis cui obuia psona obicit ib cuius occasione spectatoribus gesta narrabunt. Che. nūquis. i. nūquid aliquis est hic. apud me scilicet q mihi cōprahēsor occurrat. Deinde nemine uiso subdit. nemo ē. nunqs sequit me hic q me scilicet psequat. postea nemine uiso subiūgit. nemo hō est. i. nullus hō est. nemo eni iūctū cū homo idē est quod nullus. ut neminē uidi hoiem. i. nullū. Deinde ōsdit se cupe fūmope suū gaudiū alicui cōi/care sed neminē interuenire uidet cui narret. Ne. i. utrum licet mihi iam. i. nūc erūpere. i. exprimere emittere manifestare pdere meū gaudiū quod cepi in illa sup/positiōe cū. i. p eunucho fui supposit⁹. Vel si uis cape ut Donat⁹ ait: erūpere neutraliter p exire & tūc sic astrue. licet ne iā hoc. i. meū gaudiū erūpe. i. ex. re pdire elabi euadere mihi. i. a me māifestādo. s. alteri. Dicim⁹ ei erupit i hāc nocē & hæc nox ex ei⁹ pectore erupit qi exiuit. Proh iuppit ut ait Seruī⁹ i. iii. ænei. irascētis exclāatio e.

FIGURE 5. *Guido Juvenalis,* In Terentium interpretatio *(Trechsel, Lyon, 1493).*

1478; Poitiers, 1479; Caen, 1480; Chartres and Metz, 1482; Troyes, 1483; Chambéry, Bréhan-Loudéac, and Rennes, 1484; Tréguier and Salins (1483?), 1485; Abbeville, 1486; Rouen, Besançon, and Lantenac, 1487; Embrun, 1489; Grenoble, Dôle, and Orléans, 1490; Goupillières, Angoulême, Dijon, and Narbonne, 1491; Cluny, 1492; Nantes, Châlons, Tours, and Mâcon, 1493; Limoges, 1495; Provins, 1496; Avignon, 1497; Périgueux, 1498; Perpignan and Valenciennes, 1500.

Printing spread, like any other business, to localities where money was to be made, but, in general, provincial printers had to live off of what was left over from Paris and Lyon. The first book printed in Toulouse was Andreas Barbatia's *Repetitio de fide instrumentorum* (1476; GW 3358), of which the type resembles closely that of Martin Huss in Lyon. Johann Parix (Johannes Theutonicus) of Heidelberg printed in Toulouse from 1477 to the end of the century, and he had close busi-

ness relationships with Johann Rosenbach in Valencia and other Spanish printers. Heinrich Mayer, perhaps identical with a student of the same name at Basel in 1462, was another Toulouse printer, and his equipment went to Parix after his death in 1500. Another Toulouse printer associated with Parix was Stephan Cleblat, who, with the former, printed Alfonso de la Torre's *Vision delectable* (1489; Hain 15556) and the *Historia de la linda Melusina* (1489; Hain 11060). Albi in Languedoc could have had a printing office as early as 1475, and Numeister printed there from 1480 to 1484. Jean de la Tour (Turre) and Jean Morel were attracted by the potential business offered by the old University of Angers. Turre later worked for Jean Alexandre, publisher and bookseller of Paris and Angers until 1504 when printing ceased in Angers for a long time. Chablis, home of the Le Rouge family, where Pierre printed the *Livres de bonnes moeurs* in 1478, is otherwise unimportant. Vienne, capital of Dauphiné, enjoyed the services of three German masters. Johann Solidi (Schilling) of Winterheim, a student at Basel in 1460 and possibly a printer in Cologne in the years 1470–1472, began printing in Vienne in 1478. Like the other early printers of Vienne, Eberhart Fromolt and Peter Schenck, he remained there for a short while only.

In Poitiers the first imprint was Landulphus de Columna's *Breviarium historiarum* (1479; GW 7249), from the office called St. Hilary (Jean Bouyer). Other works followed sporadically, and in 1489 came an *Officium beatae virginis Mariae* with notation of two printers, Bouyer and Pierre Bellesculée; in 1491, Aristotle's *Logica vetus*, with Bouyer and Guillaume Bouchet as printers. In all there are 59 imprints known from St. Hilary until 1515. In Chartres (Carnotum) we have a missal (1482) and a breviary (1483), both possibly produced by Jean du Pré. Pierre Gérard, active in the former city, possibly with or for du Pré, produced three books in 1486 and 1487. In Metz the Carmelite Johannes Colini and Gerhardus de Nova Civitate printed a partial text of the *Imitatio Christi* under the title of *Ammoniciones ad spiritualem vitam utiles* (1482; Hain 9136), the only book carrying their names. The *Speculum animae peccatricis* carries only the year of 1482. Not until 1499 was there a second printer in Metz, Kaspar Hochfeder of Nuremberg (Metz, 1499–1502; Cracow, 1502–1509; Metz, 1509–1517). The first book printed in Troyes is a breviary of 1483, for which we assume that Pierre Le Rouge was the printer. In the period 1491–1512 Guillaume Le Rouge and his brother Nicolaus printed there.

There are 22 known imprints of the 15th century from various communities in Brittany, of which all are in French and 10 are in verse. Robin Foucquet and Jean Cres settled in Bréhan-Loudéac and printed some 10 books in 1484 and 1485. In Rennes, Pierre Bellesculée and one Josses printed a quasi-official *Coustumes de Bretagne* in 1484. Two other Rennes incunabula are known. In Treguier a *Coustumes de Bretagne* was printed by one Ja. P., of whom nothing more is known; and Jean Calvez was active there from 1499 to 1511. In Lantenac Jean Cres appeared in 1487 and possibly printed in the Benedictine monastery there. The only 15th-century printer in Nantes was Étienne Larchier. Among his five books are two editions of Jean Meschinot's *Les lunettes des princes*.

In Chambéry in Savoy, Antoine Neyret printed from 1484 to 1486. In Salins-

les-Bains in the Jura the dating of the first imprints is obscure, as is the name of the printer. Jean du Pré appears to be responsible for an indulgence, possibly as early as 1483 (Copinger II, 3612) and a breviary for Besançon (1484[?]; GW 5284); and in the next year a missal for the local episcopal see appears with his name and those of Benoît Bigot and Claude Baudrand. In 1484, at least for a brief period, Pierre Gérard and du Pré moved their activity northward from Chartres to Abbeville, but printing did not flourish subsequently in that small Picard community. It seems likely that the Jean du Pré who printed in Salins-les-Bains and Uzès (missal of 1493; GW 5501) was different from the Parisian printer and publisher, and that one or both equipped and/or financed printers elsewhere. In any event, one should deal with imprints with the name of Jean du Pré with greatest caution.

In Rouen, Guillaume Le Tailleur was active from 1487 to 1490, and in 1488 he was joined by Jean Bourgeois, who printed until 1499. The most important 15th-century printer there was Martin Morin, a specialist in liturgical works. Most Rouen printers used this genre, although Jacques Le Forestier, associated with Morin, printed books in French. In 1487–88 Peter Metlinger of Augsburg, son-in-law of Johannes Amerbach and at one time his representative in Paris, printed a *Statuta synodaliae Bisuntinae cum speculo sacerdotum aliisque tractatibus* (1487; Copinger 5612) and in 1488, two other books. Metlinger was also the first printer in Dôle in the Jura with the *Coûtumes du duché et comté de Bourgogne* (1490) and in Dijon with Johannes de Circey's *Privilegia ordinis cisterciensis* (1491; Hain 9391). Grenoble's first printer was Stephanus Foreti, who produced Guido Papa's *Decisiones parlamenti dalphinalis* (1490; Hain 8156). Johann Belot Rhotomagnensis printed in Grenoble from 1495 to 1497, and one of his books was a missal for the local bishop. The single Orléans imprint of the 15th century was by Mathieu Vivian, Guido de Monte Rocherii's *Manipulus curatorum* (1490; Hain 8214). At the old cathedral town of Embrun in the Hautes-Alpes, Jacques Le Rouge printed a breviary for the local bishop in 1489–90, but there was no printer there again until 1586 (Pierre Chaubert).

At Angoulême (Engolisma), Pierre Alain and Andre Cauvin printed from 1491 to 1493. In Narbonne an anonymous printer produced a *Breviarium narbonnense* "in claustro S. Justi," but there was a hiatus until the mid-17th century. Léopold Delisle discovered a single Goupillières imprint: *Horae* for the diocese of Evreux, from the press of the otherwise unknown Michael Andrieu in 1491. Michael Wenssler (Wensel) had been a successful printer in Basel from 1474 to 1490, but he went bankrupt in 1491 and produced the first Cluny imprint, a breviary, in 1491. Subsequently he printed in Mâcon, where he produced that city's first book, a *Diurnale romanum* (1493; GW 8546), and in Lyon. In Châlons-sur-Marne, Arnauld Bocquillon printed a *Diurnale* dated 1403, generally assumed to be a misprint for 1493. Limoges, where playing cards had been produced in the 14th century, had a *Breviarium* in 1495 (GW 5367) printed by Jean Berton, who subsequently produced some attractive missals. Guillame Tavernier printed Johannes Friburgensis' *Règle des marchands* in 1496 in Provins.

Avignon is best known in the early history of printing through the story that Prokop Waldfogel, a goldsmith of Praha, was experimenting secretly with type

in 1444. Whether he was using it for stamping book bindings or similar decorative purposes we do not know, but there is no true printing yet identified that can be ascribed to him. Jean du Pré, whichever one he was (probably of Lyon), sponsored the printer Pierre Rohault, who brought out Lucian's *Scipio romanus* (Hain 10268) there in 1497, with costs borne by Nicolas Tepa. Jean Carant was the first printer in Périgueux (Petracora) with an edition of Johannes Lapidarius in 1498. A *Breviarium elnense* came from the press of Johann Rosenbach, a German itinerant printer, in 1500. Jean de Liège printed in Valenciennes in 1500 and 1501, after which the city was without a press until 1601.

In French Switzerland the most important printing city by far was Geneva. Adam Steinschaber of Schweinfurt printed four books in French there in 1478, the first of which was probably Pedro Jiménez' *Livre des saints anges* (Hain 16230). Another was a *Melusine* with attractive woodcuts (facsimile edition, 1924, by the Société Suisse de Bibliophiles). Later he was associated with Heinrich Wirzburg (Wirczburg) of Vach, with whom he printed a *Calendarium latinum* (1479) and a *Breviarium lausannense* (1480; GW 5365). Wirzburg was in Rougemont (Rubeus Mons), eastward on Lake Geneva, in 1481, where he produced Rolewinck's *Fasciculus temporum* (Hain 6930). Ludwig Cruse, a German also known by his French name of Louis Garbin, began printing in Geneva in 1479 with the *Breviarium gebennense* (Copinger 1275), and he continued until 1495. Probably driven from Geneva by the plague in 1482, he produced Guy de Roye's *Le doctrinal de sapience* in nearby Promentour, thus lending this small place the distinction of having had a 15th-century press. Jean Belot (Bellot) printed a missal in Lausanne in 1493, and from 1497 to 1512 he printed in Geneva, mainly liturgical works but also *Le calendrier des bergiers* (1497), richly illustrated with wood engravings.

France was not to reach the high points achieved by Renaissance Italy until the next century, nor was there yet an intellectual and technological ferment comparable to that of the Germanies. On the other hand, there were liturgical works of enduring significance, some illustrated works comparable to the finest work in Germany and Italy, and editions of vernacular texts of substantial importance for the history of French letters and of French popular culture in the late Middle Ages.

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LAWRENCE S. THOMPSON

Printing in the Low Countries Before 1501*

ORIGINS AND ALLEGED ORIGINS OF PRINTING

Laurens Janszoon Koster (Coster) of Haarlem has been alleged to be the inventor of printing. The tradition began with Hadrian Junius, rector of the Latin school in Haarlem from 1559 to 1572, who repeated the story in his *Batavia* (1588). He said that Koster had long experimented with wooden letters and finally developed a printing process in 1440. A disloyal employee, one Johannes, made off with the type and the equipment, and went to Amsterdam, then Cologne, and finally Mainz, where he printed the *Doctrinale* and the tracts of Petrus Hispanus. There is also a garbled report in *Cronica van der hilliger stat van Coellen* (Cologne, Johann Koelhoff the Younger, 1499; GW 6688) concerning the origin of printing, ". . . so is doch die eyrste vurbyldung vonden in Hollant nyss den Donaten, die daselffst vur der tzijt gedruckt syn. . . ." Some scholars believed that very early fragments of Dutch printing were products of this effort. Gottfried Zedler believed that Coster invented type but that Gutenberg perfected the art of type founding. In any event there is at this time no firm evidence that printing was invented in Holland.

* The Bibliography for this section begins on page 358.

Probably the first imprints in the Low Countries were the four editions of the *Speculum humanae salvationis*, assigned by Henry Bradshaw to the date 1471–1474. They were probably printed in Utrecht. Once considered wholly xylographic, three of them have purely xylographic texts and a fourth has 20 pages of xylographic text, the remaining 41 being printed with type. The last is not the oldest (an earlier assumption) but is the third chronologically, preceded by one in Latin and another in Dutch, since the xylographic pages of the third are faithful copies of the first one in Latin. The original wood engravings were later sawed apart by Johann Veldener and used in his *Speghel onser behoudenisse* [Kuilenburg (Culenburg), 1483; Hain–Copinger 14927].

The first typographical printing in Holland which we can date with certainty and ascribe to printers identifiable by name was in Utrecht. In 1473 Nicolaus Keterlaer and Gherardus Leempt printed Petrus Comestor's *Historia scholastica* (Hain–Copinger 5540), and through 1474, 27 other titles. Their rather simple type seems to have been based on the locally current manuscript hand. Ketelaer's further career is unknown, but Leempt printed school books and popular works in Dutch in 's-Hertogenbosch (Buscoduca, Buscoducis) in the period 1484–1488. Wilhelm Hees printed a few books in 1475. Johann Veldener, one of the first two printers of Louvain, printed nine books in Dutch in Utrecht from 1478 to 1481, then a couple of pieces in 1483 and 1484 in the small community of Kuilenburg. An unidentified printer issued nine books in 1480, but thereafter Utrecht was without a printer until 1514.

SOUTHERN NETHERLANDS

Printing began in the southern Netherlands about the same time. Johannes de Westphalia (Paderborn), whose family name was de Aken, and his "socius," Theodoricus Martinus (Thierry Martens), printed three unsigned books (1473) and one signed book (1474) in Alost (Aalst). Johannes de Westphalia and his brother Conradus (Konrad) probably learned to print in Venice and were in Strassburg for a short while. Johannes' round gothic type, which he called "litera vera moderna" in his first Louvain imprint (Petrus de Crescentiis' *Liber ruralium commodorum*, 1474), was first used in Strassburg, then in Alost with a slight modification. Indeed, one of the 1473 Alost imprints, the Aderlassbüchlein (GW 220), has been suspected of having been printed in Strassburg. When Johannes de Westphalia moved to Louvain in 1474, Martinus continued to print by himself in Alost and produced 17 books until 1492 when he moved to Antwerp (8 books in 1493), then to Louvain (but also in Antwerp) where he produced some 200 works until his death in 1528.

Johannes de Westphalia had a highly productive career in Louvain from 1474 to 1496, where he printed some 175 books (in Latin, except four in Dutch), mostly theological, legal, and philosophical works, also some Latin classics. His books were textually accurate and well printed but without ornament except for an unusual printer's mark, his own portrait. For his classical texts he used a fine roman type based on northern Italian models. Johann Veldener from the diocese

of Würzburg and a student at the University of Louvain in 1473 (he called himself "Artis impressorie magister" after 1474) also began to print in Louvain in 1473 with an edition of Jacobus de Theramo's *Consolatio peccatorum, seu Processus Belial.* After printing 12 books in Louvain he moved on to Utrecht, then briefly to Kuilenburg, returning to Louvain in 1484 to print three more works, in part with new type. He died in 1485. As an artist, type designer, and bookbinder he showed considerable versatility and a highly personal style.

The flourishing University of Louvain continued to need printers. Conradus Braem printed Aristotle's *Physica* about 1475 and a few more works until 1481, and Conradus de Westphalia printed over his name only in the year 1476. Other printers who remained in Louvain for a short period only were Hermann von Nassau (1483), Rudolf Loeffs (1483–1485), Ägidius van der Heerstraten (1485–1488), and Ludwig Ravescot (1488). It remained for Thierry Martens (supra) to establish a genuinely productive press in 1498, which, along with his Antwerp office, was a focal point for production of books for humanism in the Low Countries. One of his close associates was Erasmus of Rotterdam.

Colard Mansion, a copyist before he was a printer, began to print in Bruges in 1475. His first dated book is Boccaccio's *De casibus virorum illustrium* (1476; GW 4452). At first no illustrations were planned, but subsequently copper engravings by an unknown master were mounted in it. His type was modeled on the hand used in contemporary Flemish manuscripts. William Caxton worked with Mansion in 1476, possibly even 1475, and later copied the latter's type in England. Mansion died in 1484. From 1477 to 1488, Jean Brito, who claimed to be the inventor of printing, produced five books in Bruges, but his main occupation seems to have been bookselling.

The Fratres Vitae Communis (also Clerici de Vita Commune; Fraterherren; Brüder vom Gemeinsamen Leben; Broeders van de Penne, from the pen on their head dress) were founded in Deventer by Gerhard Groote in 1383 and were professional copyists. Quite naturally, they began printing at an early date, thus, in Marienthal (Rheingau) in 1484 and Rostock in 1476. Their major press was in Brussels where some 30 liturgical and theological books were issued from 1476 to 1482. They are identified only in their *Legendae sanctorum Henrici imperatoris et Kunigundis* (1484). This book is also distinguished as the only illustrated Brussels imprint of the 15th century. Printing was not firmly established in Brussels until Michel van Hamont (1557–1585) established his press.

NORTHERN NETHERLANDS

Jacob Jacobszoen van der Meer printed in Delft from 1477 to 1487. His partner for a large proportion of his books was Mauricius Yemantszoen. Most of them were in Dutch, and the most important of their books in the vernacular was the first translation of the Bible into Dutch, the Old Testament of 1477 (Hain 3160). Christian Snaellert printed a large number of books in Delft from 1488 to 1497. He issued popular works in Dutch, humanistic works in Latin, and in 1497 the

Missale trajectense and *Missale Leodiense*. Heinrich Eckert (Egkert) of Homberch printed in Delft from 1498 to 1500, thereafter in Antwerp. Most of his books were in Dutch, but he also printed in Latin.

Richard Pafraet (Paffroet, Paffrod, Pafrod) of Cologne printed in Deventer from 1477 to 1511, when his son, Albertus, took over the business and handled it until 1540. The Pafraets' books covered a variety of fields, although most of them were scholastic in character. Together with Jacobus de Breda (Breyda, Bredensis), who printed in Deventer from 1485 to 1519, the Pafraets made Deventer one of the most important and productive early printing centers in the Low Countries.

Gouda was even more important. Gerard Leeu, scion of a prominent local family, printed the *Epistelen ende evangelien van den gheheelen jaere* in 1477. In 1480 he printed the first of several editions of the *Dialogus creaturarum moralisatus* (Hain–Copinger 6124), by Nicolaus Pergamenus or Maynus de Mayneriis, illustrated with 121 wood engravings, simple but quietly humorous. Its success is seen in the Gouda editions of 1481 and 1482, and in Leeu's Antwerp editions of 1486 and 1491. It appeared in Dutch and French and was the first book printed in Sweden (by Johann Snell in 1483 in Stockholm; Hain 6128). Leeu printed the last of his 62 Gouda imprints in June 1484, and in the following September he printed the *Gemmula vocabularum* in Antwerp. There were 145 works from his Antwerp press until he was slain by a worker in the course of printing the *Chronycles of the Londe of England* (1493). He was a friend of Caxton and of Erasmus. The history of printing in 15th-century Gouda is obscure, but special note should be made of an anonymous printer's edition of Olivier de la Marche's *Le chevalier délibéré* (1490), the glorification of the deeds of Charles the Bold in whose service the author was. The 16 outstanding wood engravings were used in Otgier Nachtegael's 1500 edition at Schiedam and the Dutch edition of 1503, *Den camp van der doot*. The illustrations of Vérard's Paris edition of 1488 and editions imitating it are inferior to the Dutch.

In 1478 Pieter Werrecoren had a press in Sankt Martensdijck, and the three 1479 Nijmegen imprints may have been produced by Leempt (there was no other printer there in 1536). Peter van Os began to print in Zwolle in 1479 and continued until 1510, producing books in both Latin and Dutch. His son, Thieman, who later introduced printing to Zutphen, is mentioned in some undated books. From 1480 to 1490 several books, mostly in Dutch, were printed in Hasselt, and signed PB (Peregrinus Bermentio), but this small episcopal see remained without printing for a long time thereafter. In 1483–1484 Heynricus Heynrici printed in Leiden, and in 1486 Govaert de Ghemen appeared. He is possibly identical with Gotfridus de Os, printer of a single book in Gouda in 1486. Ghemen printed several books in Latin and Dutch and moved to Copenhagen in 1493. Cornelius Kers was in Leiden briefly in 1494. Hugo Janszoen van Woerden printed devotional works in Dutch in Leiden from 1494 to 1500.

Haarlem finally had bonafide printing in 1483 when Jacob Bellaert of Zerixzee began to print and continued until 1486, including popular books in Dutch in his work. Johann Andreae printed briefly in Haarlem in 1488. Printing came to 's-Hertogenbosch with Gherardus Leempt in 1484 (supra), but the town had no other

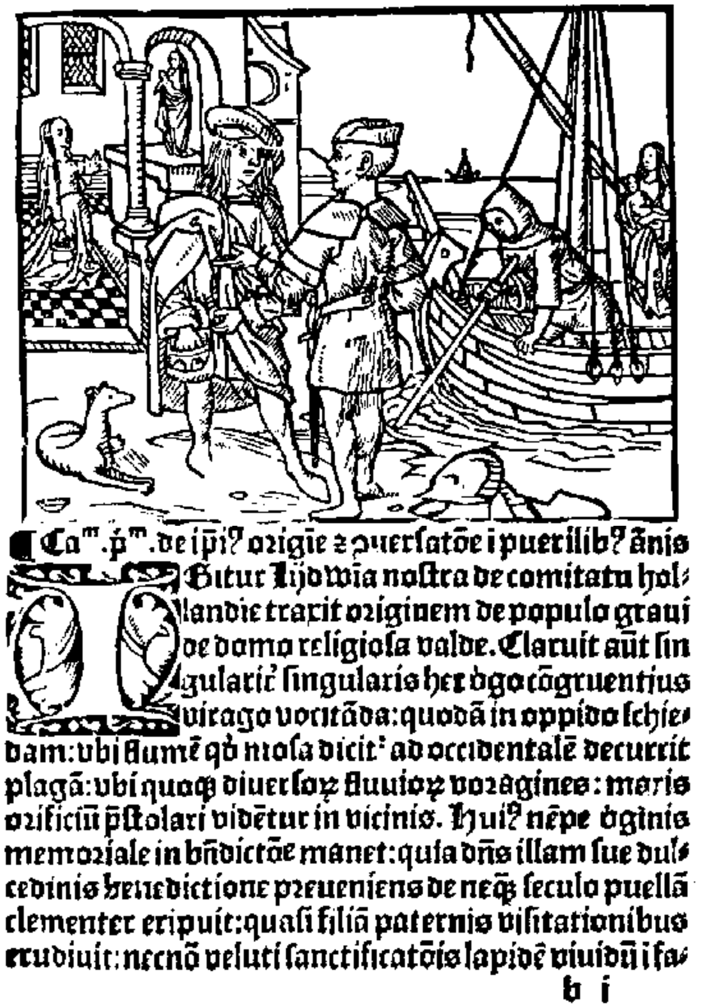

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FIGURE 1. *Brugmann,* Vita Lydwinae *(Otgier Nachtegal, Schiedam, 1498), l.9r.*

15th-century printer. Schoonhoven had a monastic press in 1495 in the house of the Fratres Apud S. Michaelem, where a *Breviarium traiectense* (GW 5488) appeared in 1495. From the same press came two editions of the *Breviarium windeshemense* (GW 5242, 5245) in 1499 and various didactic works into the 16th century.

While the Low Countries' claims to be the *fons et origo* of typographic printing remain unproven, the record of Holland and Belgium in the annals of 15th-century printing is most respectable, particularly with regard to tasteful illustration, the development of national traditions through publication in Dutch, and service to humanism. It was precisely these elements which were to distinguish printing in the Low Countries in the coming centuries.

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LAWRENCE S. THOMPSON

Printing in Spain and Portugal Before 1501*

The early history of printing in Spain offers many problems, small wonder for a nation that had not yet driven the infidel from its borders, was soon to expel some of the most productive elements in its population, and was soon to embark on the first great European colonial adventure and to mismanage it in the most reprehensible manner. In 1927 Konrad Haebler announced what is probably the earliest identifiable Spanish imprint. It is an indulgence authorized in 1473 by Cardinal Rodrigo Borgia, later Pope Alexander VI, for the benefit of the campaigns against the Turks. The resemblance of the type to those used in Cologne suggests that the printer learned his craft in this city, but we have no other hint as to his identity or the place were the indulgence was printed. It was probably not Segovia, as Haebler guessed. Further, the type had no resemblance to that of the early Valencia printers.

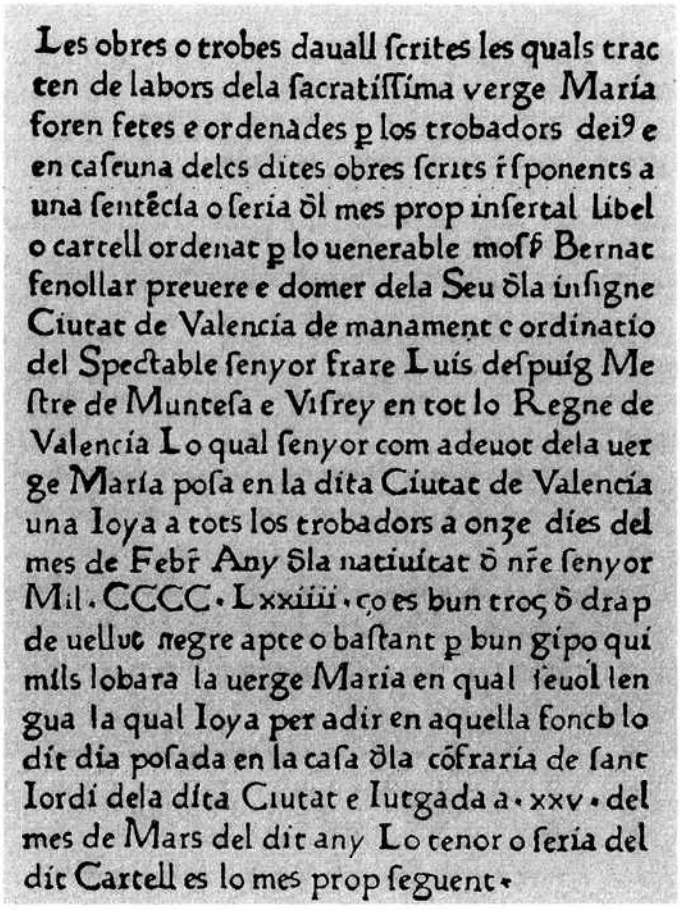
CATALONIA

In 1475 printing came almost simultaneously to Valencia, Barcelona, and Zaragoza. Jakob Vizlant (Wissland) of Isny in Upper Swabia, a member of the great

* The Bibliography for this section begins on page 367.

Ravensburg commercial group, set up a press in Valencia in 1474 and solicited the services of certain printers, probably including Lambert Palmart, Paulus Hurus, and Johannes de Salsburga. Their first book may have been Fenollar's *Obres o trobes en lahors de la Verge Maria* (see Figure 1) early in 1475 (Hain 6966), and two others are dated February 23 and July 13, 1474. Vizlant's death in the same year disrupted the organization, but his brother Philip took over and employed Palmart, a native of the diocese of Cologne. The latter printed Aristotle's *Ethics* (GW 2370), probably in 1475, and Thomas Aquinas' *Tertia pars summae* (1477; Copinger 1468 A) for him. In 1482, printing independently, Palmart brought out a Pomponius Mela (Hain 11018) and the official *Furs de Valencia* (Copinger 5918). His only illustrated work was a sermon of Jerònim Fuster in 1490. He seems to have been associated in Valencia with two Germans, Peter Trincher and Lope de la Roca, and Alfonso Fernández de Córdoba, and in 1493 he sold most of his equipment to Dr. Miguel Albert. He probably died soon thereafter.

Fernández de Córdoba was a silversmith and punchcutter. His best-known work, done with Palmart, was the Valencian Bible of Bonifacius Ferrer (1477–78; Hain 3159) in gothic type he cut on Venetian models. He used the same type in An-



Les obres o trobes dauall ſcrites les quals trac
ten de labors dela ſacratiſſima verge María
foren fetes e ordenades p los trobadors dei9 e
en caſcuna delcs dites obres ſcrits ſponents a
una ſentẽcia o ſeria ỏl mes prop inſertal libel
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Ciutat de Valencia de manament c ordinatio
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ſtre de Munteſa e Viſrey en tot lo Regne de
Valencia Lo qual ſenyor com adeuot dela uer
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una loya a tots los trobadors a onze dies del
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Mil. CCCC. Lxxiiii. ço es bun troç ỏ drap
de uellut negre apte o baſtant p bun gipo qui
mils lobara la uerge Maria en qual ſeuol len
gua la qual loya per adir en aquella foncb lo
dit dia poſada en la caſa ỏla cõfraria de ſant
Iordi dela dita Ciutat e lutgada a. xxv. del
mes de Mars del dit any Lo tenor o ſeria del
dit Cartell es lo mes prop ſeguent.

FIGURE 1. Obres o trobes en lahors de la Verge Maria *(Valencia, 1474), the first book printed in Spain that has survived.*

toninus' *Summula confessionis* (1477). Lope de la Roca printed Fernan Perez' *Oracional* in Murcia in 1487 with Gabriel Luis de Arinyo, and he appeared in Valencia in 1494 with Trincher as one of the printers commissioned by Albert to produce the *Repertorium haereticae pravitatis* (1494). He printed some 10 titles in the years 1495–1497, and his widow tried to continue the press after his death in 1498. Albert, a lawyer and poet, used several other printers, notably Trincher. The latter and de la Roca also printed Jaime Vincent's chess book in Catalan in 1495, but no copy survives. In 1498 Trincher alone printed the illustrated *Obra a llaora de Sant Cristòfol*. Another printer commissioned by Albert was Jaime Esteve of Valdigua, who produced Jean Boix' *Logica* in 1493–94 for him.

After Jakob Vizlant's death Johannes de Salsburga and Paulus Hurus went to Barcelona and printed Perottus' *Rudimenta grammatices* with the date of December 12, 1475. They were probably preceded by a Sallust and a Florus, dated 1475, and an undated edition of Cicero's orations against Catiline. Johannes de Salsburga then disappeared from printing history, and Hurus moved on to Zaragoza. Two new German printers, Peter Brun and Nikolaus Spindeler, had a longer career in the Catalonian metropolis. Brun, from Geneva, first appeared in Tortosa, then printed in Barcelona from 1478 to 1492 when he moved to Seville. Spindeler printed two works of Thomas Aquinas in 1478 with Brun (the two printers seem to have been associated with the merchant Gerhard Preuss both in Barcelona and nearby Tortosa), and in 1481 he appeared in Zaragoza, in Tarragona in 1484. They were followed by three other German printers, Mattheu Vendrell (1483), Diego de Gumiel, and Per Miguel (Michael). The latter, active as a bookseller as early as 1489, printed some 15 works from 1491 until his death in 1497, including translations into Catalan. Gumiel, apparently the foreman of Miguel's press, continued it after 1497. Another German in Miguel's shop was Johann Gherlinc.

Johann Rosenbach (Rosembach) of Heidelberg printed a *Breviarium bayonense* (GW 5278) with Jaime de Vila in Valencia in 1492, then moved to Barcelona in the same year. Here he produced liturgical works, mostly not surviving. He worked for a while with Johann Luschner, printing Franciscus Niger's *De modo epistolandi* (1495) and the *Missale vicense* (1496). He was closely associated with the famous Benedictine monastery on Montserrat just outside Barcelona and printed there in 1500. After printing a Terence with Donatus' commentary in 1498 he moved to Tarragona, then to Perpignan. Some of his early works are characterized by extensive use of wood engravings, notably Diego de San Pedro's *Carcel de amor* with 16 large illustrations. He was still alive in 1530. Johann Luschner also worked for Gerhard Preuss and produced two books for him in 1495 before joining Rosenbach. In 1498 he printed independently, and in 1499 he was called by the Abbot García de Cisneros to head a consortium of printers, commissioned to produce liturgical and didactic works.

Matthaeus of Flanders printed the first book in Zaragoza, Guido de Monte Rocherii's *Manipulus curatorum* (1475; Hain 8174), but he disappeared immediately, even though his gothic type turned up in 1477 in Tortosa in the shop of Brun and Spindeler. Heinrich Botel (Anricus de Saxonia) of Einbeck had been

FIGURE 2. Aureum opus *(Diego de Gumiel, Valencia, 1515), autobiography of Jáime I (1208–1276) of Catalonia and Aragon.*

in Zaragoza as early as 1473, was associated with Paul Hurus in 1476, but is mentioned in books only beginning in 1479. From 1479 to 1495 he printed some 20 works in Lérida, the first being a missal for Lérida. In 1476 Botel was associated with Hurus in soliciting subscriptions for the *Fueros y ordenanzas of Aragon.* Hurus, also known as Paulus de Constantia, was the scion of a patrician family of Constance (Hyrus or Hurus). In 1481–82 a number of books and indulgences from a Zaragoza press may probably be ascribed to him. In 1485 he began to print with a new type of German origin, and in the period 1488–1490 his imprints are associated with the name of his brother Hans. He continued to print in Zaragoza until 1500 when he returned to Germany. He illustrated many of his books, on

Acaba la famoſa y eſclareçida Coronica delos muy altos y muy poderoſos pncipes y criſtianiſſimos reyes del ſiẽpre conſtante y fidelíſſimo reyno de aragon: por el reuerẽdo padre don .f. Gauberte fabricio de vagad/monge de ſant bernardo/y exp̃ſſo pfeſſo del ſancto y deuoto moneſterio de ſancta maria de Sãcta fe/pncipalmẽte cõpueſta. y deſpues recognoçida: y en algo eſaminada/por el magnifico y egregio doctor miçer Gonçalo garcia de ſancta maria. en la muy noble/y ſiẽpre auguſta ciudad/ciudad pncipal delos reynos de aragon Caragoça: dicha en latin ceſaraugusta: de ceſar auguſto/el mas vẽturoſo delos ceſares romanos. Empzentada por el magnifico maeſtre Paulo hurus/ciudadano dela impial ciudad de Coſtancia: ciudad de alemaña la alta, Acabada a .xij. dias del mes de Setiẽbre, Año de mil .cccc. xcix.

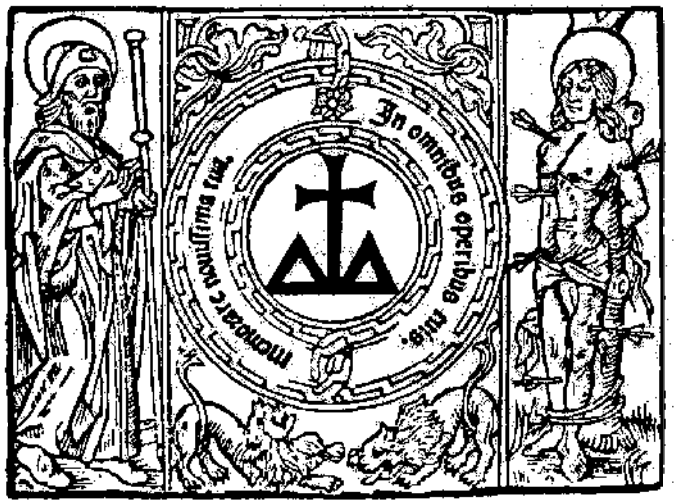

FIGURE 3. *Gualberto Fabricio de Vagad,* Cronica de Aragon *(Paulus Hurus, Zaragoza, 1499).*

occasion with woodcuts imported from Germany. His circle of acquaintances included leading scholars, and there was no more influential printer in 15th-century Spain. When he returned to Germany, Wolf Appentegger, Leonhard Hutz, and Georg Coci took over the press. Coci took over sole ownership of the press in 1506 and continued its reputation as one of the leading offices in Spain.

Elsewhere in Catalonia several smaller communities had printing at an early date. Spindeler and Brun printed Perottus' *Rudimenta* in Tortosa in 1477. The first and only 15th-century printer in Lérida was Botel. In Gerona, Vendrell printed Felipe de Malla's *Pecador remut* in 1483; Gumiel printed a Catalonian version of the romance of *Paris e Viana* in 1495; and Juan de Valdes, *Flors de virtuts* in 1497 (not surviving). Spindeler left Barcelona to escape the plague in 1482 and went to Tarragona where he printed Guido de Monte Rocherii's *Manipulus curatorum* in 1484, and Rosenbach was there from 1498 to 1500 and printed a missal for the bishopric in 1497.

SEVILLE, BURGOS, ZAMORA, AND OTHER SPANISH CITIES

Outside of the rich commercial cities of Catalonia, printing came slowly to the rest of Spain, mainly on the initiative of German printers. (Madrid, seat of government only after 1561, had no press until 1566.) Seville was the first. In Alfonso Díaz del Montalvo's *Repertorium* (1477), Antonio Martínez, Alfonso del Puerto, and Bartolomé Segura lay claim to having brought printing to the thriving port on the Guadalquivir. In 1480 Martínez retired, and in 1482 Alfonso de Puerto issued Diego de Valera's *Chronica* in which he recognizes specifically the services of German printers in Spain. Much more important was the printing of the "Compañeros Alemanes" from 1490 to 1503, a consortium of Paulus de Colonia, Johann Pegnitzer, Thomas Glockner, and Magnus Herbst, who signed their work "PIMT Alemani" (PIMT refers to the first names of the printers). It was a productive group, including several Spanish romances in its list. In 1493 Paulus de Colonia died or withdrew. Pegnitzer printed with Meinrad Ungut in Granada, producing Archbishop Fernando de Talavera's *Doctrina* for him and also Francisco Ximenez' *Vita Christi*. Glockner left the group in 1499, and Pegnitzer and Herbst continued until 1503, using only IM as their mark.

In 1491 Meinrad Ungut and Stanislas Polonus began to print in Seville on the commission of the city. Until 1499 they built a substantial list in all fields in both

FIGURE 4. *Alfonso X, el Sabio,* Las siete partides *(Compañeros Alemanes, Seville, 1491).*

Latin and Spanish, with a single work in Catalan, the *Lunarium* of the Barcelona city physician Bernardo de Granollach. They issued a large proportion of their books on commission—among others, of the Compañeros Alemanes—but signed with their initials. Ungut probably died in 1499 (his will was probated in 1500), and Polonus printed alone in Seville with a new printer's mark until he moved to Alcalá de Henares and printed there in 1502–03. Apparently his Seville office was taken over by Jacob Cromberger, one of the most famous printers of Spain and America (through his agent Juan Pablos in Mexico).

In Burgos printing was introduced in 1485 by Friedrich Biel (Fadrique de Basilea, Fridericus de Basilea, Federigo Aleman), who had printed in Basel with Michael Wenssler. His first imprint was Andreas Gutierrez's *Grammatica* (1485; also printed in Basel in 1486 by Wenssler), and he was active until 1517, printing in Latin and in the vernacular. A native, Juan de Burgos (Burgensis), printed a number of works in Spanish from 1490 to 1494 when he moved to Valladolid. The first press in Salamanca began activity in 1481, but there is no indication of the names of the printers. The press can only be identified with the apparently dominant influence of the humanist Aelius Antonius Nebrissensis (Antonio de Lebrija). The same applies to a second Salamanca press, which began operation in 1491, with the exception that its 86 known imprints exceed the number issued by any other Spanish press before 1501. Juan de Porras, who had been associated with Ungut and Polonus in Seville, began to print in Salamanca in 1500 and continued until 1510. Hans Giesser, a German, also began printing in Salamanca in 1500 and continued into the next century.

In 1482 Antonio de Centenera began to print in Zamora, and he produced 15 books in the next decade, mainly literary works in the vernacular. His edition of Henrique de Villena's *Trabajos de Hércules* (1483; Copinger 583–6230) is decorated with fanciful wood engravings, possibly by a Spanish artist using foreign techniques. Two Jewish printers, Samuel ben Mousa and Emanuel, were also in Zamora, but they printed only one book. Toledo had three 15th-century printers. Juan Vásquez (1484–1495) worked mainly for the monastery of San Pedro Martin. Peter Hagenbach, who had printed in Valencia in the years 1493–1495, went to Toledo in 1498 and printed two missals for Melchior Gorricio, important for containing remnants of the old Mozarabic rite. He also printed legal and medical works, some illustrated with wood engravings. We have already noted the first Murcia imprint, by Lope de la Roca and Gabriel Luis de Arinyo in 1487. Lope printed two more books, then returned to Valencia. Arnao Guillén de Brocar printed in Pamplona from 1492 to 1499. His fame rests on his later career in Alcalá de Henares, where he printed in the period 1514–1517 the famous Complutensian Polyglot Bible for Cardinal Ximenez. (See Figure 5.) Printing came to Valladolid with Juan de Froncourt in 1492, but he remained there only a year. Pedro Giraldi and Miguel Planes also printed in Valladolid only a year (1497), but they issued 11 books, including an edition of the Columbus letter. Juan de Burgos came to Valladolid in 1500 but stayed only briefly, while Diego de Gumiel, who came in the same year, was there as late as 1512.

It cannot be emphasized too strongly that printing in 15th-century Spain was

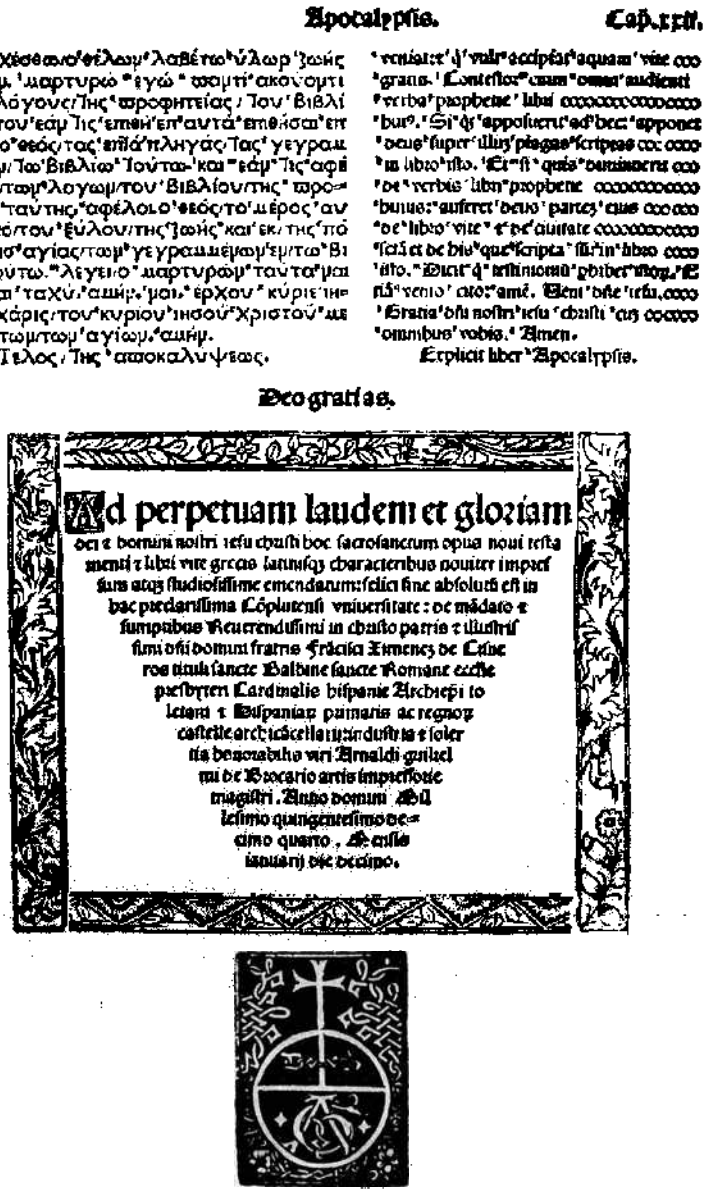

FIGURE 5. *Last page of the fifth volume of the Complutensian Polyglot Bible (Arnao Guillén de Brocar, Alcalá de Henares, 1514).*

heavily influenced by foreign practice. In the first place, most of the printers were Germans who had learned the craft in their native land or in Italy. We find roman types in the south Italian style in Barcelona and Valencia, while gothic types appear in Zaragoza. Roman types disappeared (except in humanistically oriented Salamanca), and the main typefaces were gothic (modeled on Italian originals or on domestic manuscript hands). Late in the century some French types were imitated. Illustration was also heavy influenced by foreign models. Thus Paul Hurus' edition of Boccaccio's *Mulieres ilustres* (1494; GW 4491) used the woodcuts from Anton Sorg's 1479 edition (GW 4487), and there are other examples.

Nevertheless there are examples of local influence, including the Moorish, in ornamentation.

PORTUGAL

Portugal, always one of the more tolerant European countries with respect to its attitude toward Jews, had its first press in Faro where Samuel Gaco produced a Hebrew Pentateuch in 1487 (assuming that the rather difficult printer's mark has been read correctly). In 1489 Rabbi Elieser began to print Hebrew books in Lisbon and continued until 1492. In Leiria the Jewish printer Abraham ben Samuel Dortas was active from 1492 to 1496. He and other Jews who printed in Portugal probably went there from other parts of the Iberian Peninsula, thanks to the zeal of the Holy Office in enforcing the expulsion. Istanbul was another beneficiary of the policy of the Catholic Majesties of Spain, for the first printed book in the Ottoman Empire was a Pentateuch produced in Istanbul by David Nachmias and his son Samuel in 1505.

In 1495 Valentin Fernández, a German from Moravia, and Nicolaus de Saxonia established their press in Lisbon and printed four volumes of Ludolfus de Saxonia's *Vita Christi* in the Portuguese translation of Bernardo de Aleobaça and richly illustrated with wood engravings. Fernández became an important personage in court circles. He also printed other extensively illustrated works, notably a *Historia de Vespasiano* (1496), and his wide variety of initials shows considerable originality.

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LAWRENCE S. THOMPSON

Printing in England Before 1501*

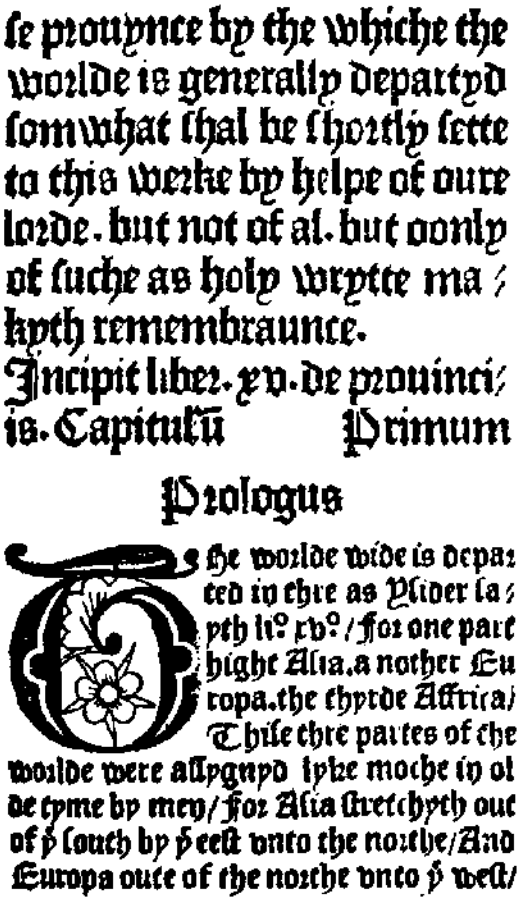
The prototypographical history of England is identical with the biography of William Caxton, covered in this encyclopedia, Volume 4, pages 323–328.

Wynkyn de Worde, a German printer from Worth in Alsatia, was in Caxton's shop with him from 1476 until his death in 1491. De Worde continued Caxton's office, following essentially the same policies, and printed some 700–800 pieces, many surviving in single copies or as fragments, until his death about 1534. (See Figure 1.) One of the important incunabula from his press is Ralph (Ranulphus) Higden's *Polycronicon* (1495; Hain–Copinger 8660), with the first example of music printed from movable type in England (Caxton had printed the *editio princeps* in 1482; Hain–Copinger 8659). Most of de Worde's books were of a popular character, often illustrated with rather inferior wood engravings of his own manufacture. In 1500 he moved to Fleet Street in London, ever since a center of the publishing industry. From 1520 on he printed works of such humanists as Erasmus of Rotterdam and John Colet, and also Reformation tracts. At this time he expanded his operation and employed Thomas Berthelet, Peter Treveris, and John Skot. One imprint of this period deserves special mention, Robert Wakefield's *Oratio de utilitate linguarum* (1524), with the first Italic type used in England.

The only other printer in Westminster (now distinguishable only historically as a part of metropolitan London) in the 15th century was Julian Notary. He, Jean Barbier, and a printer from Rouen known only as J.H., printed a book of hours in London in 1497, then moved to Westminster in 1498. They printed a Sarum missal for Wynkyn de Worde, and then Notary began to print independently. His major production was in the field of liturgical works, and he also continued to print for Wynkyn de Worde.

The first book printed in Oxford is the *Expositio in symbolum apostulorum* (1468, misprint for 1478; Hain 8579) by an unidentified craftsman. The first printer in Oxford known by name is Theodoricus Rood of Cologne. He gives his name in Alexander de Hales' *Super tres libros Aristotelis de anima* (1481; GW 869). Some have attributed the earlier Oxford books of 1478 and 1479 to him, but there is no solid evidence except that they have typefaces similar to those of Cologne. In the *Epistolae* of Phalaris (1485; Hain 12886) he speaks of the competition of Venetian printers and mentions his association with the Englishman Thomas Hunte, known

* The Bibliography for this section begins on page 371.



ſe prouynce by the whiche the
worlde is generally departyd
ſomwhat ſhal be ſhortly ſette
to this werke by helpe of oure
lorde. but not of al. but oonly
of ſuche as holy wrytte ma/
kyth remembraunce.
Incipit liber. xv. de prouinci/
is. Capitulū Primum

Prologus

The worlde wide is depar
ted in thre as Ysider ſa/
yth li° xv°/ for one part
hight Asia. a nother Eu
ropa. the thyrde Affrica/
Thile thre partes of the
worlde were allygnyd lyke moche in ol
de tyme by mey/ for Asia stretchyth oute
of ꝑ south by ꝑ eeſt vnto the northe/ And
Europa oute of the northe vnto ꝑ weſt/

FIGURE 1. *Bartholomaeus Anglicus,* De proprietatibus rerum *(Wynkyn de Worde, Westminster, 1495).*

as a bookseller as early as 1473. Some of his books were illustrated, for example, his last known imprint, John Mirk's *Liber festivalis* (1486; Hain 7030; in English).

The third place where there was printing in 15th-century England was Saint Albans in Hertfordshire. In the period 1479–1486 the otherwise unknown "scole master of saynt Albans" ("schoolmaster printer") printed eight books, among them an edition of the *Chronicles of England* (1485; GW 6672). There was no other printer there before John Herford (1534–1539), who, like his predecessor, was associated with the local abbey and moved to London after its dissolution.

In London John Lettou, a Dutchman, began to print in 1480 on the commission of Sir John Kendall and William Willcock. Subsequently, in 1482, he joined Wilhelmus de Machlinia (Mecheln), and their names appear together in Sir Thomas Littleton's *Tenores novelli* (1482; Hain–Copinger 10126). In 1482–83 he printed about six books, including the *Abbreviamentum statutorum* and the *Year Book of Law Cases for the 33rd 35th and 36th Years of Henry VI.* After Lettou left the business, Machlinia continued the latter. He printed Johannes Watton's *Speculum christiani* for the bookseller Henry Frankenburg (ca. 1486; Hain–Copinger 14914)

He ſhal no goſpel gloſe here ne teche
We leue al in the grete god quod he
He wolde ſowe ſom difficultye
Or ſpryngen cokyl in oure clene corn
And therfore hooſt I warne the biforn
My joly body ſhal a tale telle
And I ſhalle clynke you a joly belle
That it ſhal wakyn alle this company
But it ſhal nat be of philoſophy
Ne of phyſlias ne termes queynte of lawe
There is but lytel latyn in my mawe

Here endith the ſquyers prologue
And here begynneth his Tale

a T ſurrye in the londe of Tartary
There duelled a king that warred ruſſy
Throught whiche ther dyed many a doughtey man

FIGURE 2. *Third edition of* Canterbury Tales *(Richard Pynson, London, 1492).*

and religious and occasional pieces (e.g., the bull of Innocent VIII concerning the marriage of Henry VII and Elizabeth of York). There are some fragments of a "Primer" he printed on parchment with attractive initials in blue and red, the first illustration in a London imprint. Richard Pynson, a Norman who may have studied in Paris in 1464, made an agreement with the London merchant John Russhe about 1490 and went to Rouen. (See Figures 2 and 3.) Russhe seems to have defaulted on payment for his printing. After his return to England his first book was printed. In 1494, again on Russhe's commission, he printed his most important work, Boccaccio's *The Falle of Princes* (GW 4431). He continued to print until 1528 and died in 1530.

Except for the brilliant contribution of Caxton, a major figure of literature as well as of printing, the production of books in England during the 15th century was relatively undistinguished. Only with the unprecedented political and cultural

Than entred we into the way
Of great payne called dyligence
wythout restynge I went alway
There founde I no resystence
These thre were euer in my presence
For the way was vnknowen to me
I hasted me vnder theyr defence
That I myght there the soner be

Thus went we forth a lytell whyle
Of the way was I ignorant
Wyp thre felawes dyd on me smyle
On me beholdynge wyth glad semblaunt
Than sawe I this castell fayre & pleasaunt

FIGURE 3. Castell of laboure (*Richard Pynson, London, 1505*).

developments of the Elizabethan period would the product of English presses be comparable in significance with those of the continent.

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LAWRENCE S. THOMPSON

Printing in Scandinavia and Eastern Europe Before 1501*

The flourishing Hanseatic city of Lübeck, dominating Baltic commerce, brought printing to Scandinavia. Johann Snell, recorded on the Lübeck tax lists of 1480 as "Artis impressoriae magister" and matriculated at the University of Rostock in 1481, did not sign any Lübeck imprints. In Odense he signed one of the first two Danish imprints, Guilelmus Caoursin's *De obsidione et bello rhodiano* (1482; GW 6010) and in the same year, his *Breviarium Ottinense* (GW 5418). He was in Stockholm the next year to print a *Missale uppsaliense vetus*, and on December 12, 1483, he completed his *Dialogus creaturarum moralisatus* (Hain 6128), signed and with 123 wood engravings. Presumably he came on the invitation of the archbishop in Uppsala and established his press in the Franciscan monastery of Stockholm; and after his return to Lübeck in 1484 part of his equipment was sold to the cathedral chapter in Uppsala and used in its press in the next century. Snell died in Lübeck in 1529. Printing in 15th-century Copenhagen began in 1493 when Govaert de Ghemen moved there from Leiden and remained 17 years. Printing took firm root in the seat of Danish government.

Bartholomäus Ghotan introduced printing to Magdeburg in 1480 and moved to Lübeck in 1484. In 1487 he was in Stockholm, where he produced a missal for the bishop of Strängnäs, and back in Lübeck he printed a *Missale aboense*. A major achievement was his *Revelationes Sanctae Birgittae* (1492; GW 4391), printed for the nuns of Vadstena. As we have noted, he died in Novgorod a year or so later.

* The Bibliography for this section appears on page 374.

One of Ghotan's assistants, Johannes Fabri, took over the business. He may have printed a broadside on the sale of indulgences in 1490, the oldest printed work in Swedish; and in 1495 he printed the first book in Swedish, Gerson's *Aff dyäfwlsens frästilse*. There was a press in Vadstena with one book (1495), also in the Carthusian monastery of Mariefred (1498) with a single title. Uppsala did not get a press until 1510. Finland did not have a domestic press until the one at Åbo Academy was founded in 1642.

Printing came to Hungary in 1473 when Andreas Hess printed the *Chronica hungarorum* (GW 6686), but no other Buda imprint is definitely known, despite the fact that we know the names of several printers of Hungarian origin. Beginning in 1474 several books appeared in Cracow in a type used by Günther Zainer

FIGURE 1. *Early Slavic printing*, Oktoich *(Cetinje, 1494).*

of Augsburg. The Caspar de Bavaria "impressor librorum" who can be identified in documents of 1476 is probably Caspar Straube of Dresden. Sebald Feiel of Neustadt an der Aisch, known as Schweipolt Fiol, printed five liturgical works in Church Slavic and in Cyrillic in 1490 and 1491, possibly with a view to reconciliation of the Roman and Orthodox churches, but ending in litigation on heresy charges. His printing ceased.

Pilsen had the first press in Bohemia when a still unidentified printer produced a *Kronika trojanská* there in 1468. In 1476 there was the *Statuta provincialia Ernesti archiepiscopi pragensis*, in type modeled after the hand used in contemporary Bohemian manuscripts. The only Pilsen printer known by name, also the only Polish printer known by name in the century, was Nikolaus Bakalař (Mikuláš Stětina), who printed nine works in Czech in 1498–1499 and was known to have been in Pilsen as late as 1513. The imperial seat of Praha with its already venerable university had three presses, beginning in 1487 with that of Jan of Vsoké Mýto (Johann von Hohenmaut). There were two others, and their product was exclusively in Czech, although early in the next century there was a far more cosmopolitan press with works in Latin, Hebrew, German, Russian, and Italian. Printing came to Moravia when Konrad Stahel, a Swabian itinerant printer who had worked in Passau and Venice, began to print in Brno with Mattheus Preinlein in 1485. They were rather prolific until 1499, and among their works was a *Chronica hungarorum* (1488) with a pictorial title page and 41 portraits of princes, all crude, just as their other occasional illustrations. In Venice, Stahel had already printed a breviary for Olomouc (1484; GW 5414) with Andreas Corvus and Martinus de Szeidino; and in 1499 Preinlein actually printed a couple of small works in Latin there.

In 1494 and 1495 the monk Macarius printed two religious books, *Osnoglasnik* and a psalter, both in Cyrillic, in Cetinje, the main city of Montenegro. (See Figure 1.) In 1494 Blaž Baromič, who had learned printing in Venice, printed a missal in Glagolitic in Zengg (Senj) and a second book in 1496.

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LAWRENCE S. THOMPSON

THE 16TH CENTURY*

In the half century from the invention of printing to 1501 it was largely an experimental craft, feeling its way to the position of an organized industry. In Paris, Venice, Augsburg, and a few other places we find characteristics of an incipient book production industry. In the next century the Reformation, the exploration and colonization of the Indies (east and west), the maturity of humanism, the rise of national states, and the development of new systems of commerce and industry required a vastly more sophisticated system of communication. In the printing and publishing industry we begin to find a specialization of type designers, founders, printers, and publishers. The variety of typefaces, many of which were produced locally heretofore, begin to appear in more standardized forms. A Garamond or a Granjon would not easily have found a niche as independent punchcutters in the typographical world of the 15th century. The climate was highly favorable for great firms of printer-publishers such as Estienne and Plantin with the geometrically increasing rates of literacy and expanding purchasing power of book readers.

Italy

Just as in the previous century, Venice remained a focal point for printing and publishing and enjoyed a continentwide market. Aldus Manutius entered the new century with unparalleled prestige. About 1500 he assembled a group of scholars (Aldi Neacademia) to assist in selection and editing of texts. He was in touch with the most distinguished foreign scholars such as Johannes Reuchlin, Konrad Celtes, and Erasmus of Rotterdam. The latter visited him, and in the *Adagia* (Aldus, 1508) there is an account of the renowned printer's mark of the dolphin on an anchor and the motto "Festina lente." (See Figure 2.) Erasmus admired greatly the small cursive type introduced by Aldus in 1501 and used for the handy, inexpensive, and comparatively cheap classical texts that enjoyed a wide market throughout Europe. The creator of the cursive, known as "Aldina cursiva" or "cancellaresca" in Italy and as "italique" in France, was Francesco Griffo da Bologna (specifically named, Franciscus Bononiensis, in the first Aldine imprint in cursive, the Vergil of April 1501). (See Figure 3.) The typeface has absolutely nothing to do with Petrarch's handwriting, according to popular tradition. The famous office was continued for a few years after Aldus' death in 1515 by his son-in-law, Andreas Torresano (supra), but it was fully revived in 1533 by Aldus' third son, Paulus. Paulus continued to print exemplary classical texts and also served the Accademia Veneta founded by Senator Federico Badoero. In 1561 he was called to Rome by Pius IV to direct the Tipografia del Popolo Romana, returned to Venice in 1571, but was recalled to Rome in 1572 by Gregory XIII and died there in 1574. Paulus' son, Aldus the Younger (1547–1597) took over the office but turned

* The Bibliography for this section begins on page 416.

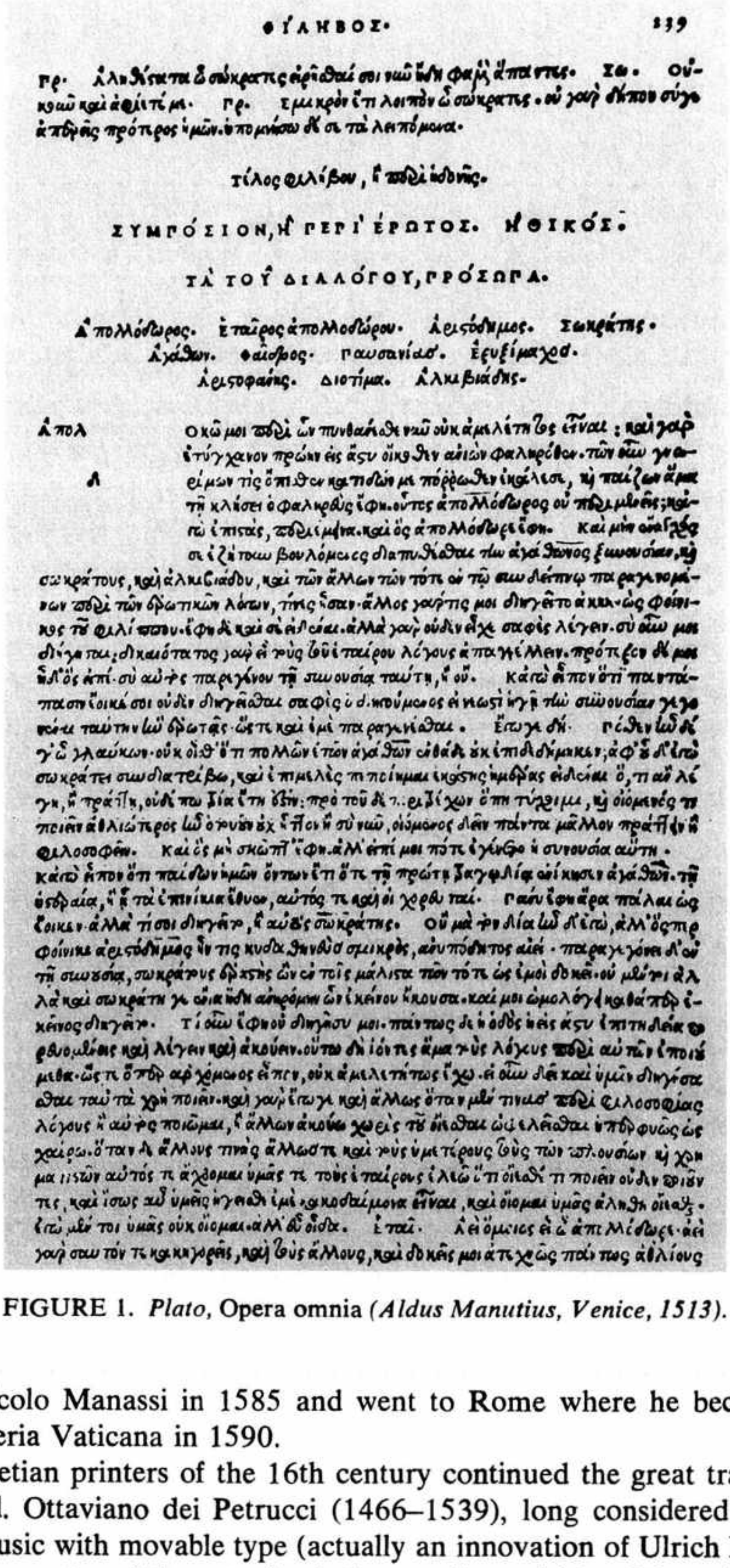


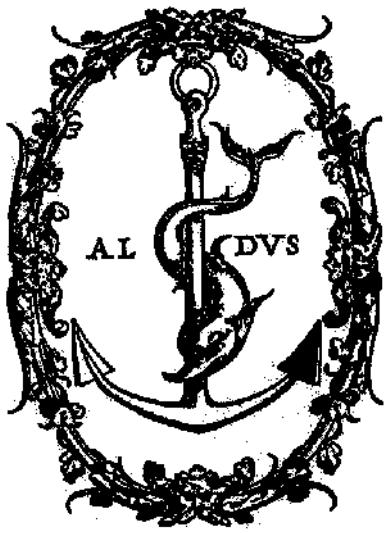
FIGURE 1. *Plato,* Opera omnia *(Aldus Manutius, Venice, 1513).*

it over to Nicolo Manassi in 1585 and went to Rome where he became director of the Stamperia Vaticana in 1590.

Other Venetian printers of the 16th century continued the great tradition of the earlier period. Ottaviano dei Petrucci (1466–1539), long considered the inventor of printing music with movable type (actually an innovation of Ulrich Han in 1476, supra), was a master of the art of printing music, and his edition of the *Frottole* (1504–1508) is particularly distinguished. Antonio Gardano (active in the period

IL LIBRO DEL CORTEGIANO
DEL CONTE BALDESSAR
CASTIGLIONE,

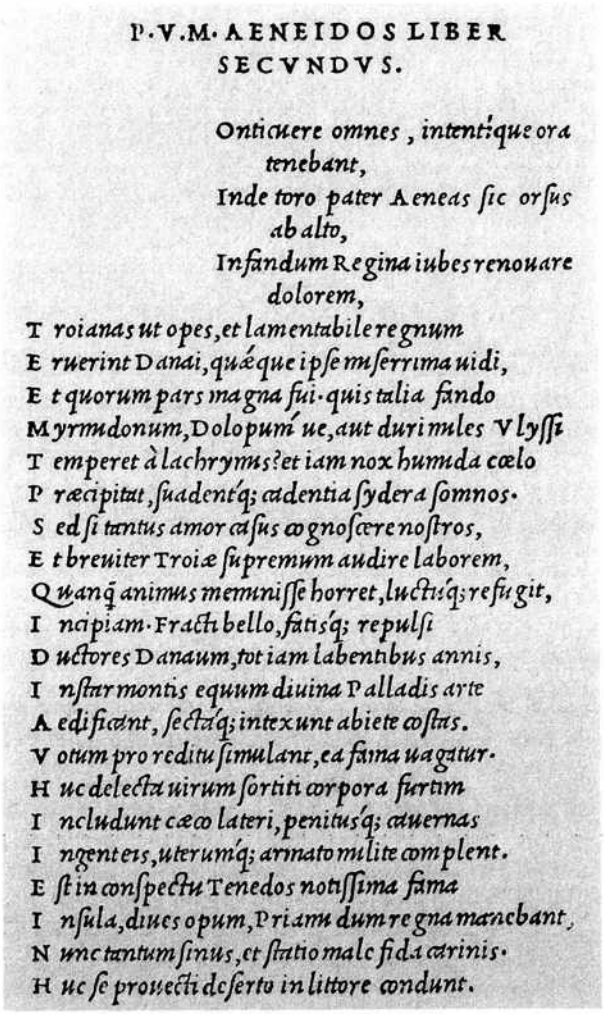
Nuouamente riſtampato.



IN VENETIA, M. D. XLV.

FIGURE 2. *Aldus first printed the* Cortegiano *in 1528. He first used his mark of the anchor and dolphin in 1502, but without the oval ornament. It was modeled on a sesterce of Vespasian presented to Aldus by Cardinal Bembo.*

1537–1571) and, after his death, his sons Angelo and Alessandro, were also outstanding music printers. Daniel Bomberg (van Bomberghen) of Antwerp printed numerous Hebrew books in Venice from 1517 to 1549, among them the first complete edition of the Babylonian Talmud in 12 volumes (1520 et. seq.) and the textually significant *Biblia rabbinica* (1525–1528). His types were sent to Antwerp after his death. Francesco Marcolini of Forli came to Venice in 1534 and was associated with Pietro Aretino, and in 1550 he was one of the founders of the influential Accademia de' Pelligrini. His editions of Italian literary works, particularly of Aretino, Doni, and Dante (an important edition of 1544) and of architectural writers (Sebastiano Serlo and Vitruvius, 1556), often with handsome initials containing views of cities, are noteworthy. Gabriele Giolito de' Ferrari was responsible for some 850 titles, many in Italian literature (Petrarch, Boccaccio, Tasso, Aretino, and Dolce, among others). He ran afoul of the Holy Office in 1568 and printed mainly religious books until his death in 1578, after which his sons continued the business until 1601. He enjoyed a contemporary reputation as the greatest printer of his day. Giolito developed some handsome initials with mythological allusion (L, with Leda and the Swan). A less prolific, yet qualitatively



P·V.M· AENEIDOS LIBER
SECVNDVS.

Onticuere omnes, intentique ora
tenebant,
Inde toro pater Aeneas ſic orſus
ab alto,
Infandum Regina iubes renouare
dolorem,
T roianas ut opes, et lamentabile regnum
E ruerint Danai, quæque ipſe miſerrima uidi,
E t quorum pars magna fui· quis talia fando
Myrmidonum, Dolopumue, aut duri miles Vlyſſi
T emperet à lachrymis? et iam nox humida cœlo
P ræcipitat, ſuadentq; cadentia ſydera ſomnos·
S ed ſi tantus amor caſus cognoſcere noſtros,
E t breuiter Troiæ ſupremum audire laborem,
Quanq animus memniſſe horret, luctuq; refugit,
I ncipiam· Fracti bello, fatisq; repulſi
D uctores Danaum, tot iam labentibus annis,
I nſtar montis equum diuina Palladis arte
A edificant, ſectaq; intexunt abiete coſtas.
V otum pro reditu ſimulant, ea fama uagatur·
H uc delecta uirum ſortiti corpora furtim
I ncludunt cæco lateri, penitusq; cauernas
I ngentes, uterumq; armato milite complent.
E ſt in conſpectu Tenedos notiſſima fama
I nſula, diues opum, Priami dum regna manebant,
N unc tantum ſinus, et ſtatio male fida carinis·
H uc ſe prouecti deſerto in littore condunt.

FIGURE 3. Aeneid *(Aldus Manutius, Venice, 1510) in a type of Francesco Griffo.*

comparable Venetian contemporary, Geronimo Scoto (Scotus), used an alphabet with Biblical scenes in his fine edition of Boiardo's *Orlando inamorato* (1548), a work also distinguished for one of the best italics of the time.

The Giunta (Junta) family's activities in 15th-century Venice have already been noted. After the turn of the century Lucantonio concentrated on liturgical works and furnished many bishoprics and regular orders with works that were handsomely illustrated with initials and other engravings. His brother Filippo had been printing in Florence since 1497, and upon Filippo's death in 1515 his son Bernardo took over the business under the title of Haeredes Philippi Juntae. An important edition of the *Decameron* of 1527 is perhaps the most distinguished work of the press. Bernardo died in 1551, but the firm continued into the 17th century. Jacques Giunta (1486–1546), born in Florence, published one book in Venice in 1519, then moved to Lyon and established a publishing and bookselling business which remained in the family until 1599. He had a wide variety of theological, legal, and medical works printed, mainly in Lyon but also in Italy. He was in close contact

with publishers throughout the continent for selling his books, and he had branches in Paris, Salamanca, Medina del Campo, Zaragoza, Lisbon, Antwerp, and Frankfurt am Main.

Rome, center of the Catholic world, has always had a thriving printing industry to serve the needs of the Holy See. An outstanding Roman printer of the first quarter of the century was Jacobus Mazochius (Mazzochi), active from 1506 to 1527. He was closely associated with the Holy See and printed manifestos against Luther, notably the bull of Leo X, *Exsurge domine* (1520), and the tract of Johann Eck, *De poenitentia* (1523). His *Epigrammata antiquae urbis Romae* (1521) is generally considered his handsomest work with its remarkable engraved borders. Antonio Blado (1490–1567) of Asola began printing in Rome in 1516 and continued until his death, after which his widow and sons continued the business until 1593. Particularly important are his editions of the writing books of Ludovico Vicentino, Ugo da Carpi, and Giovanbattista Palatino. Blado used the fine cursive developed by Lodovico degli Arrighi, also a printer, in his *Modo e regole de scrivere littera corsiva over cancellaresca* (1522) and as a model for his own cursive type. Blado issued relatively few illustrated books, but they are of superior quality, for example, Giovio's *Vita Sfortiae* (1539) with a wood-engraved portrait of the great *condottiere* and Cammile Agrippa's *Trattato de scientia d'arme* (1553) with 53 engravings of fencing and dueling positions. Blado's editions of Italian literature are also important, especially the first edition of Machiavelli's *Il principe* (1532). He served the church with works such as Loyola's *Exercitia spiritualis* (1548) and the *Index librorum prohibitorum* (1558).

In 1561 Pius IV founded Tipografia del Popolo Romano and called Paulus Manutius from Venice to direct it. The *Canones et decreta Concilii Tridentini* and the *Catechismus* (1566) stemming from the council were its best-known works. Even more firmly under the control of the Holy See was the Stamperia Vaticana established by Sixtus V and directed by Dominico Basa and Aldus Manutius the Younger. Its best-known product is the abortive Sixtine Bible, which attempted to make textual improvements suggested by the Council of Trent but failed and was suppressed. A type foundry was associated with the new office, and types (including an Arabic font) were delivered from Paris by Robert Granjon. A peculiar characteristic of printing in Rome was the development of large ateliers for producing copper engravings, notably that of the Frenchman Antoine Lafrery. He settled in Rome in 1553, and about 1573 he issued the monumental *Speculum romanae magnificentiae* with engravings of the city's most important architectural works. Maps, views of cities, and other pictorial material came from this shop, which passed to the de Rossi family in the 17th century.

It has been a major concern of the Roman church to reach communicants and potential converts in their native tongues through properly edited texts in controlled distribution. The early Mexican and Peruvian printers industriously printed in American Indian languages, as did colonial printers everywhere. In Rome itself Gregory XIII and Cardinal Ferinando de' Medici, with the aid of the orientalist G. B. Raimondi, founded a Typografia Medicea Linguarum Externarum for which Granjon supplied type. In 1590 the four gospels were issued in Arabic. The cardinal

became grand duke of Tuscany in 1596, and Raimondi took over until his death stopped operations in 1614.

After the great period of the Giuntas in Florence waned toward the middle of the 16th century, Grand Duke Cosimo of Tuscany brought a Flemish printer, Lorenzo Torrentino, to the city. One of his most famous imprints is the stately first edition of Giorgio Vasari's *Vite de' più eccelenti architetti, pittori e scultori italiane* (1550). He also issued the famous edition of the *Digesta seu Pandecta* (1553), *Tutti i trionfi, carri, mascherate o canti carnascialeschi, andati per Firenze* (1559), and the first edition of Francesco Guicciardini's *Historia di Italia.* He printed a few books in Pescia in 1554 and 1555, and in 1562 he was called by the duke of Savoy to establish a press for the new university in Mondovi. After his death in 1563 his children continued the business with Carlo Pettinari until 1570 when Giorgio Marescotti acquired it.

France

In the first quarter of the 16th century France continued the older tradition, with gothic forms dominating both typography and illustration. The Italian wars, debilitating for the national economy, nevertheless brought new ideas, new styles, and new scholarly trends to the other side of the maritime Alps.

It is not without significance that Jodocus Badius Ascensius (Josse Bade) worked first with Johann Trechsel in Lyon, the bridge over which many Italian influences passed into France. It should be noted that, despite his name, Ascensius came from Ghent, not from Asch near Brussels. He went to Paris in 1499 and worked for Marnef and Jean Petit, then established his own Praelum Ascensianum in 1503. Until 1535 he issued some 700 books. His list includes the great Latin classics and the works of humanists. He printed the *Encomium moriae* of his friend Erasmus in 1512, and among his intimates were the leading minds of the day, Guillaume Budé, Lefèvre d'Étaples, Jean Vatable, and Beatus Rhenanus, among others. His humanistic orientation is also reflected in the physical form of his books, printed in an eminently legible roman with a display in the so-called *lettre de forme* and ornaments "à l'italienne." His famous printer's mark is a press, of which there are three different versions, the second of which was by a German master in the style of Dürer. One of his daughters married Michel de Vascosan, a humanistic printer from Picardy, and the other, Perotte, married Robert Estienne, by whose family business the office was absorbed after 1535. Along with Aldus Manutius and Johann Froben, Badius Ascensius can be reckoned as one of the three great Renaissance printers in the service of humanism.

The Estienne (Stephanus) dynasty is one of the most significant in the history of a business where family tradition has always been important. (See Figure 4.) Of the founder, Henri, we know little except that he married the widow of his former partner, Johann Higman, who died in 1500, and acquired his printing equipment. For a short while he printed with Wolfgang Hopyl, Higman's former partner. Until his death in 1520 Henri printed some 125 books, mainly in theology and philos-

FIGURE 4. *Device of the Estiennes.*

ophy, and with titles and initials in italianate style. Upon his death his widow entered a third marriage with Simon de Colines (infra).

In 1526 Henri's son Robert (1499–1559) established a new press (see Figures 5–7), and he attained such prestige that he even enjoyed a visit from King François I and his sister Marguerite d'Angoulême (de Navarre). In 1539 he was appointed royal printer for Latin and Hebrew; and after 1544, for Greek, using the type cut by Garamond on the basis of designs by the Cretan Angelus Vergetius ("grecs royaux" or "grecs du roy"). (See Figure 8.) Although this type still shows many ligatures and abbreviations (e.g., in the Greek New Testament of 1550), it is nevertheless an improvement on Aldus and influenced nearly all Greek types for two centuries. Among Robert's other significant works are the *Thesaurus linguae latinae* (1532) and a Eusebius of 1544 with a Greek dedication to the king. After Francois' death in 1547, Robert ran afoul of the Sorbonne and had to flee to Geneva in 1551. In 1552 he issued his famous *Response aux censures des théologiens de Paris* in which he wrote: "Car d'autant qu'ils sont plus abattus par raison, ils se rendent plus opiniâtres et obstinez à faire mal: tellement que c'est comme le serpent appelé Hydra, le quel reproduict sept testes pour une qu'on lui aura coupée." He died in Geneva in 1559, with a record of some 500 imprints to his credit, less than a tenth in French, the others in Latin, Greek, and Hebrew.

While Robert printed in Geneva, his brother Charles (1504–1564), a doctor of medicine but with a strong interest in humanistic studies, continued the business in Paris. (See Figure 9.) He too ran into opposition from the authorities and spent 3 years in the Châtelet, where he died in 1564. Another brother, François (1502–1550), was also in the business. His nephew, Robert II, unlike his father a loyal Catholic, also printed until his death in 1570, and his relatively few books are distinguished by the same superior craftsmanship of all the Estiennes. His widow married Mamert Patisson, noted as a printer of Greek books, and he continued the office.

G. Budæi Parisiensis Cō-
SILIARII REGII, SVPPLICVMQ.
libellorum in Regia magistri, Ad inuictiss. & potentiss. principem Franciscū Christianiss. regem Francię
DE TRANSITV
Hellenismi ad Christianismum, Libri tres.

PARISIIS.
Ex officina Rob. Stephani.
M. D. XXXV.
Cum priuilegio Regis.

DE TRANSITV
Hellenismi ad Christianismum, Lib. primus.

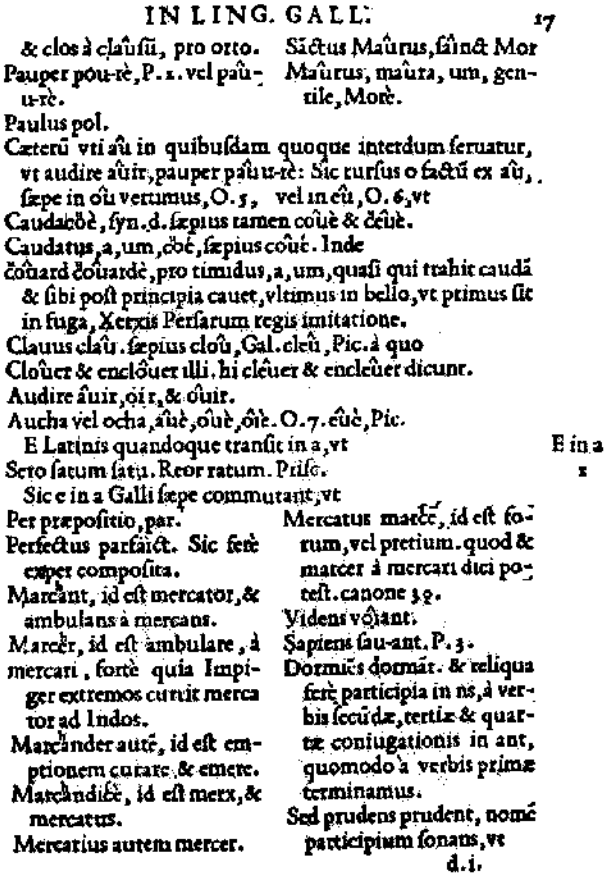
CONSIDERANTI MIhi sæpenumero, Frāciscе rex potētissime, ad eāmque mentis intētionē vehemēter incūbēti, quodnam dignum operæ preciū ex vsu philologiæ, atque ē literarum cō suetudine ferre possem: & verò scire auenti quo pacto potissimū meliorē hominis interioris conditionē, ex eo labore studióq; efficerē, cui externa & corporis bona quæ dicta sunt, possīhabēda, ætate quoque florentissima duxeram: cupiditas incessit adeundæ tandem & consulēdæ philosophiæ. Philosophia autē (inquit apud Platonem Socrates in Phædone) mortis est meditatio, cō demum ipsa spectans, vt anima corpori nunc cōsociata, hinc tandem sublimis abeat, corporisque contagione defuncta morte facili, ad deum creatorē suum rapiatur, cuius illa similitudine ab eodem ipso prædita est, quàm fieri potest integerrima ab ipsius corporis societate. & quidem ipsius philosophiæ munus est, id quod homines norunt discendi cupidissimi, animam vt hominis docēdam suscipiat, corpori alligatam, atque illi conglutinatam, & verò necessariò coactam, quasi per carcerem quendam, sic

A.i.

FIGURE 5. *Title page and first page of Guillaume Budé,* De transitu hellenismi ad Christianismum *(Robert Estienne, Paris, 1535).*

Henri II (1528–1598), son of Robert I, is probably the outstanding member of the family. He had enjoyed a thorough humanistic education, and he was not only acquainted with scholars in Italy, the Germanies, the Low Countries, and England, but he also traveled extensively and visited his colleagues personally. His interest in the orderly development of the French language is well known. His editions of Latin and Greek classics were the best of the time, and often he was supported in printing them by the German financier and humanist Ulrich Fugger. Indeed, he signed some of his imprints as "illustrissimi viri Hulderici Fuggeri typographus." Perhaps his most famous work is the *Thesaurus linguae graecae* (1572) in four folio volumes. He died in Lyon in 1598 while returning from Montpellier where he visited his son-in-law, the humanist Issac Casaubon. His sons, Paul and Joseph, continued the business, succeeded by Paul's son Antoine, and, finally, Antoine's son Henri III (1631–1661). After more than a century and a half of unparalleled service to scholarship, the family business ceased.

Simon de Colines printed over 700 books from 1520 to 1546, many in small format and in a cursive type. (See Figure 10.) Like the Estiennes, he was meticulously careful in editing his texts. Although he did not use as many illustrations as many other Parisian printers, some of his work is outstanding in this respect, notably Johannes Millaeus' *Praxis criminis persequendi* (1541) and the *Heures de*



IN LING. GALL. 17

& clos à claûſũ, pro orto.
Pauper pou-rè, P. 1. vel paû-u-rè.
Paulus pol.
Sãctus Maûrus, ſãinct Mor
Maûrus, maûra, um, gentile, Morè.
Cæterũ vti aû in quibuſdam quoque interdum ſeruatur, vt audire aûir, pauper paû u-rè: Sic rurſus o factũ ex aû, ſæpe in oû vertimus, O. 5, vel in eû, O. 6, vt
Caudacõè, ſyn. d. ſæpius tamen coûè & ceûè.
Caudatus, a, um, cõé, ſæpius coûé. Inde
cõûard cõûardè, pro timidus, a, um, quaſi qui trahit caudã & ſibi poſt principia cauet, vltimus in bello, vt primus ſit in fuga, Xerxis Perſarum regis imitatione.
Clauus claû. ſæpius cloû, Gal. cleû, Pic. à quo
Cloûer & enclôuer illi. hi cleûer & encleûer dicunt.
Audire aûir, oir, & oûir.
Aucha vel ocha, aûè, oûè, oîè. O. 7. eûè, Pic.
E Latinis quandoque tranſit in a, vt
Sero ſatum ſatu. Reor ratum. Priſc.
Sic e in a Galli ſæpe commutant, vt
Per præpoſitio, par.
Perfectus parfaict. Sic ferè cæter compoſita.
Marcãt, id eſt mercator, & ambulans à mercans.
Marcẽr, id eſt ambulare, à mercari, fortè quia Impiger extremos curuit mercator ad Indos.
Marcãnder autẽ, id eſt emptionem curare, & emere.
Marcãdiſẽ, id eſt merx, & mercatus.
Mercarius autem mercer.
E in a

Mercatus marcẽ, id eſt forum, vel pretium. quod & marcer à mercari dici poteſt. canone 39.
Videns vẽant.
Sapiens ſau-ant. P. 3.
Dormiẽs dormãt. & reliqua ferè participia in ns, à verbis ſecũdæ, tertiæ & quartæ coniugationis in ant, quomodo à verbis primæ terminamus.
Sed prudens prudent, nomẽ participium ſonans, vt

d. i.

FIGURE 6. *Sylvius*, Isogoge *(Robert Estienne, Paris, 1531), a Latin–French dictionary in Simon de Colines' St. Augustin Sylvius type.*

Rome (1543). From 1522 on he was closely associated with Geoffroy Tory (ca. 1480–1533), a wood engraver and designer who had worked for the first Henri Estienne. (See Figure 11.) Beginning in 1524 Tory had his own publishing firm "Au pot cassé," and his work appeared under this imprint as well as under that of Colines. The finely conceived borders and initials executed by Tory are among the greatest achievements of the art of the French book. The handsome roman types of Claude Garamond (Garamont; 1480–1561), deriving from but improving on Aldus' roman of 1495, were used effectively by Colines and Tory. In the privileges granted to Tory by François I, who had a strong appreciation for good printing, the style is called "à l'antique"; whereas Tory's single book of hours in gothic type (1527), highly but unjustifiably praised by T. F. Dibdin as Tory's chef d'oeuvre, is called "à la moderne." The borders are filled with insects, flowers, and animals in the style of Flemish miniatures, and it was printed by Simon du Bois, not by Colines. Tory set forth his notions on the French language and its typographical presentation in his best-known work, the *Champ fleury* (1529; facsimile, 1931), significant less for its difficult notions about the mathematical basis for type design than for the rich illustration with wood engravings.

PAVLI IOVII NOVOCOMEN-
sis in Vitas duodecim Vicecomitum Mediolani
Principum Præfatio.

VETVSTATEM nobiliſſimæ Vicecomitum familiæ qui ambitioſius à prærálta Romanorũ Cæſarum origine, Longobardiſq; regibus deducto ſtemmate, repetere contẽdunt, fabuloſis penè initiis inuoluere videntur. Nos autem recentiora illuſtrioráque, vti ab omnibus recepta, ſequemur: cõtentíque erimus inſigni memoria Heriprandi & Galuanii nepotis, qui eximia cum laude rei militaris, ciuiliſque prudentiæ, Mediolani principem locum tenuerunt. Incidit Galuanius in id tempus quo Mediolanum à Federico AEnobarbo deletũ eſt, vir ſumma rerum geſtarum gloria, & quod in faris fuit, inſigni calamitate memorabilis. Captus enim, & ad triumphum in Germaniam ductus fuiſſe traditur: ſed non multo pòſt carceris catenas fregit, ingentíque animi virtute non ſemel cæſis Barbaris, vltus iniurias, patriã reſtituit. Fuit hic (vt Annales ferunt) Othonis nepos, eius qui ab inſigni pietate magnitudinéque animi, cũ nente illo pernobili claſſico excitus, ad ſacrũ bellum in Syriam contendit, communicatis ſcilicet conſiliis atque opibus cũ Guliermo Montiſſerrati regulo, qui à proceritate corporis, Longa ſpatha vocabatur. Voluntariorum enim equitum ac peditum delectæ no-

A.iii.

FIGURE 7. *Paolo Giovio,* Vitae duodecim vicecomitum Mediolani principum *(Paris, Robert Estienne, 1549).*

In the tradition of the Estiennes and Badius Ascensius there were other important humanistic printers in 16th-century Paris. Gilles de Gourmont (ca. 1480–ca. 1533), a member of a printing family including his brothers Robert and Jean, produced the first Greek books in Paris in 1507. He also printed in Hebrew. Michel Vascosan (1530–1576) produced classical texts comparable in physical appearance and textual quality to those of his father-in-law, Badius Ascensius. Adrien Turnèbe, a professor of Greek in Paris, was named "imprimeur du roi" for Greek books, although his printing was done by others. (Many printers held the title of "imprimeur du roi" after Charles VIII bestowed the title on Pierre Le Rouge, often for specific types of books or books in specific languages, including French.)

Christian Wechel of Basel was the founder of a line of German printers in Paris. He settled in Paris in 1526 and printed many excellent editions of the classics as well as medical works, generally identified with his famous mark of the winged horse. In 1534 he printed the first of several editions of Andrea Alciati's popular *Emblemata,* among the best illustrated of the many editions of this influential book. He also printed a Latin translation of Albrecht Dürer's theoretical works, with excellent copies of the original engravings. His son Andreas took over the office in 1554 and soon won respect as a printer, but his Protestant affiliation forced

FIGURE 8. *Appianus Alexandrinus.* Romanae Historiae *(Paris, 1551), in Garamond's* grec du roi.

him to flee to Frankfurt am Main on the occasion of the St. Bartholomew massacre of 1572. After his death his sons-in-law, Jean Aubry and Claude de Marne, also refugees, took over the business and printed superior editions of classical texts.

Of the many printers of illustrated books in 16th-century Paris, Denys Janot, active from 1529 to 1545, deserves special mention for his *Amadis des Gaules* (1540) and his Aesop (1542), both with unusually fine vignettes, and his *Harmoniae Evangelicae* (1544) with 97 handsome engravings. An artist formerly identified with Jean Cousin and whose style resembles Tory's, illustrated Guillaume de la Perrière's *Théâtre des bons engins* (1539) and Gilles Corrozet's *Hecatongraphie*


ΑΠΠΙΑΝΟΥ ΑΛΕΞΑΝΔΡΕΩΣ ΡΩΜΑΙΚΩΝ ΚΕΛΤΙΚΗ.

FIGURE 9. *Section on Celts in Appian's* Roman History *(Charles Estienne, Paris, 1551) in Garamond's* grec du roi.

(1540). After Janot's death in 1545 his widow Jeanne (née Marnef) continued the business.

Thielmann Kerver of Coblenz, who printed about 20 books of hours (some illustrated with metal engravings by Georg Wolf) between 1497 and 1500, died in 1524 and left his business to his widow. It was taken up by his son Jacques, active from 1535 until 1596, and his best-known work is the first French edition of

CATVLLVS.

TIBVLLVS.

PROPERTIVS.

Multis in locis reſtituti.

PARISIIS
Apud Simonem Colinæum.
1534.

SEX. AVRELII PROPERTII VMBRI ELEGIARVM LIBER PRIMVS.

AD TVLLVM.

Cynthia prima ſuis miſerum me cæpit ocellis,
Contactum nullis antè cupidinibus.
Tum mihi conſtantis deiecit lumina faſtus,
Et caput impoſitis preſſit Amor pedibus.
Donec me docuit caſtas odiſſe puellas
Improbus, & nullo uiuere conſilio.
Et mihi iam toto furor hic non deficit anno:
Cum tamen aduerſos cogor habere deos.
Mimallon nullos fugiendo Tulle labores,
Sæuitiam duræ contudit Iaſidos.
Nam modo Parthenys amens errabat in antris,
Ibat & hirſutas ille uidere feras.
Ille etiam Phillei percuſſus uulnere rami,
Sucius Arcadys rupibus ingemuit.
Ergo uelocem potuit domuiſſe puellam:
Tantum in amore preces, & bene facta ualent.
In me tardus Amor non ullas cogitat artes:
Nec memmit notas, ut prius, ire uias.
At uos deductæ quibus eſt fallacia Lunæ,
Et labor in magicis ſacra piare focis:
En agedum, domnæ mentem conuertite noſtræ,

Et facite illa meo palleat ore magis.
Tunc ego crediderim uobis, & ſydera, & amnes
Poſſe Circinis ducere carminibus.
Et uos, qui ſero lapſum reuocatis amici,
Quæritis non ſani pectoris auxilia.
Fortiter & ferrum, ſæuos patiemur & ignes:
Sit modo libertas, quæ uelit ira, loqui.
Ferte per extremas gentes, & ferte per undas,
Quà non ulla meum fœmina norit iter.
Vos remanete, quibus facili Deus annuet aure,
Sitis & in tuto ſemper amore pares.
In me noſtra Venus noctes exercet amaras,
Et nullo uacuus tempore deſit Amor.
Hoc (moneo) uitate malum, ſua quenq; moretur
Cura, neq; aſſueto mutet amore locum.
Quòd ſiquis monitis tardas aduerterit aures,
Heu referet quanto uerba dolore mea.

AD CYNTHIAM.

Quid iuuat ornato procedere uita capillo?
Et tenues Coa ueſte mouere ſinus?
Aut quid Oronthæa crines perfundere myrrha?
Téq; peregrinis uendere muneribus?
Naturæq; decus mercato perdere cultu?
Nec ſinere in propriis membra nitere bonis?
Crede mihi, non ulla tuæ medicina figuræ eſt.
Nudus Amor formæ non amat artificæ.
Aſpice quos ſummittat humus formoſa colores,
Et uiciant ederæ ſponte ſua melius.

FIGURE 10. *Title page and text page of Simon de Colines' edition of Catullus, Propertius, and Tibullus (Paris, 1534).*

FIGURE 11. Books of Hours *(Geoffroy Tory, Paris, 1525).*

the *Hypnerotomachia Poliphili* (1546), in which the illustrations are not simply copies of the original, but in a style worthy of comparison with the work of the best French Renaissance artists. He used an attractive, large roman type, probably from Garamond.

Lyon continued to be a major center of printing in France. Several of the 15th-century printers continued their activity, for example, Jean de Vingle (1494–1512), Johann Klein (1498–1520), and Jacques Sacon (1498–1522). The latter, who had printed Sebastian Brant's *Stultifera navis* in 1498 (GW 5063), subsequently printed Latin classics, missals, and in 1506 a Latin Bible with wood engravings by the Nuremberg artists Springinklee and Schön. He still used gothic types, but the illustrations are in the spirit of the Renaissance.

Perhaps best known of the 16th-century printers of Lyon was Sebastian Gryphius (Gryph, Greyft) of Reutlingen. Active from 1520 to 1526, his excellent editions of classical texts, mostly in italic, won broad approval among humanists. His friend François Rabelais, whose edition of the Hippocratic *Aphorisms* he printed in 1532, states in the preface of this work that "l'imprimeur Sebastien Gryphe,

d'une habileté consommée et d'une grande instruction, ayant vu mes notes, me solicita vivement de les laisser mettre au jour pour la commune utilité des étudiants." After Gryphius' death in 1556 there was a hiatus until 1564, when his heirs continued his work. His son Antoine was active from 1566 to 1593, but fell into debt and was imprisoned.

A close associate of Gryphius was Étienne Dolet (1508–1546). After studying law at Toulouse, he became an editor for Gryphius, and from this office were also issued some of his own early work such as the *Commentaria linguae latinae* and his polemic with Erasmus concerning Cicero. Dolet opened his own office in 1538 and published classical texts, medical works, and works of contemporaries such as Rabelais and Clément Marot as well as those of authors in disfavor with the establishment, for example, Erasmus, Lefèvre, Sadolet, and Berquin. A gifted poet, speaker, and humanistic thinker himself, his own works aroused the suspicion of the authorities of the church. He was declared an "athée relaps" for his sympathy with the Reformation and radical doubts about God's existence, and in 1546 he was burned at the stake in Paris.

After the death of Johann Trechsel (supra) in 1498, his widow married Johann Clein (Klein, Schwab) who continued the business in the same tradition. He printed a *Hortulus animae* in 1511 for the Koberger firm in Nuremberg. In 1528 the office passed to Johann's sons, Melchior and Caspar (Gaspard). Their best-known works are the first edition of the Bible illustrations of Hans Holbein (*Historiarum veteris instrumenti icones*, 1538) and the Dance of Death (*Les simulacres et historiees face de la mort*, 1538). Holbein had worked jointly on these engravings with Hans Lützelburger in Basel, and publication was apparently delayed by the latter's death in 1526. Like their father, Melchior and Caspar were fortunate in their editors, in their case the talented Spaniard Miguel Servet(us), who supervised for them a Ptolemy of 1542 and Sante Pagnino's Latin Bible of 1542. However, Servetus' most famous work, *Christianismi restitutio*, in which he expressed doubts about the Holy Trinity and also described the circulation of the blood 75 years before Harvey, was printed clandestinely in Vienne by Balthazar Arnoullet in 1553. In the same year John Calvin had him burned at the stake in Geneva for his heresy.

Among the large number of competent and productive printers in 16th-century Lyon, special consideration is due to Jean de Tournes (1504–1564), who learned to print with Gryphius and established his own shop in 1540. (See Figure 12.) The handsome italic types produced in 1546 for Tournes by Robert Granjon distinguish his work. The latter, who first printed in Paris, then in Lyon, subsequently created his famous "lettres de civilité" after he set up his own office in Lyon in 1556 and printed Innocent Ringhière's *Dialogue de la vie et de la mort* (1558) with them. (See Figure 13.) In the same year this typeface was adopted by Christopher Plantin in Antwerp, and it was widely used by Flemish printers, in large measure the result of the imitations of the Antwerp typefounder Aimé Tavernier. De Tournes was also fortunate enough to have as an illustrator Bernard Salomon (1508–1561). His delicate figures and tasteful borders appear in such well-known books of de Tournes as Alciati's *Emblemata* (1547), considered by many to be the best ones in any of the many editions; the *Quadrins historiques de la Bible* (1553),

FIGURE 12. *Revised edition of Louise Labé,* Euvres *(Jean de Tournes I, Lyon, 1556). Note the elaborate arabesques.*

with French verses by Claude Parradin; and *La Métamorphose d'Ovide figurée* (1557). After de Tournes' death his son Jean II took over and translated and printed philosophical works. He had to flee to Geneva in 1585 as a Protestant, and there the family office continued until 1780.

Guillaume Roville (1518–1589) was singularly successful financially as a printer and bookseller. Many of his imprints were richly illustrated with work of Salomon and Tory, some possibly not original work by these artists but rather imitations. An artist of considerable ability who worked for him was Pierre Eskrich—who signed himself P. V. (Pierre Vase) and also was known as Pierre Cruche from his father's name, Jakob Krug, a Parisian engraver who was born in Freiburg im Breisgau. Among his important works for Roville may be mentioned Alciati's *Emblemata* (1548) and the impressive *Discours sur la castramentation et discipline militaire des Romains* (1553) of Guillaume du Choul.

The presence of John Calvin in Geneva after 1541 lent this city considerable importance as a center of Protestant printing and publication. The work of the Estiennes, Jean de Tournes, and others there has already been noted. Jean Crespin, a French legal scholar, came to the city as a Protestant refugee in 1548 and estab-

FIGURE 13. *Jean Louveau's French translation of Innocent Ringhier's* Dialogue de la vie et de la mort *(Lyon, 1557), the first appearance of Robert Granjon's civilité type.*

lished a printing office from which he issued both his own writings and that of others until his death in 1572. Eustache Vignon was equally productive. Toward the end of the century Jean Chouet acquired the shop of the last Geneva Estienne and continued to serve the local community of scholars.

The Low Countries

The prosperous city of Antwerp was the center of printing in the Low Countries in the 16th century, and, indeed, in the first half had 50% of all printing offices in what is now Belgium and Holland. In the early part of the century Willem Vorstermann (1504–1543) and Michel Hillen van Hoochstaten (1506–1558) were the leading printers of the city. Vorstermann, a loyal Catholic hostile to the Reformation, printed in all fields, but particularly in theology, including liturgical

works and Bibles. His most famous work is his Dutch Bible of 1528, with illustrations by such Dutch artists as Lucas of Leiden and Jan Swart of Groningen. In other books he used copies of work by Dürer and Holbein. Along with Hillen he introduced italic to the Low Countries, first using it in 1525. Hillen printed in Antwerp from 1516 to 1543, was an active partisan of humanism, and produced several works of Erasmus. He began to use Renaissance borders in 1519, heavily dependent on Strassburg and Basel styles.

Generally acknowledged as the greatest printer of the latter 16th century is Christoph(er) Plantin, born about 1520 in Saint-Avertin near Tours. (See Figure 14.) He went to Antwerp in 1549, learned printing, and issued his first book in 1555. After a short period of conflict with local censors in 1562–1563 when he went to Paris, he returned to Antwerp, gathered in his office the ablest printers of the city, and worked with them as a consortium until 1567. In the years 1569–1575 he produced a monumental polyglot Bible in eight folio volumes and won with it a respected position throughout Europe. In 1568 he printed his first breviary, and in 1570 the Spanish crown and the Holy See granted him rights for Spain and the Low Countries, a privilege which helped substantially to offset the great expense of the polyglot Bible. He enjoyed the close friendship and cooperation of leading scholars such as Lipsius, Abraham Ortelius, Rembert Dodoens, Johannes Sambucus, Carolus Clusius, and Arias Montanus. After the plundering of Antwerp by the Spaniards in 1576, Plantin left his press in Antwerp in the hands of his sons-in-law, Jan Moretus (Moerentorf) and Frans Raphelengius (Ravelingen), and took some of his equipment to Leiden, where he served as printer for scholars at the newly founded university, notably Justus Lipsius. He returned to Antwerp in

FIGURE 14. *Christoph Plantin (1520–1589).*


Rechten,

ende Coſtumen

van

Antvverpen.

Vande Iuriſdictie.

I.

Nden eerſten , ſprekende I.

FIGURE 15. Rechten, ende Costumen van Antwerpen *(Plantin, Antwerp, 1582).*

1585 when the city was recaptured by Alessandro Farnese. When he died in 1589, the flourishing business was continued by Moretus. The business declined somewhat, but Moretus' sons, Jan II (1576–1618) and Balthasar (1574–1641), rehabilitated it. Balthasar ran the business after 1610 and brought back its former prestige. Rubens designed some of his title borders. Balthasar II and Balthasar III (ennobled by Emperor Charles II in 1692) maintained the same levels of quality and business acumen and increased the substantial family fortune. It continued for almost two centuries more until, in 1871, the house, the equipment, and the archives were given to the city of Antwerp as the Museum Plantin–Moretus.

Christoph Plantin's success was rooted in his superior typography and design. (See Figure 16.) He used roman and italic fonts from the best French type designers, Garamond, Granjon, and Guillaume Le Bé (Lebé). The last-named furnished Plantin with much of the type for the polyglot Bible, and he was especially noted for his Hebrew and music type. In 1561 Le Bé bought much of the equipment of Granjon. His business lasted into the 17th century and ultimately passed into the hands of Jean-Claude Fournier. Plantin first used gothic type for his books in Dutch, but later used civilité modeled after that of Granjon.

Plantin used illustration with much good taste and common sense. In the decade

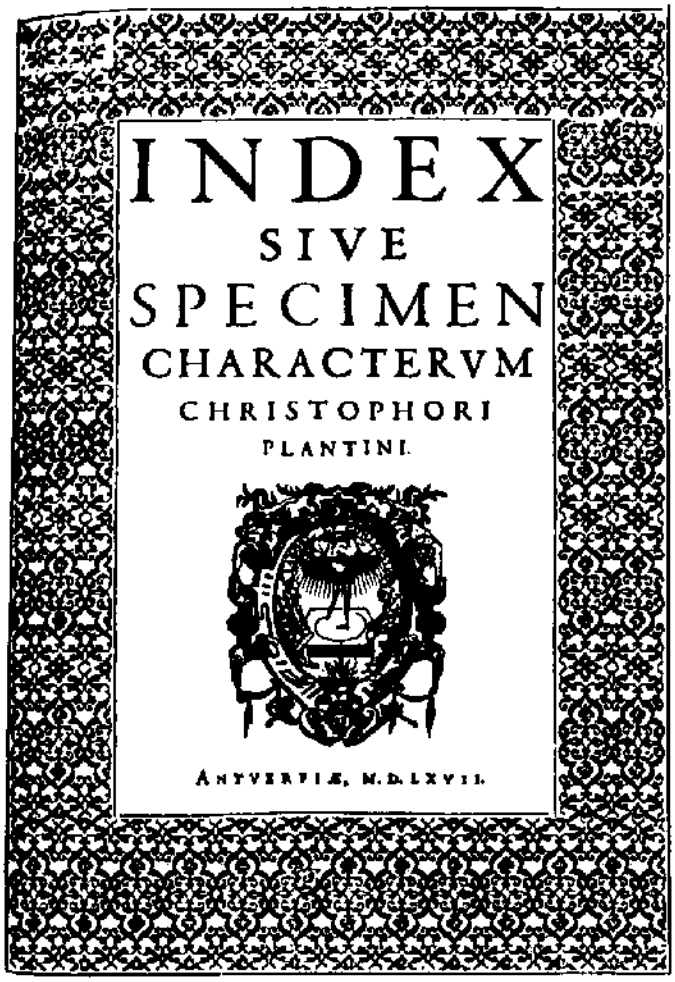


FIGURE 16. *Plantin's specimen book (Antwerp, 1567).*

1560–1570 he published many emblem books with wood engravings in French Renaissance style, notably those of Sambucero (1564) and Alciati (1565). He was a pioneer in bringing the copper engraving into fashion in northern Europe, and the great polyglot Bible is extensively illustrated in this medium. Similarly, his liturgical works were also richly illustrated by such artists as Abraham de Bruyn, Pieter van de Borcht, and the Wierix brothers. The true key to Plantin's success was his business sense, for there have been other printers with comparable ability to produce fine books. By 1576 he had 20 presses, as many as Koberger had at any time and probably more than Aldus or the Estiennes ever owned. In all he produced more than 1,600 titles in all fields. His printer's mark, a golden compass with the motto "labore et constantia" summarizes all the qualities of the native Tourangeau turned Fleming.

The only press in Brussels in the first half of the 16th century was that of Thomas van der Noot, who settled there in 1507. A large proportion of his work is didactic and religious work in Flemish, often extensively illustrated with wood engravings, some copied from the work of German artists. The cathedral school of Sankt Le-

buinus in Deventer was served in both the 15th and 16th centuries by Richard Pafraet (1477–1511), whose son Albertus printed with the same orientation until 1540. The activity of Jacobus de Breda in Deventer also extended over the two centuries (1485–1518), and Theodoricus de Borne printed there in the period 1507–1530. Jan Severz (Severinus) printed in Leiden from 1501 to 1524, including several liturgical works in his list. His *Breviarium Traiectense* (1508) is illustrated with early work of Lucas of Leiden, who also contributed to Severz's famous *Cronycke van Hollandt, Zeelandt ende Vrieslant*. In 1524 Severz was condemned to banishment and confiscation of property for the *Summa der godliker scrifturen*, although we do find him in Antwerp in the years 1527–1529, associated with the printer Petrus Silvius.

The Germanies

The same currents of expanding mercantile activity, deepening interest in experimental sciences, ripening humanism, and new directions in the arts that were determinative for book production in Italy and France in the 16th century also affected the Germanies. However, beyond the Alps and the Rhine another movement, the Protestant Reformation and the opposition to it, affected printing more than in France or, indeed, even in England. There was a veritable flood of pamphlets and broadsides which welled up in the great religious struggle, and their bibliographical history is most difficult, particularly with regard to reprinting and partial new editions. German artists also served the Reformation, and we find such masters as Lucas Cranach, and his sons and his pupils, illustrating and designing imaginative title borders for books of Luther and his supporters (also copied by their opponents, since most were hardly identifiable with either side). The rise of capitalistic enterprise was also accompanied in some quarters by a strong bibliophilic interest, including both collecting and sponsorship of superior printing. The Fugger family—Raimund (1489–1535), his sons Johann Jakob (1516–1575) and Ulrich (1526–1584), and Markus (1524–1597)—is an egregious example.

Johann Schöffer (1456–1531), son of Peter Schöffer and of Christine Fust, daughter of Johann, is the obvious link with the period of invention and expansion. He took over his father's office after the latter's death in 1503 and continued the great tradition, also constantly reminding his public of it in his colophons. The fact that Mainz was the seat of the imperial chancellery gave him abundant business in printing official documents; but much more important is his role as the printer of the work of his humanistic friends such as Erasmus, Hutten, Carbach, Cochlaeus, Lotichius, and Oecolampadius. Among the many Latin classics he printed, the best known is his Livy of 1518–1519, important both textually and artistically, with scenes of battles and sieges that may be the work of the Frankfurt painter Konrad Faber von Kreuznach. Schöffer's liturgical works were superior, and he received commissions from Osnabrück, Minden, and Erfurt for them. He used some of his father's type for titles and display; and after 1515 he often used a roman, and after 1520 he had an italic similar to that of Aldus. His son Ivo

carried on the office after 1531 with the same degree of success until 1555. Peter Schöffer the Younger printed first in Mainz, also had a shop in Worms after 1512, and moved his whole business there in 1524. He embraced the Reformation and in 1527 went over to the Anabaptists and printed extensively for them, including tracts of Johann Denk. When the Anabaptists were expelled from Worms, he moved to Strassburg, later to Basel, and in 1541 to Venice.

Two other Mainz printers, Peter Jordan and Franz Behem, should be noted. Jordan printed some 20 books, largely in the service of Luther's opponents, for example, the *Bockspiel Martin Luthers* (1531). In 1534, on the commission of Peter Quentell in Cologne, he printed Johannes Dietenberger's translation of the Bible with wood engravings by Anton Woensam von Worms and Hans Sebald Beham. It was heavily dependent on Luther's translation but was theologically conservative. Behem, brother-in-law of Luther's archenemy Johann Cochlaeus, also served the Roman church from 1540 to 1580. He seems to have taken over the printing of official documents after Ivo Schöffer's office ceased activity in 1555.

In Cologne, Heinrich Quentell's office in the courtyard of the cathedral (apud summum) continued to operate until 1509, and various members of the family, notably Peter Quentell (1520–1540), supervised it through the 16th century. In 1531 he printed nine views of his native city drawn by Woensam, a genre that was widely cultivated by German engravers and printers. His son Johann, also son-in-law of the local bookseller Arnold Birkmann, printed Peter Crabbe's important *Concilia omnia* in 1551. Gottfried Hittorp (1490–1573) was one of the great scholarly printers and publishers of the century. He printed for his own firm (with Ludwig Hornken until 1521), using the arms of the city of Cologne as his mark, and also for publishers in Basel and Paris, and he frequently wrote the prefaces to the books he published. He printed many Latin authors, for example, a Quintilian in 1521 with a dedication to Melanchthon. He had a sort of a branch in Marburg, and the Coverdale Bible of 1535 may have been printed there by him and his Cologne colleague, Johannes Soter. Jaspar von Gennep, who printed some 50 works (both independently and for Hittorp and Quentell) from about 1530 until his death in 1564, was a loyal Catholic. He printed the first German translation of the proceedings of the Council of Trent, and through editing the official documents he printed, contributed much to the formation of New High German. The position of Cologne as one of the three major centers of printing and publishing in the Germanies in the 16th century (along with Frankfurt am Main and Leipzig) is also due in considerable measure to the Birkmann (Birckmann) family of booksellers and printers, active from 1510 to 1585. Franz Birkmann, the first, traveled widely (as far as London, Paris, and Basel), knew the leading scholars of his day, and was a major personality at the Frankfurt book fair. His brother Arnold, the latter's son Johann, and Johann's widow (after 1575) continued the family business with the same success as the founder.

Frankfurt was relatively late in developing a strong printing industry, in part due to the proximity of Mainz. The first printer there was Beatus Murner, who printed nine books in 1511–1512, including *Der Schelmen Zunft* of his much more famous Minorite brother and enemy of Luther, Thomas. The first important printer

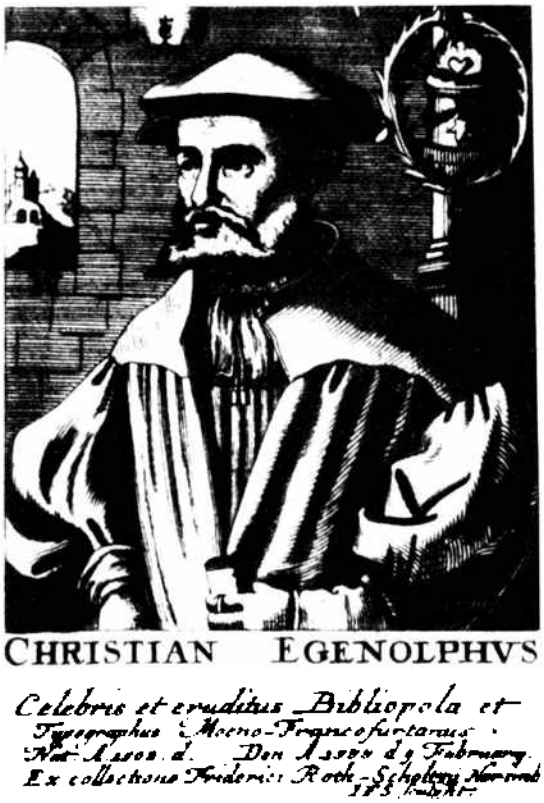


FIGURE 17. *Christian Egenolff (1502–1555).*

of Frankfurt was Christian Egenolff (Egendolphus, Aegonolphus; 1502–1555) of Hadamar (see Figure 17), who printed in Strassburg in 1529–1530, then moved to Frankfurt, where he produced over 400 works in the next quarter of a century. (See Figure 18.) His list includes many popular works in German, often illustrated by the Nuremberg artist Hans Sebald Beham, who resided in Frankfurt from 1535 until his death in 1550. Especially important were his wood engravings of biblical scenes, which appeared first in 1533 and went through six more editions.

Of all the printers in the thriving city during this period, Sigismund Feyerabend (1528–1590) of Heidelberg excelled all in creative energy. (See Figures 19 and 20.) He settled in Frankfurt in 1559 and operated mainly in partnerships. Among his illustrators were Virgil Solis (1514–1562), who made skillful copies of work of others such as Beham and Salomon, and Jost Amman (1539–1594), an artist with considerably more originality. The latter's best-known works for Feyerabend are Fronsberger's *Kriegsbuch* (1566), the book of trades (including papermakers and printers) with verses by Hans Sachs in 1568, the costume books, and *Kunst- und Lehrbüchlein* with strong hints of incipient baroque styles. The Feyerabend business lasted until 1609 under the founder's son, Carl Sigismund.

Of all Frankfurt illustrators the most famous is Theodor de Bry (1528–1598), a native of Liège, who had to emigrate in 1570 on account of his Protestant sympathies. He founded a copper engraving business which his sons, Johann Theodor

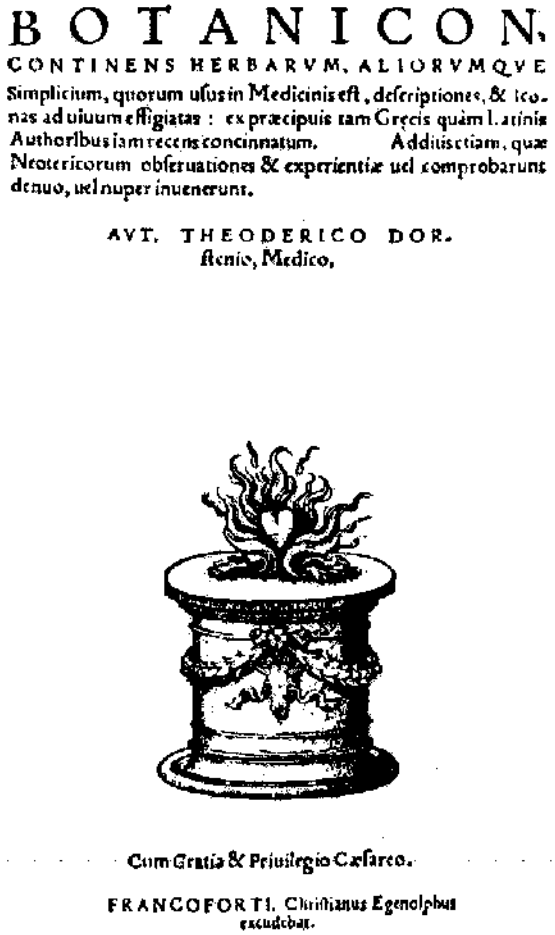

BOTANICON,
CONTINENS HERBARVM, ALIORVMQVE
Simplicium, quorum usus in Medicinis est, descriptiones, & Icones ad uiuum effigiatas: ex præcipuis tam Græcis quàm Latinis Authoribus iam recens concinnatum. Additis etiam, quæ Neotericorum obseruationes & experientiæ uel comprobarunt denuo, uel nuper inuenerunt.
AVT. THEODERICO DORstenio, Medico,
Cum Gratia & Priuilegio Cæsareo.
FRANCOFORTI. Christianus Egenolphus excudebat.

FIGURE 18. *Th. Dorstenius,* Botanicon *(Christian Egenolff, Frankfurt am Main, 1540).*

(1561–1623) and Johann Israel (ca. 1570–1611), later joined, and it soon developed into a publishing firm which first issued portrait and emblem books (especially of J. J. Boissard). (See Figure 21.) A sojourn in London in 1587 is said to have inspired Theodor to prepare the monumental *Collectiones peregrinationum in Indiam occidentalem et Indiam orientalem*, of which six parts appeared in his lifetime (1590–1596) in Latin and German. The great work with all its illustrations and maps and complicated bibliographical history was finally complete with the 25th part in 1634. It is perhaps the prime Americana for the period of exploration and discovery.

Early in the 16th century Leipzig began to forge ahead to its future position as the first book city of the Germanies, a position it has never fully lost. Some printers who had begun in the 15th century continued in the 16th and often served the purposes of the humanists, for example, Martin Landsberg, Melchior Lotter the Elder, Wolfgang Stöckel (Müller, Molitor, Monacensis from his native Munich), and Jakob Thanner (Abiegnus). The latter ran into problems with authorities when he printed Luther's translation of the New Testament in 1524. After the death of Duke Georg in 1539 and the adherence of Saxony to the Reformation, Leipzig

FIGURE 19. *Sigismund Feyerabend (1528–1590).*

printers could work with greater freedom. Nikolaus Wolrab, who had printed for Catholic writers in the period 1527–1534, had a confrontation with the Protestant authorities on account of his publication of Georg Witzel's *Typus ecclesiae* (1539) and decided to join the ranks of Luther. In 1541 he issued a Luther Bible richly illustrated by Lucas Cranach and others. He overstepped himself financially, went to Frankfurt in 1546, and, after coming back to Leipzig for a brief period, soon went to Bautzen, where he printed the first book in that Lusatian community in 1550.

Many of the Strassburg printers of the 15th century continued their work in the new century, for example, Flach, Grüninger (Grieninger), Hupfuff, Pruss, and Schott. Grüninger and Schott printed many works of Johann Geiler von Kaisersberg. Geiler's *Buch Granatapfel* (1511) contains the first wood engravings for a book by the Alsatian artist Hans Baldung Grien. (See Figure 22.) Grüninger printed various geographical works, including a Ptolemy and an edition of Martin Waldseemüller's *Cosmographiae universalis introductio* in which two continents were misnamed America (original edition in Saint Dié in Lorraine in 1507). Wolfgang

FIGURE 20. *Mark of Sigismund Feyerabend.*

Köpfel (Köpphel, Cephaleus) of Hagenau printed extensively in the service of the Reformation from 1522 to 1554, including Bibles and hymnals. His sons Paul and Philipp Köpflein moved the office to Worms in 1557. In the latter half of the century the industry declined somewhat in Strassburg. The one important printer of the period was Bernhard Jobin, a Swiss from Canton Bern who was active from 1572 to 1595. Among his imprints are most of the works of his brother-in-law Johann Fischart, and the illustrated *Accuratae effigies pontificum* (1573) of Onuphrius Panvinius, in which there is an encomium of Dürer in the preface.

Another Alsatian community which has a respected place in the history of printing is Hagenau. The first printer, Heinrich Gran, was active from 1489 to 1524. He printed some 250 works, mostly theological and scholastic, but a curious exception is his first edition of the first part of the *Epistolae obscurorum virorum* (1515) with the fictitious imprint "Venetia in impressoria Aldi Minutii." Hagenau's most distinguished printer of the period was Thomas Anshelm (Ansshelm) of Baden-Baden, who printed in Strassburg in 1488 and came to Hagenau in 1516. He was an intimate of Reuchlin, Melanchthon (one of his editors), Wimpfeling, and other humanists and printed works with a humanistic orientation. In the last period of his activity he printed many works for the Reformation. His office passed to Johannes Setzer in 1522.


Inceſtus. 185

CAP. XLII.
Non mœchaberis.
LOTH INCESTVS. Gen.19.

Inceſtu ebrietas deceptum inſana parentem
Polluit: hac pietas, vitiaque iura labant.
Nil media poteras committere, Lothe, Sodoma
Turpius: exemplo debuit eſſe tibi.
Aa

FIGURE 21. *Boissard,* Theatrum vitae humanae *(Th. de Bry, Frankfurt am Main, 1596).*

Basel continued to be a leading center of book production. Johannes Amerbach (Amerbacensis, Amorbachius), who had begun to print in 1478 and was active until his death in 1513, was typical of several of the 15th-century Basel printers who continued their established pattern. In the Carthusian Monastery in Basel Amerbach found manuscripts which were the basis for his editions of canon law and patristic literature, the most significant of which was the impressive 11-volume edition of Augustine in 1506. Johann Froben of Hammelburg in Franconia began to print in Amerbach's shop; and, with the new century, his office became a focal point for humanistic scholarship. (See Figures 23 and 24.) His editors included such scholars as Beatus Rhenanus and Bruno Amerbach, Johannes' son, who completed in 1516 the nine-volume edition of St. Jerome begun by his father. Most important was Froben's friendship with Erasmus (see Figure 25), for whom he published the first Greek edition of the New Testament (see Figure 26). Decorative features of his books, especially the handsome borders, were the work of Urs Graf, the brothers Hans and Ambrosius Holbein, and Hans Lützelburger. (See Figures 27 and 28.) In 1519 he began to use an Aldine cursive, and the tradition of using italic in marginalia probably originated in Froben's office. After his death in 1527 his widow married Johann Herwagen, who continued the business until he died about 1558. It then passed to his son, who died in 1565. Johannes Oporinus married the widow and took over the press in 1565.

Froben was cool to the Reformation, probably due to Erasmus' attitudes, and

FIGURE 22. *Wood engraving by Baldung Grien in Geiler von Kaiserberg,* Granatapfel *(Strassburg, 1516).*

he printed only two works in German. Adam Petri, on the other hand, printed many Lutheran works in German, including Luther's Old and New Testaments. His son Heinrich (1508–1579) took over upon his death in 1527 and was one of the most productive printers and publishers of his day. Charles V gave him a patent of nobility in 1556 as Henric-Petri, but nevertheless his books, like those of other Basel printers, were placed on the Index by the Papal Curia. The family business was continued by his sons until 1627. Of the numerous other printers in Basel mention may be made only of Thomas Wolff, active from about 1520 to 1534, and his editions of Luther's writings and Bible translation; Pamphilus Gengenbach (1480–1525), a vigorous supporter of the Reformation who printed his own plays and satires; and, most important, Johannes Oporinus (Herbster, 1507–1568), son of the painter Hans Herbster. Oporinus was professor of Greek at the University of Basel from 1538 to 1542, and his activity as a printer extended from 1541 to 1566. He produced many superior editions of classical authors, but he is best known for Vesalius' *De humani corporis fabrica* (1543).

In Zürich the Swiss reformers had a major printer in Christoph Froschauer, who produced over 600 books from 1521 until his death in 1564, with the famous

FIGURE 23. *Johann Froben (ca. 1460–1527).*

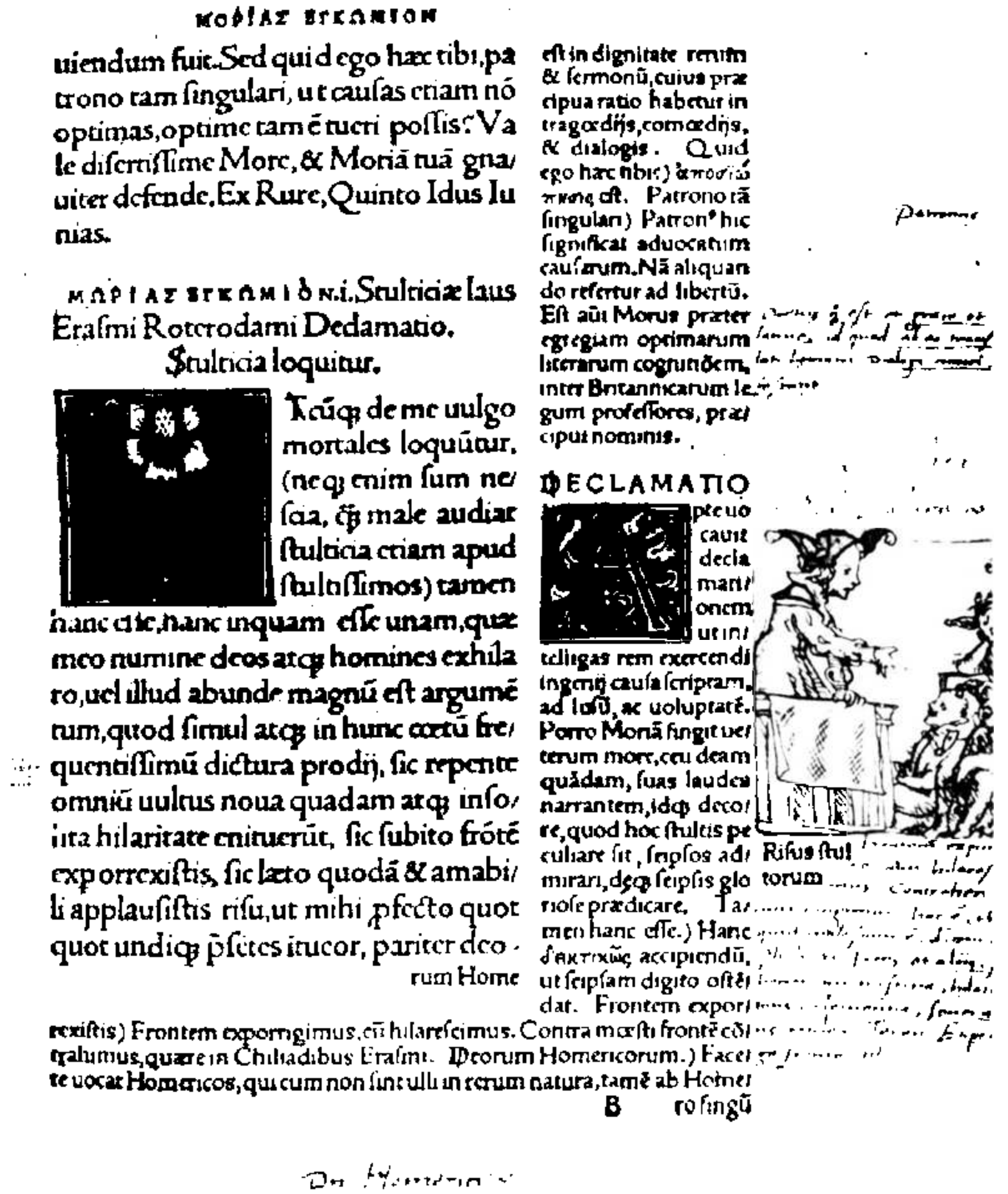
mark of the willow tree and bull frogs. He printed the works of Zwingli, Oecolampadius, Ballinger, and other reformers. Nearly all the scientific and bibliographical works of Conrad Gesner appeared over his imprint. His most distinguished work is Johannes Stumpf's *Schweizerchronik* (1548) with numerous illustrations by leading Swiss artists. He issued 27 complete Bibles and 40 partial ones.

In Augsburg, Erhard Ratdolt continued to print for two decades of the new century. Johann Schönsberger the Elder printed until 1519 or 1524, but the work of the final lustrum may have been that of his son, Johann Schönsberger the Younger. The elder Schönsberger became imperial printer in 1508, and in 1513 he printed the *Gebetbuch*, of which one of the five parchment copies has drawings by Dürer, Cranach, Burgkmair, and Baldung Grien (divided in two parts at present, one in Besançon, one in the Bayerische Staatsbibliothek). His other masterpiece is the *Theuerdanck*, completed in Nuremberg by Melchior Pfinzing in 1517, an allegorical portrayal of Maximilian's trip to court Maria of Burgundy. The illustrations by Leonhard Beck, Burgkmair, and Schäufelin and the remarkable presswork in the vellum copies make it one of the finest books of the 16th century. The younger Schönsberger, a good printer who produced popular works in German, was in constant trouble with debtors; and, not allowed to reside in Augsburg, his office was in nearby Schwabmünchen from 1532 to 1539. He used the *Theuerdanck* type for display.

FIGURE 24. *Johann Froben's printer's device in a form used in 1516, based on Matthew 10:13: "Be ye therefore wise as serpents, and harmless as doves."*

Johann Otmar (Othmar, Oltmar), who had printed the first book in Tübingen in 1498, had his press in Augsburg from 1502 to 1504 and produced a number of books illustrated by Burgkmair, notably sermons of Geiler von Kaisersberg (1510–1511). His son Sylvan printed in Augsburg from 1513 to 1533, among other things the last pre-Lutheran Bible (1518), and subsequently, as a supporter of the Reformation, over 150 tracts of Luther. Johannes Miller printed from 1514 to 1520, notably the first edition of Jordanes' *Getica* (1515), edited by Konrad Peutinger and with a fine title engraving by Burgkmair. Sigismund Grimm, Augsburg's city physician, founded a press with Max Wirsung about 1517. In the early years the press was known for medical and humanistic works, but there were also richly illustrated translations of Petrarch and Cicero. When Grimm went into bankruptcy in 1527, he lost everything, and the original wood blocks for the Petrarch and Cicero went to Heinrich Steiner (Siliceus), who printed until 1547. Steiner issued many translations, generally illustrated in the style of the popular books, with Hans Weiditz as his main artist.

Anton Koberger continued to print in Nuremberg until 1513, but his firm was more and more involved in publishing and bookselling, and many of the books he handled were printed elsewhere. Hieronymus Höltzel (Hölzel) printed some important books in Nuremberg during the first quarter of the century, including texts for Dürer's wood engravings (especially in the Eichstätt missal of 1517). His support of radical groups in Bohemia and of the Reformation kept him in the disfavor of authorities. Among the other new printers in Nuremberg, Friedrich Peypus (Arthemisius), active from about 1512 to 1535, rendered noteworthy service to the Reformation and humanism. Paracelsus, Sebastian Franck, Johannes


ΜΩΡΙΑΣ ΕΓΚΩΜΙΟΝ

uiendum fuit. Sed quid ego hæc tibi, patrono tam singulari, ut causas etiam nō optimas, optime tamē tueri possis? Vale disertissime More, & Moriā tuā gnauiter defende. Ex Rure, Quinto Idus Iunias.

ΜΩΡΙΑΣ ΕΓΚΩΜΙΟΝ, i. Stulticiæ laus Erasmi Roterodami Declamatio.

Stulticia loquitur.

Tcūq; de me uulgo mortales loquūtur, (neq; enim sum nescia, q̄ male audiat stulticia etiam apud stultissimos) tamen hanc esse, hanc inquam esse unam, quæ meo numine deos atq; homines exhilaro, uel illud abunde magnū est argumentum, quod simul atq; in hunc cœtū frequentissimū dictura prodij, sic repente omniū uultus noua quadam atq; insolita hilaritate enituerūt, sic subito frōtē exporrexistis, sic læto quodā & amabili applausistis risu, ut mihi p̄fecto quotquot undiq; p̄sētes intuēor, pariter deorum Home

est in dignitate rerum & sermonū, cuius præcipua ratio habetur in tragœdijs, comœdijs, & dialogis. Quid ego hæc tibi?) ἀποσιώπησις est. Patrono tā singulari) Patronꝰ hic significat aduocatum causarum. Nā aliquando refertur ad libertū. Est aūt Morus præter egregiam optimarum literarum cognitiōem, inter Britannicarum legum professores, præcipui nominis.

DECLAMATIO

pte uocauit declamationem, ut intelligas rem exercendi ingenij causa scriptam, ad lusū, ac uoluptatē. Porro Moriā fingit uerum more, ceu deam quādam, suas laudes narrantem, idq; decore, quod hoc stultis peculiare sit, seipsos admirari, deq; seipsis gloriose prædicare. Tamen hanc esse.) Hanc δεικτικῶς accipiendū, ut seipsam digito ostēdat. Frontem expor-

Risus stultorum

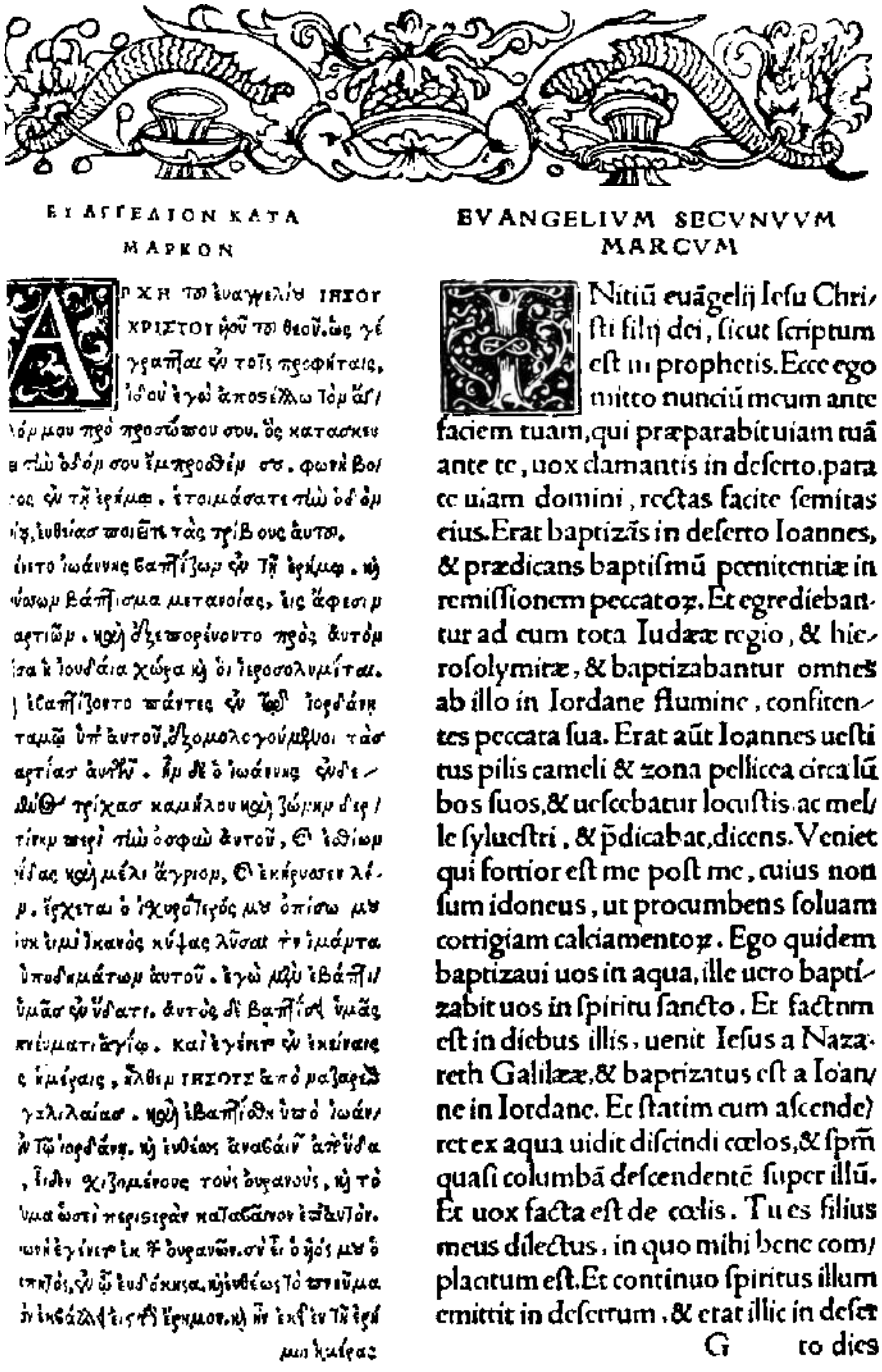
rexistis) Frontem exporrigimus, cū hilarescimus. Contra mœsti frontē cōtrahimus, quære in Chiliadibus Erasmi. Deorum Homericorum.) Facete uocat Homericos, qui cum non sint ulli in rerum natura, tamē ab Homero fingū

B

FIGURE 25. *Erasmus'* Praise of Folly *(Basel, 1515).*

Aventinus, and Willibald Pirckheimer were his friends and patrons. In 1524 he printed Pietro Savorgnano's Latin translation of Cortes' *Relaciones* on New Spain. Johann Petreius (Peterlein), active from 1519 to 1550, printed important scientific books, including the first German Vitruvius of 1548. He also printed music (e.g., the *Harmonaie poeticae* of 1539), a field in which Nuremberg printers excelled.

With the founding of the University of Wittenberg in 1502 we find a small press which the professor Nikolaus Marschalk started in 1503, but printing began there in earnest when Johann Rhaw (Grunenberg, Viridimontanus) set up a press in 1508 in the Augustinian monastery. He printed for Luther, probably



ΕΥΑΓΓΕΛΙΟΝ ΚΑΤΑ ΜΑΡΚΟΝ

Ἀρχὴ τοῦ εὐαγγελίου ΙΗΣΟΥ ΧΡΙΣΤΟΥ υἱοῦ τοῦ θεοῦ. ὡς γέγραπται ἐν τοῖς προφήταις, ἰδοὺ ἐγὼ ἀποστέλλω τὸν ἄγγελόν μου πρὸ προσώπου σου, ὃς κατασκευάσει τὴν ὁδόν σου ἔμπροσθέν σου. φωνὴ βοῶντος ἐν τῇ ἐρήμῳ, ἑτοιμάσατε τὴν ὁδὸν κυρίου, εὐθείας ποιεῖτε τὰς τρίβους αὐτοῦ.

ἐγένετο Ἰωάννης βαπτίζων ἐν τῇ ἐρήμῳ, καὶ κηρύσσων βάπτισμα μετανοίας, εἰς ἄφεσιν ἁμαρτιῶν. καὶ ἐξεπορεύετο πρὸς αὐτὸν πᾶσα ἡ Ἰουδαία χώρα καὶ οἱ Ἱεροσολυμῖται πάντες, καὶ ἐβαπτίζοντο πάντες ἐν τῷ Ἰορδάνῃ ποταμῷ ὑπ' αὐτοῦ, ἐξομολογούμενοι τὰς ἁμαρτίας αὐτῶν. ἦν δὲ ὁ Ἰωάννης ἐνδεδυμένος τρίχας καμήλου καὶ ζώνην δερματίνην περὶ τὴν ὀσφὺν αὐτοῦ, καὶ ἐσθίων ἀκρίδας καὶ μέλι ἄγριον, καὶ ἐκήρυσσεν λέγων. ἔρχεται ὁ ἰσχυρότερός μου ὀπίσω μου οὗ οὐκ εἰμὶ ἱκανὸς κύψας λῦσαι τὸν ἱμάντα τῶν ὑποδημάτων αὐτοῦ. ἐγὼ μὲν ἐβάπτισα ὑμᾶς ἐν ὕδατι, αὐτὸς δὲ βαπτίσει ὑμᾶς ἐν πνεύματι ἁγίῳ. καὶ ἐγένετο ἐν ἐκείναις ταῖς ἡμέραις, ἦλθεν ΙΗΣΟΥΣ ἀπὸ Ναζαρὲθ τῆς Γαλιλαίας. καὶ ἐβαπτίσθη ὑπὸ Ἰωάννου εἰς τὸν Ἰορδάνην. καὶ εὐθὺς ἀναβαίνων ἀπὸ τοῦ ὕδατος, εἶδεν σχιζομένους τοὺς οὐρανοὺς, καὶ τὸ πνεῦμα ὡσεὶ περιστερὰν καταβαῖνον εἰς αὐτόν. καὶ ἐγένετο ἐκ τῶν οὐρανῶν. σὺ εἶ ὁ υἱός μου ὁ ἀγαπητός, ἐν σοὶ εὐδόκησα. καὶ εὐθέως τὸ πνεῦμα αὐτὸν ἐκβάλλει εἰς τὴν ἔρημον. καὶ ἦν ἐκεῖ ἐν τῇ ἐρήμῳ

EVANGELIVM SECVNVVM MARCVM

Nitiũ euãgelij Ieſu Chriſti filij dei, ſicut ſcriptum eſt in prophetis. Ecce ego mitto nunciũ meum ante faciem tuam, qui præparabit uiam tuã ante te, uox clamantis in deſerto, parate uiam domini, rectas facite ſemitas eius. Erat baptizãs in deſerto Ioannes, & prædicans baptiſmũ pœnitentiæ in remiſſionem peccatorũ. Et egrediebantur ad eum tota Iudææ regio, & hieroſolymitæ, & baptizabantur omnes ab illo in Iordane flumine, confitentes peccata ſua. Erat aũt Ioannes ueſtitus pilis cameli & zona pellicea circa lũbos ſuos, & ueſcebatur locuſtis ac melle ſylueſtri, & p̃dicabat, dicens. Veniet qui fortior eſt me poſt me, cuius non ſum idoneus, ut procumbens ſoluam corrigiam calciamentorũ. Ego quidem baptizaui uos in aqua, ille uero baptizabit uos in ſpiritu ſancto. Et factum eſt in diebus illis, uenit Ieſus a Nazareth Galilææ, & baptizatus eſt a Ioanne in Iordane. Et ſtatim cum aſcenderet ex aqua uidit diſcindi cœlos, & ſpm̃ quaſi columbã deſcendentẽ ſuper illũ. Et uox facta eſt de cœlis. Tu es filius meus dilectus, in quo mihi bene complacitum eſt. Et continuo ſpiritus illum emittit in deſertum, & erat illic in deſerto

G to dies

FIGURE 26. *Parallel Greek–Latin New Testament edited by Erasmus (Froben, Basel, 1516). Text here is Mark 1:1–13.*

the theses of 1517 (no surviving copy), but both Luther and Melanchthon complained of his sloppy work. His nephew Jörg Rhaw took over the shop in 1525 and also printed for Luther. When Luther's movement gained momentum, Melchior Lotter the Young moved out of his father's Leipzig shop and set up business in Wittenberg, where he printed Luther's major writings before 1524, in-

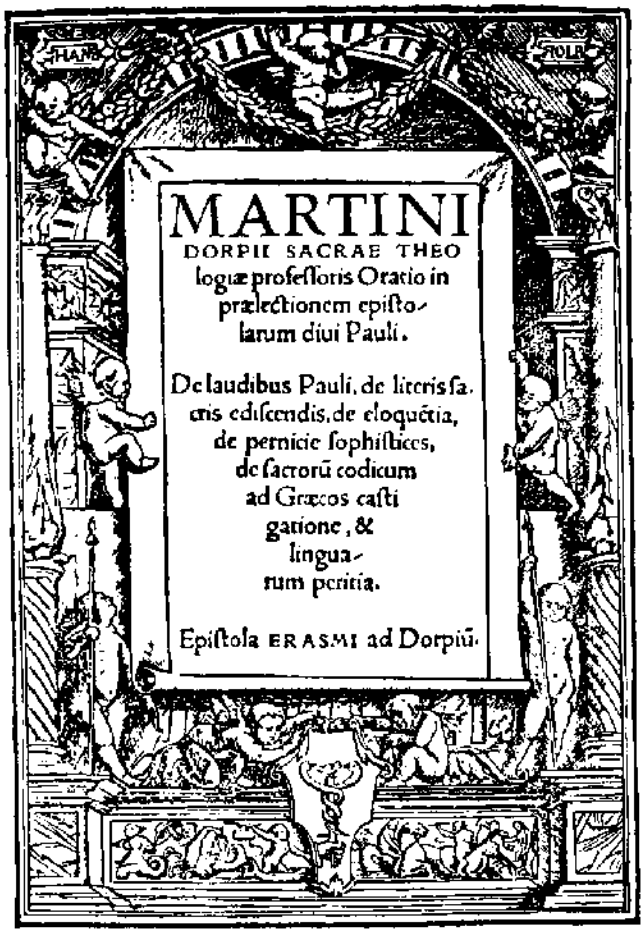
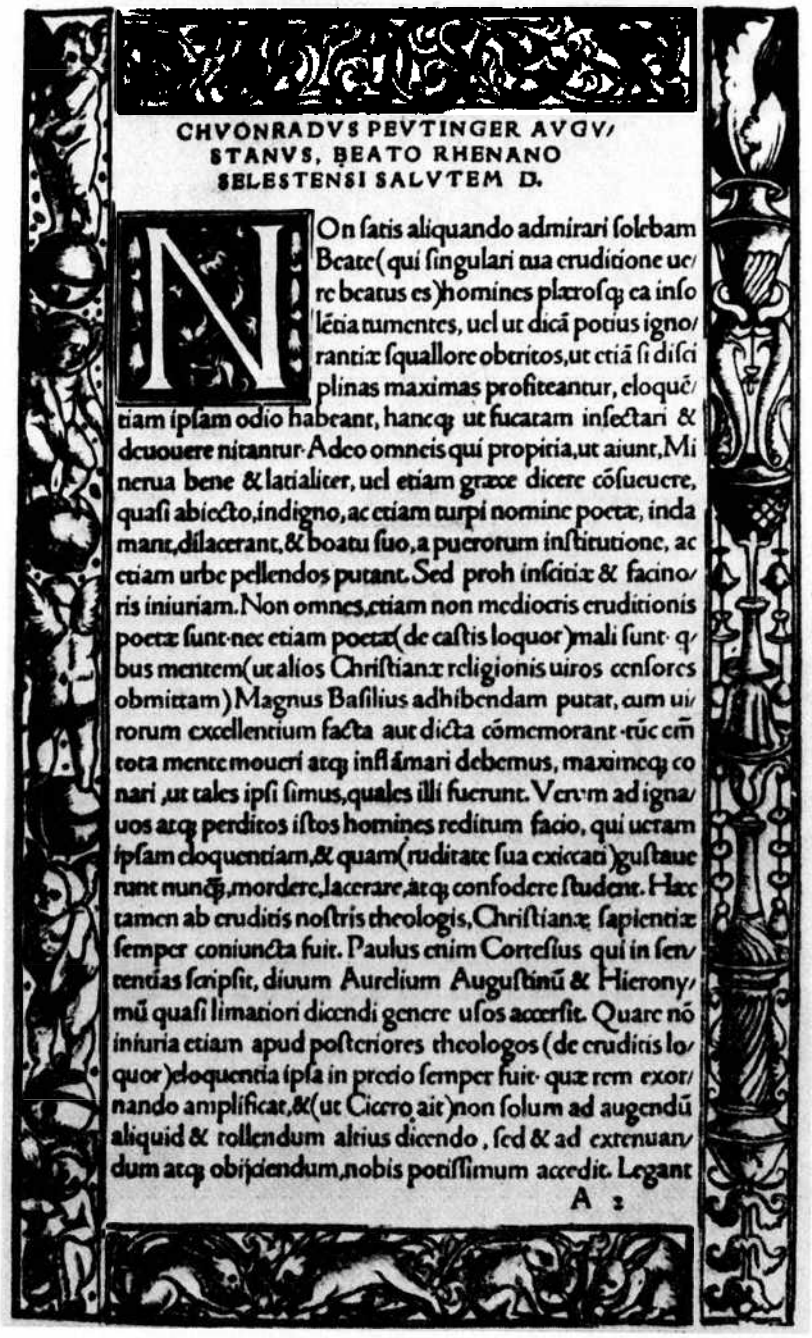


FIGURE 27. *Title vignette engraved by Hans Holbein for Martin van Dorp's commentary on the Pauline epistles (Froben, Basel, 1516).*

cluding the first edition of the New Testament translation in 1522. Of the numerous other presses in the following years in Wittenberg, that of Johannes Lufft (1485–1584) is the most significant. He began to print in 1523 and produced most of Luther's works and editions of his illustrated Bible (almost annually from 1536 to 1550) as well as writings of other reformers such as Melanchthon, Bugenhagen, and Jonas Rhegius. A large number of his books have engraved borders by Cranach, Virgil Solis, and artists of comparable stature, and he had leading humanistic scholars as his editors. (See Figure 30.)

Of the many other places in the Germanies where there was printing (much of it quite important) in the 16th century, only Vienna can be noted here. Johann Winterburger, who had begun to print there in 1492, continued until 1519, with over 160 imprints to his credit, including the important *Wiener Heiligthumbuch* (1502; facsimile, 1882) and handsome missals for Passau, Salzburg, Olomouc, and Gran. Hieronymus Vietor (Philovallis, Doliarius) printed in Vienna from 1510 to 1517 when he moved to Cracow, although the Vienna shop was continued under his brother Benedict Büttner until 1531. Johann Singriener printed from 1510 (un-



CHVONRADVS PEVTINGER AVGV/
STANVS, BEATO RHENANO
SELESTENSI SALVTEM D.

NOn ſatis aliquando admirari ſolebam Beate (qui ſingulari tua eruditione ue/re beatus es) homines plæroſq; ea inſo/lẽtia tumentes, uel ut dicã potius igno/rantiæ ſqualloꝛe obtritos, ut etiã ſi diſci/plinas maximas profiteantur, eloquẽ/tiam ipſam odio habeant, hancq; ut fucatam inſectari & deuouere nitantur. Adeo omneis qui propitia, ut aiunt, Mi/nerua bene & latialiter, uel etiam græce dicere cõſueuere, quaſi abiecto, indigno, ac etiam turpi nomine poetæ, inda/mant, dilacerant, & boatu ſuo, a puerorum inſtitutione, ac etiam urbe pellendos putant. Sed proh inſcitiæ & facino/ris iniuriam. Non omnes, etiam non mediocris eruditionis poetæ ſunt nec etiam poetæ (de caſtis loquor) mali ſunt. q/bus mentem (ut alios Chriſtianæ religionis uiros cenſores obmittam) Magnus Baſilius adhibendam putat, cum ui/rorum excellentium facta aut dicta cõmemorant. tũc eñ tota mente moueri atq; inflãmari debemus, maximeq; co/nari, ut tales ipſi ſimus, quales illi fuerunt. Verum ad igna/uos atq; perditos iſtos homines reditum facio, qui ueram ipſam eloquentiam, & quam (ruditate ſua exiccati) guſtaue/runt nunc̃, mordere, lacerare, atq; confodere ſtudent. Hæc tamen ab eruditis noſtris theologis, Chriſtianæ ſapientiæ ſemper coniuncta fuit. Paulus enim Corteſius qui in ſen/tentias ſcripſit, diuum Aurelium Auguſtinũ & Hierony/mũ quaſi limationi dicendi genere uſos accerſit. Quare nõ iniuria etiam apud poſteriores theologos (de eruditis lo/quor) eloquentia ipſa in precio ſemper fuit. quæ rem exor/nando amplificat, & (ut Cicero ait) non ſolum ad augendũ aliquid & tollendum altius dicendo, ſed & ad extenuan/dum atq; obiiciendum, nobis potiſſimum accedit. Legant

A 2

FIGURE 28. *Paulus Cortesius,* In sententias *(Froben, Basel, 1513).*

til 1546, including a partnership with Vietor for the first 4 years) and was responsible for some 300 titles, including many humanistic works. Of the Viennese printers of the latter part of the century Kaspar Stainhoffer (1556–1576) and Stephan Creutzer (1572–1594) are important.

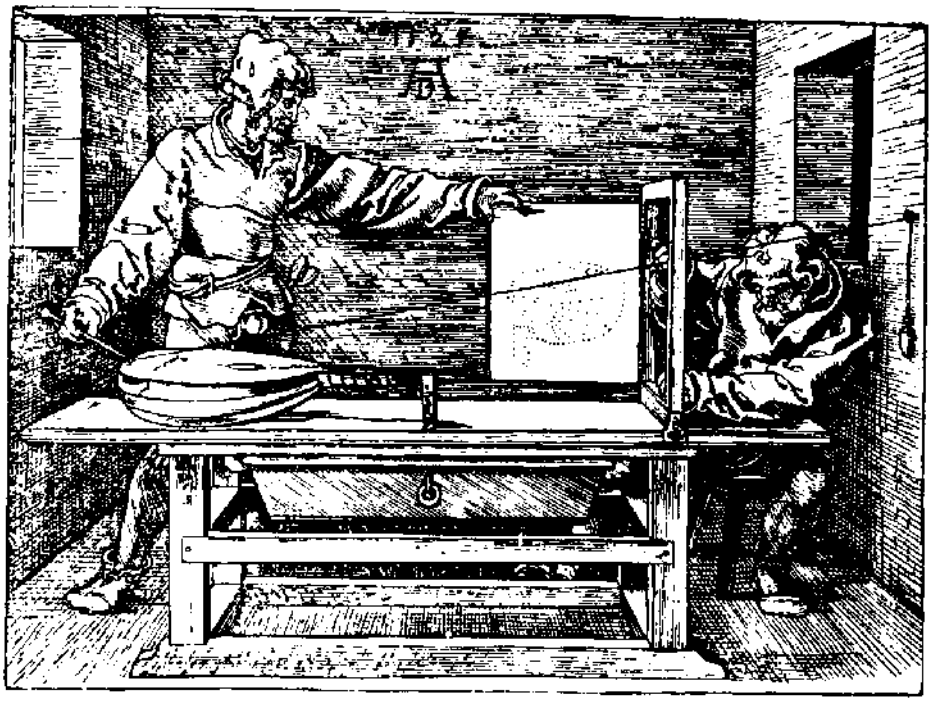


FIGURE 29. *Wood engraving in Albrecht Dürer,* Unterweisung der Messung *(Nuremberg, 1525).*

FIGURE 30. *Lucas Cranach,* Passional Christi und Antichristi *(Wittenberg, 1521).*

England and Scotland

England's printing industry continued to lag behind that of the continent until the end of the century and the flowering of the Elizabethan Age. A single fact will illustrate the technical lag of insular printing: The first title page in copper engraving that appeared in England was Thomas Geminus' *Compendiosa totius anatomiae delineatio* (1545). Types and ornaments were imported from France, Antwerp, and Cologne, and those produced in England rarely showed any originality. The see-saw struggle between Protestants and Catholics brought difficulties for many printers. Important English Bibles were printed on the continent, for censorship was strict. In 1557 the Stationers' Company was organized and granted a royal charter. No one who was not a member could print or publish any book except by special privilege. Every printer had to list with the company any title he desired to print, thus making the register a prime source for our knowledge of English printing from the reign of Mary I until the Civil War.

Of the older printers, the continuing activity of de Worde, Pynson, and Julian Notary in the 16th century has already been noted. William Fagues began to print in London in 1504 (the only date on any of his eight known imprints), and he was followed by Richard Fagues, who printed until 1530. John Rastell of Coventry was probably trained on the continent, and in 1514 he set up an office in St. Paul's Churchyard. He printed popular books and legal works, notably *The Great Abridgement of the Statutes* (1516) in three volumes. His son William also printed between 1529 and 1533, but, just as many other English Catholic intellectuals, he fled to the continent after the accession of Elizabeth.

Thomas Berthelet, a Welshman who may have served his apprenticeship with Pynson, began to print in Fleet Street in 1524, and by 1530 he had acquired sufficient prestige to be appointed King's Printer in succession to Pynson. He printed Sir Thomas Elyot's *Boke Named the Governor* in 1531, and subsequently he printed Gower's *Cofessio Amantis* and Erasmus' *De immensa Dei misericordia,* among other major works. He used 30 or 40 different types, including some handsome gothic types. Berthelet was also distinguished as a bookbinder in an italianate style, and some very beautiful bindings he executed for Henry VIII are known. Upon Berthelet's death in 1555 the office passed to his nephew, William Powell.

The problem of printing an English Bible has already been noted in connection with Gottfried Hittorp's Marburg branch and the 1535 Coverdale Bible. John Tyndale's New Testament had been printed in Cologne and Worms (1525–1526) and his Pentateuch at Marburg (1530). In 1534 Richard Grafton began to plan for an English Bible and, with Edward Whitchurch, who was printing in Antwerp at the time, issued "Matthew's Bible" in 1537. It was under the pseudonym of John Matthew, actually John Rogers, a friend of Tyndale, and he too was burned at the stake (in Queen Mary's reign). In 1538 Grafton, Whitchurch, and Coverdale were in Paris preparing what was to be known as the "Great Bible" or "Cranmer's Bible." French authorities seized the sheets, but many were recovered and the Bible was finished in London in 1539 at Grafton's press on Newgate Street. Grafton and Whitchurch received privileges for printing church-service works in 1543, and under Edward VI Grafton was King's Printer (but was stripped of the title by Mary

after printing the proclamation of Lady Jane Grey in 1553). Grafton died in 1572 after spending his latter years in the compilation of the *English Chronicles*. It should be noted that other English Bibles had to be printed abroad, notably the "Geneva" or "Breeches" Bible in 1560 and the Catholic Douai Bible of 1582, when the Romanists could not safely operate in England.

Reginald (Reyner) Wolfe, who enjoyed the patronage of the learned Archbishop Matthew Parker, had been a bookseller since 1530, and in 1542 he began to print and continued until his death in 1573. He was responsible for the first Greek books produced in England—long after Greek was widely used by continental printers—and had the title of King's Printer for Latin, Greek, and Hebrew. He had 27 fonts of type, including roman, italic, gothic, and Greek, and some of his wood-engraved initials are of superior quality. When Wolfe died, much of his equipment passed to Henry Bynneman, who also printed for Parker. He seems to have had a relatively large office for England, with three presses, when he died in 1583. In 1577 he completed the *Chronicles* of Raphael Holinshed (and others), begun when Holinshed was in Wolfe's employ as a translator.

John Day (Daye, Daie, 1522–1584) began to print in 1546 with William Seres. Their work was on the same mediocre level as that of other London printers, and their joint effort produced, among other books, a folio Bible in 1549. Day, perhaps the most prolific printer of Protestant literature, was the unwilling guest of Queen Mary in the Tower during most of her reign, but he began to print again in 1557. In 1560 he printed the first book of church music in England, and in 1563 he brought out the first English edition of John Foxe's *Book of Martyrs*. He introduced new italic, roman, and Greek type, but his most spectacular achievement was to cast the first font of Anglo-Saxon type, used in 1566 in Archbishop Parker's *A Testimonie of Antiquitie*.

Richard Tottel printed at "The Hand and Star" within Temple Bar from 1553 to 1594. With Nicholas Grimald he compiled *Songs and Sonnets*—best known as "Tottel's Miscellany," including the chief works of Wyatt and Surrey—and printed it in 1557. Among other important books from his press were More's *Dialogue of Comfort* (1553), Lydgate's *Fall of Princes* (1554), and Surrey's *Aeneid* (1557). Richard Field, who probably grew up with Shakespeare in Stratford, printed the latter's first work, *Venus and Adonis* (1593). Other London printers of the later 16th century who may be noted here by name were Christopher Barker, Henry Denham, and the Huguenot Thomas Vautrollier.

Printing outside of London was relatively unimportant when we consider the degree of diffusion of the art in Italy, the Germanies, France, and even Spain. Johan Scolar was the second printer in Oxford, beginning with Walter Burley's *Quaestiones super libros ethicorum Aristotelis* (1517), with type from Wynkyn de Worde, and eight more books in the next 2 years. In 1528 Scolar appeared in Abingdon, where he printed a breviary for the local abbey. Charles Kyrforth printed a single pamphlet in 1519, but it was only in 1585 that Joseph Barnes established a permanent press. He was subsidized by the university and was responsible for over 300 titles. John Siberch (John Lair of Siegburg), who had been a publisher in Cologne, established a press in Cambridge in 1521 and produced nine books in the next 2 years. After a hiatus of 61 years Thomas Thomas began to print in Cambridge in 1583 and con-

tinued until his death in 1588, after which Cambridge was never without a press. A breviary was printed for York in Venice in 1493 (GW 5333), but the first produced locally was by Hugo Goes, a *Directorium sacerdotum* (1509). He is known to have printed only two other works. Ursyn Myner printed three small items at York in the period 1513–1516. The third York printer, John Warwick, is known by a single title, a Latin accidence of 1532; and the fourth, Johann Marcantius (Marchant), is also known only by a single book of 1579.

John Herford established the second press in St. Albans in 1534 and printed for the abbey until it was suppressed in 1539, then moved to London. At Tavistock in Devon two books were printed between 1525 and 1534 in the Benedictine monastery, one (Boethius' *De consolatione philosophiae)* signed by the monk Thomas Rycharde, the other (*Statutes of the Stannery*) without indication or printer. Anthony Scoloker printed seven books at Ipswich in 1547–1548, then moved to London and worked with William Seres. John Oswen succeeded him in 1548, then moved to Worcester and printed there until 1553. One of his books is a quarto New Testament (1550). John Mychell printed a few items in London after 1540, then went to Canterbury, where he printed 11 books between 1549 and 1556. Anthony de Solemne established a press in Norwich in 1566, but most of his work was in Dutch.

In 1507 James IV granted privileges to Walter Chepman, a well-to-do merchant of Edinburgh, and Andrew Myllar, a bookseller who had learned to print in France, to set up a press. In 1508 *The Maying and Desport of Chaucer* appeared, the first book printed in Scotland. A two-volume breviary for Aberdeen in 1510 is their best-known book, but they also issued Scottish poems. Three decades later the second Scottish printer, Thomas Davidson, printed the *Chronicles of Scotland* (1540) and the *New Actis and Constitutionis of Parliament* (1541–1542). John Scot (Skot) may have printed in Edinburgh as early as 1539, but his first known work is a catechism dated 1552 in Saint Andrews, and he continued to print theological works for the next decade. Robert Lekpreuik printed in Edinburgh from 1561 to 1571, his first work being *The Confessione of the Fayght.* In 1571 he established the first press in Stirling, then moved to Saint Andrews and later back to Edinburgh, where he is known to have been printing in 1581 after a stint in debtors' prison. Thomas Bassandyne printed *The Fall of the Roman Kirk* in 1568, but he died in 1577, and his partner Alexander Arbuthnot continued. John Ross printed for the bookseller Henry Charteris for 6 years from 1574 to 1580, and he is mainly remembered for the *Seuin Seages, Translatit out of Pois in Scottis Meter be Johane Rolland in Dalkeith.* Thomas Vautrollier was in Edinburgh briefly in 1584 to avoid prison, but he went back to London in 1588. Robert Waldegrave of London printed more than a hundred books as King's Printer for Scotland from 1590 to 1603.

Spain and Portugal

The two great landmarks of Hispanic printing were the Complutensian polyglot Bible (supra) and the establishment of a press in Mexico in 1536 (see this encyclo-

pedia, Volume 10, pages 402–423). Arnao Guillén de Brocar died in 1519, 2 years after the completion of the polyglot, and left a flourishing business to his son Juan, who continued to print in Alcalá de Henares until his death in 1552. Among Arnao's important works should be noted Pérez de Guzman's *La cronica del rey don Juan II* (1515), printed in a gothic type in two colors and illustrated with superior woodcuts. The tradition of Cardinal Ximenes was preserved in Alcalá even after his death. Gómez de Castro's *De rebus gestis a Francisco Ximenio Cisnerio* (1569) was printed by Andrés de Angulo in one of the finest roman types ever used in Spain. Daniel Berkeley Updike described the text as "almost Jensonian in reliance upon pure typography for beauty."

Jacob Cromberger took over Stanislas Polonus' office in Seville in 1504 and became—with his son, partner, and successor Juan—the most famous Spanish printer of the century. (See Figure 31.) Among Jacob's important works may be mentioned *La historia de los nobles cavalleros Oliveros y Artus de Algarbe* (1507), San Pedro's *Carcel de Amor* (1509), and a handsomely illustrated *Retablo de la vida de Cristo* (1518) by Padilla. His Americana are cornerstones in the historiography of the Indies: Peter Martyr's *Occeani decas* (1511) and Cortes' *Carta de relacion* (1511). His editions of the *Amadis de Gaula* (1535), other romances of chivalry, and of

FIGURE 31. *Encino's* Suma de geographia *(Juan Cromberger, Seville, 1530).*

Bidpai's *Libro Llamado Exemplario* are noteworthy for their excellence. In 1508 Jacob was called to Portugal to plan the printing of the *Ordenações do reino* and was active both in Lisbon and Evora.

When Georg Coci, a German, took over Hurus' Zaragoza press in 1506, he began a career which lasted until 1537, after which the books from this office carried only the notation, "en casa de Jorge Coci." His fame is illustrated by the fact that Hieronymus Roman lists him in his *Repúblicas del mundo* as among those who contributed most to the development of printing in Spain. He printed classical works, religious books, and popular literature. His *Carcel de amor* (1523) is handsomely illustrated with italianate wood engravings. In 1523 he printed one of the letters of Cortes.

In Lisbon, Luiz Rodrigues was an important printer and is perhaps best known for the *Verdadera informaçam das terras do Preste Joam* (1540). German Gallarde and Antonio Alvarea were other significant Lisbon printers, and to the latter we owe the description of the Spanish Armada before it sailed to its destruction in 1588. In the university town of Coimbra, João Alvares and Antonio de Barreira were active. Alvares printed a typographically curious account of the martyrdom of Thomas à Becket in 1554 in which he mixed gothic and roman type.

Elsewhere in Europe

The Reformation lent a strong impetus to printing in Denmark and Sweden, often under a strong German typographical influence. Matthaeus Brandis of Lübeck printed in Ribe in 1504, and in 1510 he brought out the handsome *Missale Hafniense* in Copenhagen. Paul Raeff was the first native Danish printer and was active until 1533. His *Missale Nidrosiense* (1519) was printed for the see of Trondhjem (printing did not come to Norway until 1643). Hans Vingaard of Stuttgart began printing in Viborg, a Reformation stronghold, in 1528 and then moved to Copenhagen, where he printed Reformation tracts, popular works in Danish, and works for the university. Another center was Malmö (Skåne was Danish until 1658), where Olof Ulriksson (supra) printed the oldest surviving Danish edition of Luther's catechism in 1556. The Bible of Christian III, the most important Danish book of the century, was produced in 1550 in Copenhagen with many fine illustrations by Ludwig Dietz of Rostock. From 1560 to 1601 Lorentz Benedicht (also an engraver) was a prolific printer, and his best-known work is perhaps the richly illustrated Bible of Frederick II (1557). Hans Stockelmann and Andreas Gutterwitz established a press in Copenhagen in 1574, which was moved to Sweden in 1583 by Gutterwitz after his partner's death. In 1575 they printed Anders Sørensen Vedel's translation of Saxo Grammaticus' *Historia danorum,* which had been edited in Latin in Paris in 1514 by Christiern Pedersen. Vedel himself had a small press in Ribe from 1591 to 1593 from which he issued his collection of Danish popular songs. From 1584 until 1597 Tycho Brahe had a press at Uranienborg Castle on Hveen, an island in the Sound, and from it came handsomely printed and richly illustrated books (on paper from Brahe's own mill and bound in his own bindery).

In 1510 Paul Grijs brought printing to 16th-century Sweden, after a decade with no press in the kingdom, when he established an office in Uppsala and printed a

few textbooks and small pieces in Swedish until 1523. In 1525 Bartolomaeus Fabri, possibly a son of Johann Fabri (supra), printed a few Catholic books issued at Uppsala, but part of them may have been the work of Georg Richolff, the Younger, of Lübeck. From 1523 to 1526 there was a press at Söderköping for printing Catholic works, but the manager, Olof Ulriksson, moved to Malmö when it was abolished by Gustavus Vasa. This vigorous Protestant monarch established a royal press in Stockholm operated by Richolff and Fabri, but native printers took over when the former returned to Lübeck in 1526. From this press came a Swedish translation of the New Testament in 1526 and many works by Olaus Petri, champion of the Reformation in Sweden. In 1541, after several years of preparation, Gustavus Vasa's Bible was printed by this press, which had been moved to Uppsala and was temporarily under Richolff's supervision again, probably to complete the Bible. The Royal Press was returned to Stockholm, and for many years (until 1575) it was under the capable supervision of Amund Laurentsson. Andreas Gutterwitz left Copenhagen in 1583 and managed the press until 1610. He produced some 150 books, including the first Greek book in Sweden in 1584.

In 1540 Hans Barth printed the first book in Icelandic in Roskilde, a translation of the New Testament. Bishop Jón Arason called the printer Jón Matthíasson to his see in Hólar about 1530, but the breviary supposedly printed there in 1534 is lost. In 1562 Matthíasson was printing in Breidabólsstaðun. Jón Jónsson took the press to Hólar and printed there from 1574 to 1576. With new equipment he alternated his work between Núpufell and Hólar, where he printed the first Icelandic Bible (the "Gudbrand Bible") in 1584. He died in 1616. Greenland did not have a press until 1793 when Herrnhut missionaries printed a collection of Greenland psalms at New Herrnhut near Godthaab.

After Andreas Hess there was little printing in Hungary, although some publishers had books produced in places such as Venice, Verona, Brno, Vienna, and Cracow. The century and a half between Mohács (1526) and the liberation of Budapest from the Turks in 1686 was a confused period in every respect. In Kronstadt (Brasou, Brassó) the Transylvanian reformer Johann Honterus introduced printing in 1535 and published in his own cause. In 1534 Thomas Nádsady, ban of Croatia, founded a press in Ujsziget (Sárvár, Eisenburg, Insula Nova) operated by János Sylvester and Benedikt Abádis, where the first book in Magyar, a New Testament, appeared in 1541. In 1550 a press was founded in Klausenburg (Koloszvár, Cluj) by Kaspar Helth and Georg Hoffgref; in 1558, in Altenburg (Magyaróvár); then in 1563, in Debrecen by Michael Török and Raffael Hoffhalter (Skrzetuski), who printed part of the Bible in Magyar (1565). The latter, a Pole who began to print in Vienna in 1556, moved to Grosswardein in Karlsburg (Gyulafehérsvár) and introduced printing there in 1567. Hoffhalter's son Rudolf printed in Alsólendva in the period 1574–1577 and in Debrecen from 1577 to 1586. In Tyrnau (Nagyszombat) the former Jesuit press in Vienna was set up in 1578. Budapest did not have a printer again until Johann Landerer began to work there in 1725, only 2 years before another Magyar, Ibrahim Müteferrika, introduced printing to Istanbul.

In Cracow there were several printers at the beginning of the century, Kaspar Hochfeder in 1503, Johann Haller in 1505, Florian Ungler in 1510, Hieronymus

Vietor (supra) in 1518, and Marcus Scharfenberg in 1527. Native Poles continued the active printing industry in the old university town in the latter part of the century. Danzig (Gdansk) had a press in 1499, and the industry continued in the next century. Melchior Nehring introduced printing to Poznan in 1577 and was followed in 1578 by Johannes Wolrab. Ivan Federov (Theodorov, infra) had a press in Lemberg (Lwów) in the years 1572–1574. Nikolas Scharfenberg of Cracow established a press in Warsaw in 1578, but printing was not firmly established there until 1630.

Nikolaus Bakalář (supra) printed for the first decade of the new century in Pilsen, but the last book printed in Pilsen before the 18th century appeared in 1533. In Praha there was a flourishing printing industry, producing books in all major languages of eastern Europe as well as Latin, Greek, and Hebrew. Jan Kosorský z Kosoře (1537–1562) is important for his great edition of Sebastian Münster's *Cosmographia* (1554). Jiřik Melantrich Rožďálovsky z Aventina (1552–1580), who learned printing with Johann Günther in Nuremberg, produced a Czech Bible and other works in the vernacular as well as classical texts. Daniel Adam z Veleslavina (1576–1599) was the most important Praha printer of the last quarter of the century.

In 1553 Ivan Federov was called to Moscow by Ivan the Terrible and the metropolitan of the city to establish a press. Finally, in 1564 he and Petr Timofeev Mstislavec produced the first Moscow imprint, *Apostol* (story of the apostles and New Testament letters) in church Slavic. After publishing his *Chasovnik* (horologium) in 1567, Federov decided it was safer to move his press to Zahludowo near Bialystok in Lithuania, and printed the gospels, a psalter, and a horologium there in 1568 and 1569. In Lwów in 1574 he became the first Ukrainian printer with an *Apostol*. He then entered the service of Prince Konstantin Ostrozhskii of Vahynia and established a press in Ostróg, where he produced the famous Ostróg Bible, the complete work in Church Slavic. He returned to Lwów in 1582 and died there the next year. It should be noted that Zernova records six anonymous imprints, probably of Muscovite origin from about 1555 to about 1564, antedating the Federov *Apostol*. They may tell the story of what happened between 1553 and 1564. Except for these and Federov's two Moscow imprints, only eight others are recorded for the entire 16th century.

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LAWRENCE S. THOMPSON

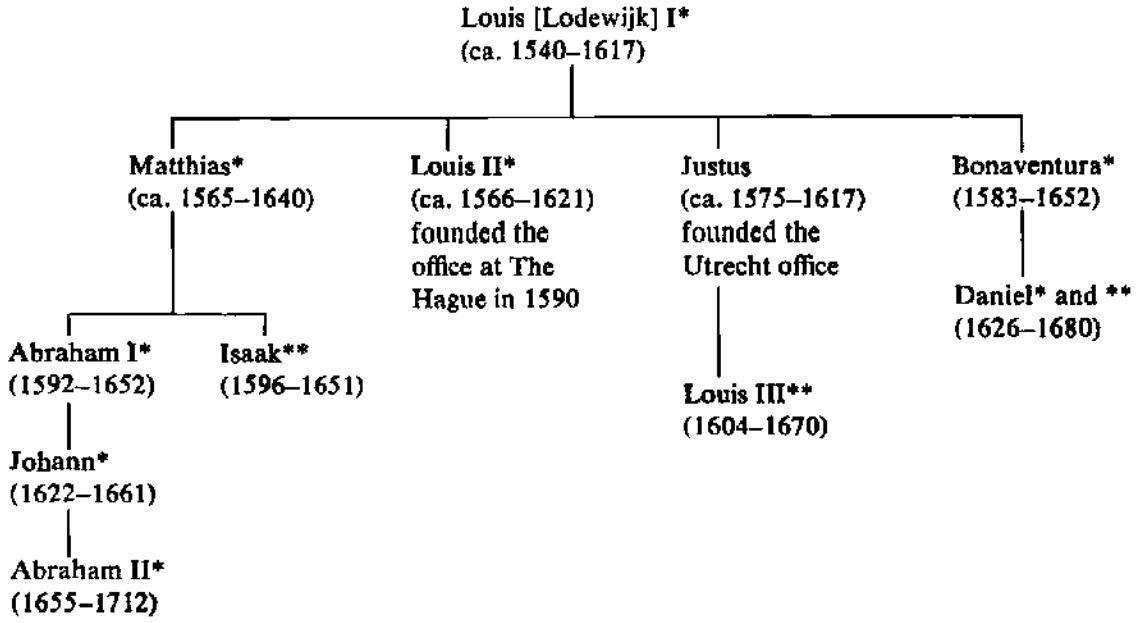
THE 17TH CENTURY*

The Low Countries

The shifting political, cultural, and economic fortunes of the European nations also meant the rise of new centers of printing. Thus we find that Italy tended to lose some of its relative importance with the waning of the Renaissance. The rising prosperity of France, England, and northern Europe was the signal for a change in the course of history. For the first time in the annals of Western civilization the nations of the Mediterranean littoral were not the dominant ones in all aspects of the culture of the Occident. Thus, this section will begin not with Italy, but with the Low Countries, and primarily on account of one family, the Elzeviers (see Figure 1). Their sound business methods and the beauty and meticulous editing of their books gave them preeminence in the European book world of the 17th century, and for the following two centuries even spawned an "Elzevieromania" in which collectors vied with one another in assembling collections of their works and often drove antiquarian prices to unjustifiable levels.

As a point of reference, the accompanying genealogical table is copied from Julius Rodenberg's study of 17th-century printing in the *Handbuch der Bibliothekswissenschaft* (Vol. 1, p. 536), in which the members of the Leiden house are designated by one asterisk, those of the Amsterdam office by two asterisks.

Genealogy of the Elzeviers



The founder, Louis, was a native of Louvain and a bookbinder, and he, like thousands of other Flemings, was attracted by the growing prosperity of the seven northern provinces after they had won independence from Spain. En route to the north, Louis was in Antwerp, where he certainly came into contact with Plantin.

* The Bibliography for this section begins on page 442.

FIGURE 1. *Device of the Elzeviers.*

In 1580 he was in Leiden, to serve the new university as a bookbinder and bookseller (see Figure 2); and in 1583 he published his first book, Drusius' *Ebraicarum quaestionum ac responsionum libri duo*, with the notation, "Veneunt Lugduni Batavorum apud Ludovicum Elsevirium e regione scholae novae." His first years in Leiden were difficult, but industry and a good business head put him on his feet. He became the university's beadle in 1586 and a citizen of Leiden in 1594, and about this time he took in his son Matthias as a partner (see Figure 3). Louis traveled widely and had offices not only elsewhere in Holland but also in London, Paris, Frankfurt, and Venice.

Strangely enough, Louis never had a printing press until just before his death in 1617. His grandson Isaak married into a wealthy family and was able to finance the acquisition of a printing press. When Matthias and his youngest brother, Bonaventura, took over the business in 1617, they could have their books printed by Isaak. Although Isaak acquired the office of printer to the university in 1620 and the private press of the orientalist Thomas Erpenius (van Erpe, 1584–1624) with a rich stock of oriental type, he gave up the press in 1625 and sold it to his uncle Bonaventura and elder brother Abraham. The latter brought the house of Elzevier to its greatest fame and prosperity both as a printing firm and Europe's leading publisher. (See Figure 4.) When Abraham and Bonaventura died in the same year (1652), the firm passed to Johann, Abraham's son, and Daniel, Bonaventura's oldest son. But decay had already set in, and Daniel left the business in 1655. Upon Johann's death in 1661 his widow continued the business for two decades, and her son Abraham II struggled with it until it was dissolved after his death in 1712.

In 1638 the grandson of the founder of the firm, Louis III (son of Justus, who established the Utrecht office), set up a branch in Amsterdam, and it continued for 11 years after his death in 1670. Louis III was enterprising, imaginative, and im-

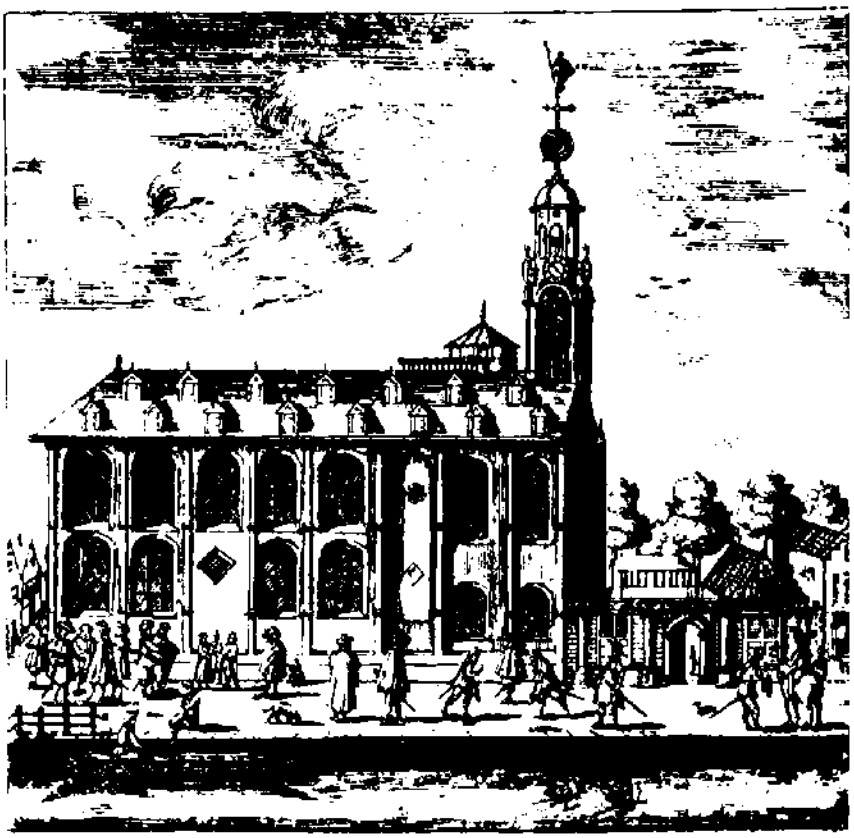


FIGURE 2. *The University of Leiden and the Elzevier printing shop (the Gothic gable at the right).*

bued with a deep sense of intellectual curiosity. When his cousin Daniel left the mother firm in Leiden in 1655, he joined Louis III in Amsterdam; and when the latter retired in 1664, Daniel took over full responsibility for the firm. The Amsterdam house was fully as important in its day as the mother firm in Leiden, and its list included the most distinguished writers of Europe, among others, Descartes, Grotius, Scaliger, and Galileo. Bacon, Milton, Hobbes, La Rochefoucauld, Brantôme, Corneille, and Scarron were among those who were proud of their association with the house of Elzevier. The Elzeviers did not maintain an extensive côterie of scholarly editors and advisers, nor was any member of the family as learned as Aldus and the Estiennes. However, in their close friends, Daniel Heinsius and his son Nicolaus (probably the authors of many of the anonymous Latin prefaces in Elzevier books), they had a solid basis of scholarship for their publications. Including academic publications, there are probably some 5,000 titles that carry an Elzevier imprint.

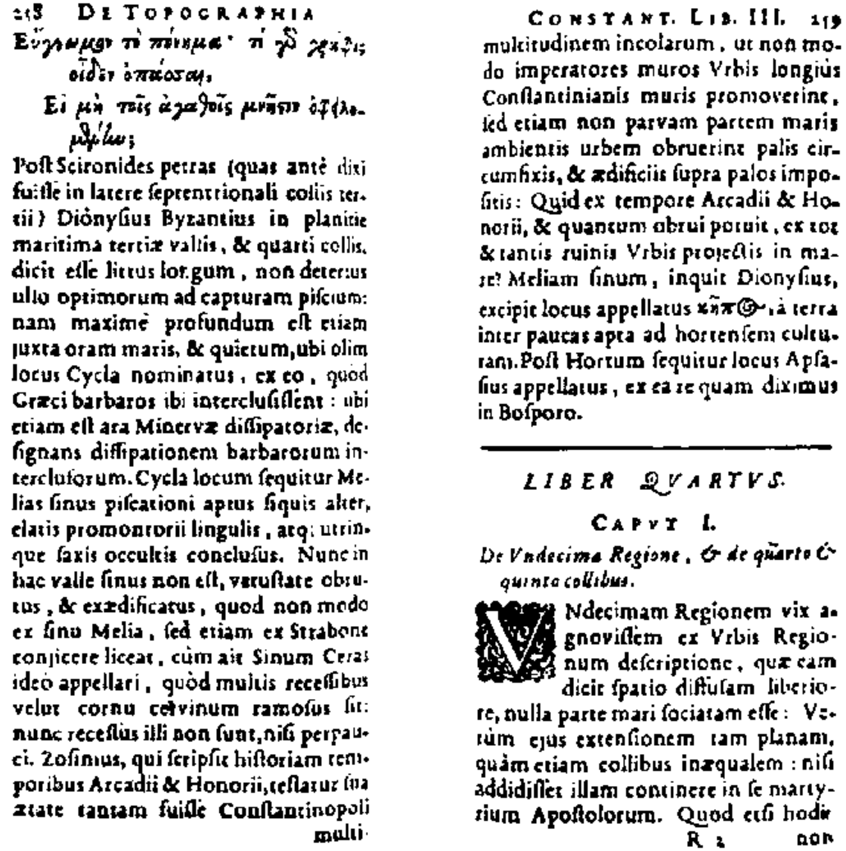
Special notice is due to their letter founder, Christoph van Dyck (Christoffel van Dijck), a Palatine German. About 1640 he set up a goldsmith shop in Amsterdam and soon began to produce type. The famous Fell types, still used by Oxford University, go back to him. When van Dyck died in 1672, his dies and matrices passed to Daniel Elzevier. Daniel's widow tried without success to sell them to the widow

FIGURE 3. *Matthias Elzevier (ca. 1565–1640).*

of Balthasar Moretus, and ultimately they fell into the hands of Isaak Enschedé (1681–1761), who founded the great printing firm of Haarlem that still survives. Unfortunately, the Enschedés preferred the types of Johann Michael Fleischmann (1701–1768), and the van Dyck material was melted down at the beginning of the last century.

In cartographic printing, the Dutch—the leading European naval power and master of rich colonies—were preeminent. Willem Janszoon Blaeu (1571–1638), also called Alemar from his birthplace, was a friend of Tycho Brahe in his youth and learned mathematics, astronomy, and geography from him. In 1596 Blaeu settled in Amsterdam as a printer and engraver and also produced mathematical instruments and globes (beginning in 1599). The motto on his printer's mark, "Indefessus agendo," adequately expresses his energetic business methods and mechanical skill (Moxon illustrates his new press, showing the first important innovations since Gutenberg). His major works were the *Zeespiegel van de oostersche, noordsche en westersche Schipvaert* (1677); *Appendix theatri Abrahami Ortellii et atlantis Gerhardi Mercatoris* (1632); and Dutch, Latin, French, and German editions of the *Theatrum orbis terrarum* (1635).

Blaeu's sons, Jean and Cornelis, carried on the business after his death. Although the Blaeus also printed scholarly works of such noted men as Grotius, Heinsius, and Vossius, their major work was always in cartography. The founder conceived a monumental *Atlas novus*, of which he lived to see only the first two



218 DE TOPOGRAPHIA

Εὔγραμμον τὸ πίνημα· τί γὰρ χεῖρες οὐδὲν ὀπιπόσαι,

Εἰ μὴ τοῖς ἀγαθοῖς μνῆστιν ὀφ(λο-μήλων;

Post Scironides petras (quas antè dixi fuisse in latere septentrionali collis tertii) Diònysius Byzantius in planitie maritima tertiæ vallis, & quarti collis, dicit esse littus longum, non deterius ullo optimorum ad capturam piscium: nam maximè profundum est etiam juxta oram maris, & quietum, ubi olim locus Cycla nominatus, ex eo, quod Græci barbaros ibi interclusissent: ubi etiam est ara Minervæ dissipatoriæ, designans dissipationem barbarorum interclusorum. Cycla locum sequitur Melias sinus piscationi aptus siquis alter, elatis promontorii lingulis, atq; utrinque saxis occultis conclusus. Nunc in hac valle sinus non est, vetustate obrutus, & exædificatus, quod non modo ex sinu Melia, sed etiam ex Strabone conjicere liceat, cùm ait Sinum Ceras ideò appellari, quòd multis recessibus velut cornu cervinum ramosus sit: nunc recessus illi non sunt, nisi perpauci. Zosimus, qui scripsit historiam temporibus Arcadii & Honorii, testatur sua ætate tantam fuisse Constantinopoli multi-

CONSTANT. LIB. III. 219

multitudinem incolarum, ut non modo imperatores muros Vrbis longiùs Constantinianis muris promoverint, sed etiam non parvam partem maris ambientis urbem obruerint palis circumfixis, & ædificiis supra palos impositis: Quid ex tempore Arcadii & Honorii, & quantum obrui potuit, ex tot & tantis ruinis Vrbis projectis in mare? Meliam sinum, inquit Dionysius, excipit locus appellatus κῆπος, à terra inter paucas apta ad hortensem culturam. Post Hortum sequitur locus Apsasius appellatus, ex ea re quam diximus in Bosporo.

LIBER QVARTVS.

CAPVT I.

De Vndecima Regione, & de quarto & quinto collibus.

VNdecimam Regionem vix agnovissem ex Vrbis Regionum descriptione, quæ eam dicit spatio diffusam liberiore, nulla parte mari sociatam esse: Verùm ejus extensionem tam planam, quàm etiam collibus inæqualem: nisi addidisset illam continere in se martyrium Apostolorum. Quod etsi hodie

R 2 non

FIGURE 4. *Copper engraved title page and text pages of P. Gyllius,* De Constantinopoleos Topographia *(Elzevier, Leiden, 1632).*

volumes. The complete work in six heavy folios appeared in various editions from 1634 to 1662. The masterpiece of the firm is the monumental *Atlas major sive cosmographia Blaviana*, complete in 11 massive volumes in 1662. There was a Spanish edition in the period 1659–1672 in 10 volumes, and many single parts came out under the title of *Theatrum*. Johann's sons, Peter and Johann, continued the business into the 18th century.

A major competitor of the Blaeus was Johannes Jansson (Janssonius; 1590–1664) of Arnheim. He first worked with his brother-in-law, Jodocus Hondius (de Hondt; 1563–1611), who settled in Amsterdam in 1593 after a decade in London and acquired the plates for Mercator's atlas in 1604. When Hondius died, Jansson took over the business and issued many significant cartographic works, of which the most important is *Novus atlas sive theatrum orbis terrarum* (1644–1650) in five volumes. His *Urbium totius Germaniae, Galliae et Helvetiae, Italiae, Belgii, septentrionalis Europae et Hispaniae, Asiae, Africae et Americae tabulae antiquae et novae* (1657; 8 vols., with 509 plates) is a major contribution to historical iconography. Peter Schenk took the business after Jansson's death and issued a new edition of the *Novus atlas* in 1683.

An emigrant from Belgium, just as the first Louis Elzevier, was Jan van Waesberghe (1528–1570). He printed first in Antwerp in the years 1557–1559, then moved to Rotterdam and established a business carried on by 16 other van Waesberghes until the middle of the 19th century. The family had branches in Amsterdam, Breda, Utrecht, and Danzig. The Amsterdam branch reached the height of its prosperity under Johannes Janssonius van Waesberghe (1651–1681), son-in-law of Johannes Jansonius, whose name he added to his own. He called his business that of "Janssonio-Waesbergii" or "de Janssons van Waesberghe." His extensive list rivaled that of the Elzeviers, and he also continued to print atlases and maps in his father-in-law's tradition.

The relative tolerance in religious and other matters that prevailed in Holland and the technical competence of Dutch engravers, compositors, and printers lent the small country a special position in European publishing in the 17th and 18th centuries. Many a book that could not be printed elsewhere bears an Amsterdam imprint (and many a book printed in Paris and elsewhere bears a fictitious Amsterdam imprint!).

The Jewish community of Amsterdam has always repaid the tolerance of the community with major cultural achievements, for example, Josef ben Abraham Athias, who was active from 1657 to 1700. Of his many valuable Hebrew books, special attention is due his Bible of 1661 (second edition, 1667), edited by the Leiden scholar Johann Leusden. It is set in a very handsome Hebrew type cut by Christoph van Dyck and is generally considered to be one of the handsomest Hebrew Bibles ever printed. The Hebrew type owned by Athias is now in the possession of the Amsterdamsche Lettergietrij (N. Tetterode). It is of interest to note that Athias used the elementary stereotyping process developed by Johannes Müller of Leiden and, thus, made substantial contributions to a technique that was to become so productive later on.

Printing flourished in other places in Holland—such as Deventer, Dordrecht, Groningen, and Leeuwarden, in addition to Amsterdam, Leiden, Utrecht, and Rot-

terdam—but only a few more names may be noted here. Cornelis Claesz (Claussohn, Nicholai; 1547–1609) of Amsterdam published Lucas Jansz-Waghenaer's travel narratives in Dutch, Latin, French, German, and English (1584–1615), and he issued a sales catalog in 1604 with some 2,000 titles. Johann Heinrich Wetstein, of Basel, an associate of Daniel Elzevier, was the founder of the great publishing firm in Amsterdam which bears his name. Isaac Enschedé (1681–1761) founded the business that bears his name in Haarlem and properly belongs to the next century, but his collection of punches and matrices from the 15th through the 17th centuries is of greatest importance for the typographical history of those periods (his descendent Charles Enschedé used it in 1900 for his significant work on *Fonderies de caractères et leur materiel dans les Pays-Bas du XV^e au XIX^e siècle*). The tradition of superior typographic design in the Low Countries has been an enduring one, with J. M. Fleischmann (supra) and Jacques François Rosart in the 18th century, and such artists as S. H. de Roos ("Dutch Medieval" and "Erasmus Medieval") and Jan van Krimpen ("Lutetia") in our own day.

England, Scotland, and Ireland

The great intellectual ferment and the flowering of English literature in the 17th century was not accompanied by comparable advances in book production, although, quantitatively, English publishing compared favorably with the situation on the continent. There were no business and technical geniuses in English printing and publishing comparable to the Elzeviers, the Blaeus, or Christoph van Dyck. William Jaggard's first folio of Shakespeare is characteristic of the sloppy composition and presswork of the period (see Figure 5), and this situation offers a challenge which is probably a major factor in making England the *fons et origo* of modern bibliographical scholarship. On the other hand, we probably know more about typographical practice in 17th-century England than in any other country at any previous time, thanks to Joseph Moxon's *Mechanick Exercises, or the Doctrine of Handy-Works Applied to the Art of Printing* (1677–1678).

There were monumental works printed in England from the standpoints of cultural and literary history, but composition, proofreading, and presswork left much to be desired. What is perhaps the most influential of all English books, the King James Bible, was produced in 1611 by Robert Barker, printer to the king, in two states, the "She Bible" and the "He Bible," the latter due to omission of the S in she (among other typographical deficiencies). Brian Walton's six-volume polyglot Bible (Thomas Roycroft, London, 1654–1657) excelled all three previous ones (the Complutensian, Plantin's, and the French one of 1629–1645 edited by Le Jay and printed by Antoine Vitré) in scholarly editing and the number of languages (ten, adding Persian and Ethiopian to those in Le Jay's Bible); but it does not compare favorably with any of the others from a typographical standpoint. The Stationer's Company licensed only 19 printers and 4 typefounders for London; and thus much of the type used in England was imported from the Low Countries, likely as not discarded material that was worn and broken.

Of the early printers in 17th-century England, William Stansby seems to have

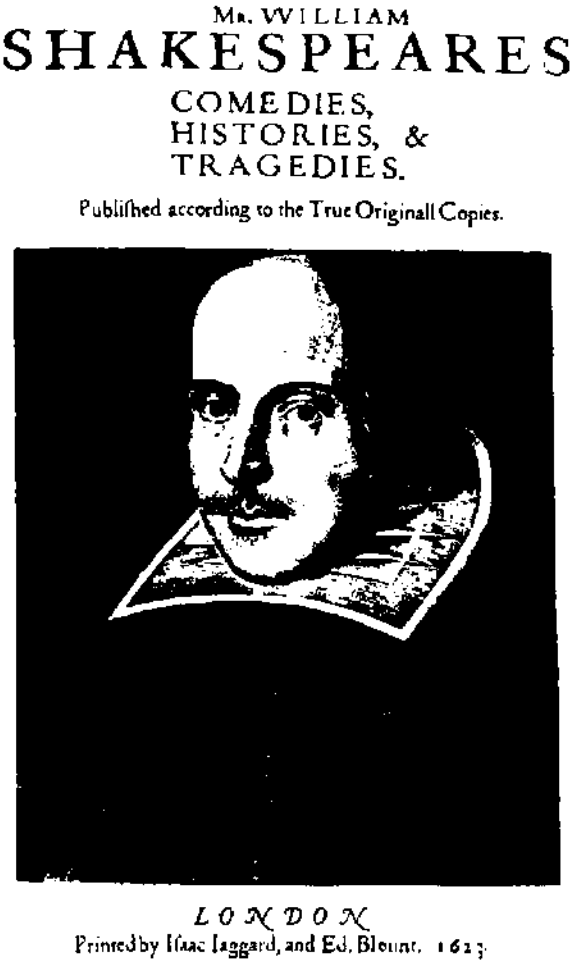
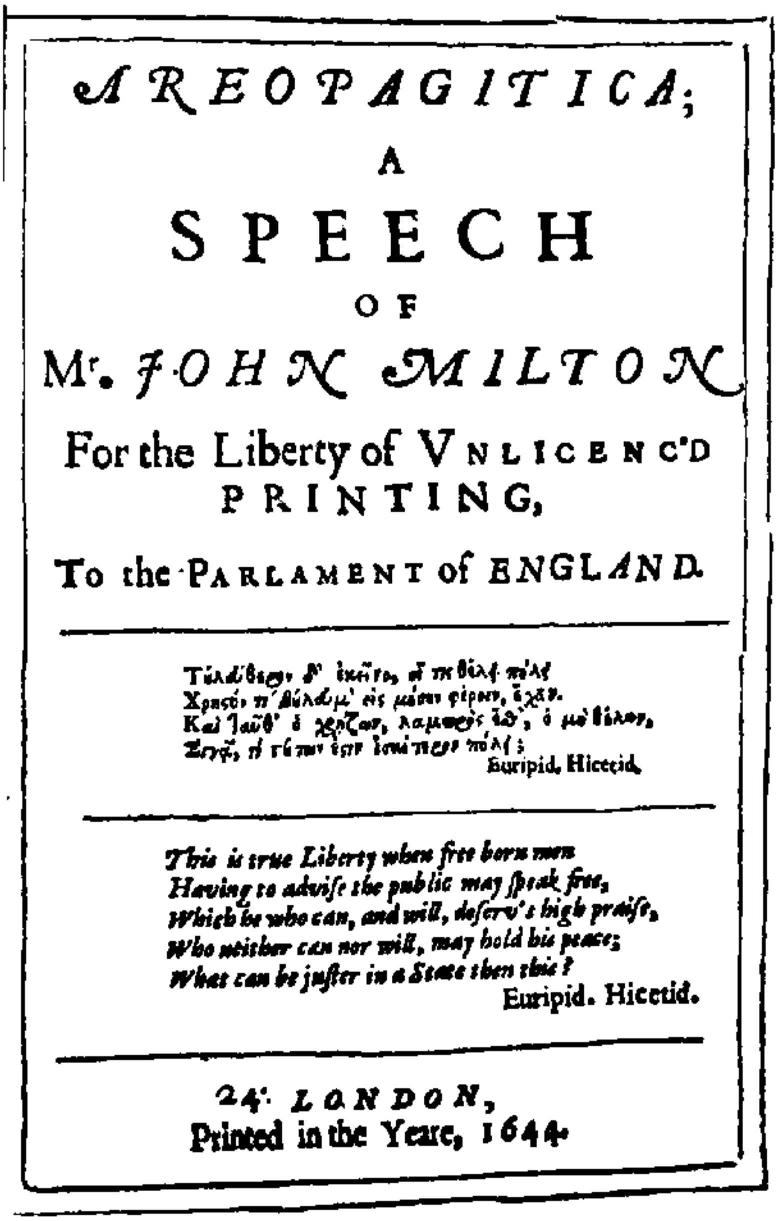


FIGURE 5. *The Shakespeare first folio.*

had a better stock of type and ornaments than most of the others, and his press-work was generally done with care. He printed Thomas Coryat's *Crudities* (1611), the Ben Jonson folio of 1616, and John Selden's *Mare clausum* in 1635. Humphrey Lownes at the "Star" on Bread Street Hill produced a number of important books, including two editions of Du Bartas (1605–1606 and 1608), the musical works of William Byrd (1610), and Michael Drayton's Polyolbion (1613), in addition to books of other writers of the stature of Spenser, Bishop Hall, and William Crashaw. John Haviland's best work is seen in the quarto editions of Bacon's *Essays* (1625, 1629, and 1632). Matthew Simmon's edition of Milton's prose works (1641–1645) is superior to most other printing of the time.

The draconic decrees of the Star Chamber aimed at suppressing Puritanism restricted the development of the printing industry. There could now be 20 instead of 19 London printing offices, and only wardens of the Stationer's Company could have more than two presses. The Puritans, as we know from Milton's unlicensed *Areopagitica* (1644), were no less zealous in suppression of opposition in the press. (See Figure 6.) During the Commonwealth the masses of political pamphlets and newssheets in London were totally undistinguished typographically. And to com-



AREOPAGITICA;
A
SPEECH
OF
Mr. JOHN MILTON
For the Liberty of UNLICENC'D
PRINTING,
To the PARLAMENT of ENGLAND.

[illegible]
Euripid. Hicetid.

This is true Liberty when free born men
Having to advise the public may speak free,
Which he who can, and will, deserv's high praise,
Who neither can nor will, may hold his peace;
What can be juster in a State then this?
Euripid. Hicetid.

24. LONDON,
Printed in the Yeare, 1644.

FIGURE 6. *The* Areopagitica *was published without license and uncensored on November 24 (or 23), 1644.*

pound the woes of the English printing industry, there were the plague of 1665 and the Great Fire in the next year.

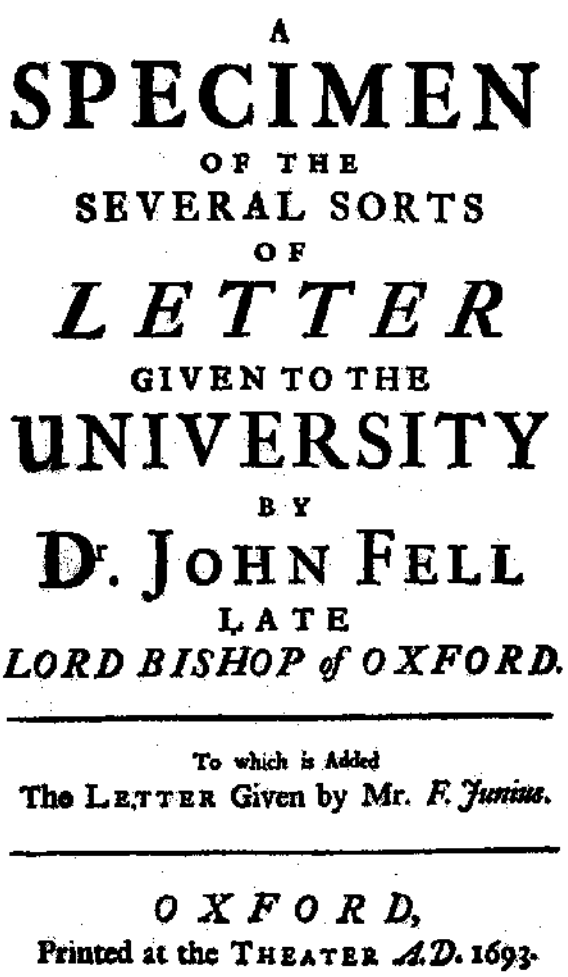
There were competent but hardly distinguished printers in London in the latter part of the century, and there are some vestiges of inspiration in the work of such men as Thomas Newcombe, James Fletcher, E. Horton, and Thomas Roycroft. Newcombe was the printer of the *Mercurius publicus*, the *Parliamentary Intelligences*, and *Public Advertiser*. In 1673 he and Henry Hills received a patent for printing all editions of the Bible, the Book of Common Prayer, and the statutes, a monopoly which did not finally expire until 1739. Roycroft had Wenzel Hollar

(1601–1677) of Praha to engrave the title page for the Polyglot Bible. Hollar, who had done important maps and views for continental publishers such as Merian and Hogenberg, spent the latter part of his life in London. His collections of drawings of women's dress (*Ornatus muliebris anglicanus,* 1640; *Aula Veneris,* 1640; and *Theatrum mulierum,* 1643) represent some of his best work; but his later illustrations and title pages such as we see in Ware's *Hibernia* (1654), Dugdale's *Antiquities of Warwickshire* (1656), and Ogilby's *Britannia* (1670) are inferior to his earlier work. Horton used some fairly good domestic type cast locally by James Glover for some of his work, such as editions of Cicero and Herodotus.

The development of Oxford University under the patronage of such men as Sir Thomas Bodley, Archbishop Laud, and Sir Henry Savile is noteworthy. The latter gave a handsome Greek font to the university known as Silver Letter, and John Norton printed with it his six-volume edition of St. John Chrysostom (1610–1613). There were some half dozen successors to Joseph Barnes in Oxford, but little outstanding work came from their offices. In 1651 the university acquired some Hebrew type; in 1656, some more Hebrew type—as well as fonts of Arabic, Saxon, Armenian, Coptic, Samaritan, and Slavonic types, acquired for the press by Dr. John Fell, bishop of Oxford, in 1667; and in the same year the Sheldonian Theatre was opened for the press (hence the imprint "Oxonii e Typografia Sheldoniana"). (See Figure 7.) Fell's acquisitions for the press included a rich stock of punches and matrices and a complete foundry purchased on the continent (mainly Holland), and the well-known "Fell types" are still part of the rich typographical heritage of the press. In 1674 Anthony à Wood's richly illustrated *Historia et antiquitates Universitatis Oxoniensis* appeared; and from the latter part of the 17th century on, the Oxford University Press has had a distinguished record. It should be noted that the scholarly division of the press was separate from the Bible Press, which issued the Book of Common Prayer and the Bible. The first Oxford Bible was printed in 1675.

In Cambridge, Thomas and John Buck printed Bibles and the Book of Common Prayer. John Field's Bibles were *hautes vulgarités,* what with inferior composition and presswork and sold at exorbitant prices. In 1655 Field set up his equipment in Silver Street, where the Cambridge University Press remained until 1827. John Hayes was printer to the university from 1669 to 1705, but the press had to wait for another half-century until it began to flower, typographically speaking, under John Baskerville (1758–1766). While the restrictions on provincial printing going back to Elizabeth I were eased toward the end of the century and new presses sprang up in such towns as Exeter, Bristol, Plymouth, and Shrewsbury, little of significance was produced outside of the three major centers.

Edinburgh continued to be the major center of Scottish printing in the 17th century. Thomas Finlason bought the existing privileges and equipment, and in 1606 he received a license from the Privy Council to print for 25 years. In 1612 he became king's printer, succeeding Henry Charteris, who continued to publish after the death of John Ross, until 1610. Finlason died in 1628 and was succeeded by his son Walter. Andro Hart began to print in 1610 with a folio Bible, and his widow and children continued his press until 1639 when it was taken over by James


A
SPECIMEN
OF THE
SEVERAL SORTS
OF
LETTER
GIVEN TO THE
UNIVERSITY
BY
Dr. JOHN FELL
LATE
LORD BISHOP of OXFORD.

To which is Added
The LETTER Given by Mr. F. Junius.

OXFORD,
Printed at the THEATER A.D. 1693.

FIGURE 7. *French and Dutch types acquired for Oxford University Press by Dr. John Fell. F. Junius is the antiquary François du Jon.*

Bryson for 3 years. Between 1624 and 1636 James Wreittoun issued about 60 books in Edinburgh. Robert Young of London was appointed king's printer for Scotland in 1632, and Evan Tyler, also of London, joined him in 1637. Although Tyler sold the business in 1647 to the Stationer's Company and was in London until the Restoration, he returned to Edinburgh and was active until 1672. Andrew Anderson's heirs and successors were king's printers in Edinburgh in the last quarter of the 17th century.

The first printer in Aberdeen was Edward Raban, a German ("anglo-britannicus gente Germanus") who had printed in Saint Andrews before he established his press in Aberdeen in 1672. In the next 36 years he printed some 150 books. Glasgow had no press until 1638, when George Anderson settled there with the support of an influential local university professor, Zachary Boyd, who was the author of most of the books printed in this office through 1646. Robert Sanders the Elder printed from 1661 to 1694 and had the title of "typographus civitatis et universitatis," and Robert Sanders the Younger carried on until his death in 1730. Printing of superior quality did not come to Glasgow until the time of the brothers An-

drew (1712–1778) and Robert Foulis (1707–1775). Unlike the situation in Oxford and Cambridge, the university press in Glasgow was always private property. In addition to Scottish communities already mentioned, Leith had a press in 1651, Campbelltown in 1685, and Maybole in 1694.

The first press in Ireland was established in Dublin by Humphrey Powell in 1550, and his first work was a *Book of Common Prayer* in 1551. He continued printing until 1566. The first Irish type was given to the treasurer of Saint Patrick's by Elizabeth I in 1571, and William Kearney printed a *Catechism* with it. Only ten Dublin imprints, two in the Irish language, are dated before 1600. John Frankton succeeded Kearney as king's printer in Dublin in 1604 and continued until 1619. He sold his rights to three members of the Company of Stationers, and they in turn sold out to William Bladen in 1641. There were several other 17th-century Dublin printers, none of any great distinction. There were presses in Kilkenny in 1645, in Cork in 1649, and in Belfast in 1648.

The Germanies and Northern Europe

The ravages of the Thirty Years' War affected all cultural and economic life in the Germanies, but in spite of it there were significant developments and many important works printed in that part of Europe where the art originated. In 1613, 1,358 books were sent to the fairs in Leipzig and Frankfurt, but in 1635 there were only 286. Only at the end of the century was book production in the Germanies comparable to what it was before the Thirty Years' War. The copper engraving superseded the wood engraving almost completely; but the elaborate title pages were often in poor taste, and, further, preoccupation with heavy baroque illustration meant less concern with typographical aspects of the book. The rise of the newspaper and the deluge of didactic literature, genres for which typographical excellence was considered unnecessary to help convey the book's message, were other factors. Finally, repressive censorship and strict regulation of apprenticeship and of the number of masters were other depressing elements.

Leipzig, Frankfurt, and Cologne were the main centers of the book industries at the end of the 16th century, but the repeated invasions of Saxony reduced the position of Leipzig in relation to the other two. By the end of the century Leipzig was again the main center, a position it was to hold until 1945 when Frankfurt, Stuttgart, and Wiesbaden became the focal points. The annexation of most of Alsatia by France and the sack of Strassburg in 1681 ended two centuries of leadership in the printing industry in that city. Nuremberg continued to maintain its strong position following those previously named; while Vienna, as capital of the Habsburg empire, held a special position.

In 1595 Henning Grosse, the main bookseller of Leipzig, brought out the first catalog of the book fair (*Messkatalog*), covering the Michaelmas term of the Frankfurt fair. He was an able businessman but looked on the printed book purely as a device for communication with no need for attention to externals. In 1604 he added a printing office to his firm, and his son, Henning, Jr., continued the business after

his death in 1621. A contemporary of Grosse in Leipzig was Abraham Lamberg (1587–1629), who challenged his rights to the *Messkatalog*, but they were later reconciled. Gregorius Ritzsch (1624–1643) and Timotheus Ritzsch (1638–1678) were other important Leipzig printers. The latter initiated the first German daily newspaper under the title of *Neueinlaufende Nachrichten von Kriegs- und Welthandeln* on April 29, 1660. It changed its title to *Leipziger Zeitung* in 1734 and continued publication until 1921. It may be noted that there was evidence of a newspaper in Augsburg at the end of the 16th century, but no copies have survived. The earliest German newspapers we know are the *Avisa, Relation oder Zeitung* of Helmstedt and *Relation* of Strassburg, both from 1609. The first major scholarly journal in the Germanies, the *Acta eruditorum*, was founded in Leipzig in 1682 by Otto Mencke, a professor in the local university, and it published in Latin the work of many leading scholars of the day, including Leibniz and Christian Thomasius.

Perhaps the most brilliant achievements in copper engraving during the century were by the famous Merian family in Frankfurt. Matthaeus Merian the Elder (1593–1650) of Basel traveled widely in the Germanies, France, and Holland before settling in the Oppenheim branch of the firm of Johann Theodor de Bry. In 1617 he married de Bry's daughter, Maria Magdalena, and went back to Basel, where he executed some outstanding landscape etchings. The death of his father-in-law compelled him to go to Frankfurt in 1623, and in 1640 he became the sole proprietor of the business. His "Biblische Figuren," 258 copper engravings, appeared with a complete Bible in the period 1625–1627. He began the great *Theatrum europaeum* (1635–1738, 21 vols.), a current history illustrated with hundreds of engravings. His chef d'oeuvre is the *Topographiae* (1642–1688, 31 parts), with the text by Martin Zeiller. The work was completed by his sons Kaspar and Matthaeus the Younger (1621–1687). The latter was also responsible for the portraits of famous contemporaries in later volumes of the *Theatrum europaeum*. His sister, Maria Sibylla Merian (1647–1717), was an extraordinarily gifted zoological artist. Her best-known work, *Der Raupen wunderbare Verwandlung und sonderbare Blumennahrung* (1679–1683), is justly famous, as is her *Metamorphosis insectorum surinamensium* (1705), executed on the basis of her own studies in Dutch Guiana.

There were many other printers in Frankfurt, but they are distinguished more for quantity than quality, for example, Balthasar Christoph Wust, who produced some 100,000 Bibles. Much the same may be said of Cologne where such families as Hierath, Kinokes, Egmont, Hilden, and Metternich were active printers over long periods, some into the 18th century.

The Endter family of Nuremberg continued the distinction of the old imperial city as a printing center. Georg Endter (1562–1630) was a bookbinder like the first Louis Elzevier, and he established a printing office at the beginning of the century. In 1612, Wolfgang Endter the Elder (d. 1555) took over the business and operated it with great success, even in the middle of the Thirty Years' War. From a purely quantitative standpoint his production was second only to that of the Elzeviers. His famous *Kurfürstenbibel* (also called the Weimar, or Ernestine, Bible, since it was sponsored by Duke Ernst the Pious of Sachsen-Gotha and Altenburg) was richly illustrated by copper engravings of Joachim von Sandrart (1606–1688).

The latter is especially famous for the first comprehensive art history in German, the *Academia tedesca della architettura, scultura et pictura, oder Teutsche Academie der edlen Bau-Bild-Mahlerey-Künste* (Nuremberg and Frankfurt, 1675–1679; 2 vols.), richly illustrated with copper engravings of portraits, vignettes, and drawings. Georg Endter the Younger and Wolfgang Endter the Younger both predeceased their father, in 1629 and 1651, respectively, but their descendants carried on the business until Johann H. Gottfried Ernesti, author of *Die Wol-eingerichtete Buchdruckerey* (1721) took it over in 1717.

Johann Baptist Homann (1664–1724), who became a citizen of Nuremberg in 1691, brought the art of cartography to a high point in this city. His first map appeared in 1692, but he began his major activity only in the next century. He had studied in the shops of Jakob von Sandrart (a nephew of Joachim) and David Funck; and his maps, although largely imitations of Dutch and French ones, show superior craftsmanship. The business remained in the family as the Homannsche Erben until 1848.

Vienna—where the Turkish wars compounded the evils of the Thirty Years' War, where the court language was Italian, the court manners French, and the court advisers largely Spanish Jesuits—nevertheless had a thriving printing industry with some 40 presses during the century. Matthäus Cosmerovius (1606–1674) of Cracow is known to have printed 352 books, mostly in Latin and German, but also in Italian, Magyar, and Spanish, an accurate reflection of cultural influences in 17th-century Vienna. The other major Viennese printer of the century was another foreigner, Johannes van Ghelen (1645–1721) of Antwerp. He made a rich marriage in Vienna and acquired the printing office of Johann Baptist Hacque, where he had been employed, in 1670. His production was extensive, and he is especially noted for his Italian opera libretti. His son took over the office after his death, and the firm lasted until 1857. Franz de Mesgnien Meninski (Mininski; 1623–1698) from Lorraine was educated by Jesuits and became an accomplished orientalist. Called to Vienna by Emperor Leopold I, in 1661, he compiled a dictionary of the Arabic, Persian, and Turkish languages and printed it himself in five folio volumes from 1680 to 1687. He was his own compositor, pressman, and proofreader, and his problems were compounded by the destruction of his press during the Turkish siege of the city in 1683. His Arabic font was cut and cast by the itinerant Nuremberg punch cutter Johann Lobinger. Not only is Meninski's work important in itself, but it is also significant as the beginning of a great tradition of printing orientalia in Vienna.

Bohemia and Moravia, which suffered most seriously from the wars of the 17th century, were dependencies of Vienna in cultural and religious areas as well as the political. The Jesuits, actually the rulers of Praha, had their own press, the Akademická impressi in the Klementinum, and in 1618 they also took over the press of Daniel Adam z Veleslavina (supra). Their primary objective was to print work in the interest of the Society of Jesus. Daniel Rymar of Sedlčany (Sedesanus, Sedlčanský) established a press in 1620 and printed a number of typographically acceptable books. The press was operated by the family until 1689.

Scandinavia, Baltic Countries, and Russia

Scandinavia's geographical position has always dictated both independence and dependence in cultural and political affairs. Relative isolation made for preservation of tradition and freedom to determine internal policy; but it also meant that major cultural, religious, and economic trends were largely dependent on what happened elsewhere in Europe. Thus many of the leading printers were of German origin, long after the 15th and early 16th centuries when the Germanies were the recruiting office for the European printing industry. The situation is also reflected in the languages and literatures of Scandinavia up into the last century.

Henrik Waldkirch, active in Copenhagen from 1598 until his death in 1629, was rather productive and is distinguished as the first Danish printer to use Hebrew type, also for Niels Hemmingsen's *Postilla* (1600), Anders Sørensen Vedel's translation of Saxo (1610), and Lyskander's *Danske Kongers Slaegtebog* (1622). The University of Copenhagen's printing requirements were so great that Melchior Martzan, who printed from 1626 to 1654, was appointed printer to the university in 1631. He was one of the most competent printers of a century when good typography was the exception, noteworthy examples of his work being Christian III's Bible (1633), Simon Paulsen's *Flora danica* (1648), and Ole Worm's archaeological treatises. In 1634 he and Joachim Moltke received a license to print Denmark's first newspapers. Henrik Clausen Gøde became printer to the university after marrying the widow of the short-lived Jensen Morsing, and he is noted for the *Europäische wochentliche Zeitung* and *Ordinarie Post-Zeitung* (1603–1669). But it was his brother Jørgen who issued the first newspaper in Danish, *Den danske Mercurius* (1666–1677).

Joachim Schmetgen, who in 1682 set up an office that lasted until 1735, was probably the best printer of the century, with handsome books such as Christian V's *Danske Lov* (1683) and *Norske Lov* (1687), Holger Jacobaeus' *Museum regium* (1696), and Tortaeus' *Historia rerum norvegicarum* (1711). In 1682 Bishop Thomas Kingo set up a printing office in Odense where his own psalm books were printed. Later, under Christian Schröder, the same press issued Vitus Bering's *Florus danicus* (1698) and Kingo's *Graduale* (1699), two of the finest books of the century. The press of Sorø Akademi, managed by Jørgen Hantzsch, issued the first Danish type specimen sheet in 1655 and Birgitte Thott's famous translation of Seneca (1658). There were also presses in Slesvik, Aarhus, and Helsingør.

The only press in Iceland in the 17th century was at Hólar, where Halldór Asmundsson printed a new edition of the Bible in 1644. In 1685 it was moved to Skálholt, where some 60 books were produced by various printers under the direction of the Bishop Þórdur Þorlákssón (died 1697). Iceland laid an early claim to the position it holds today as the world's leading nation in terms of books printed per capita.

The campaigns of Gustav Adolf in the Germanies brought all sorts of booty to Stockholm, including several printers whose work was qualitatively superior to what was done in their homeland. From 1604 to 1610 Anund Olofsson Helsing printed

legal titles and a New Testament (1605). His widow married the German Ignatz Meurer, who established in 1643 Sweden's first newspaper, *Ordinari Post Tijdender* (still published as *Post- och Inrikes Tidningar)* and the *Stadslagen* (1628), the first book in Swedish in roman type. He directed his office until 1672 and deserves much credit for clean and meticulous typography. Olof Olofsson Helsing printed the stately Bible of Gustav Adolf in 1618. Christoph Reusner (Reussner) of Rostock was king's printer from 1611 to 1635.

The Dutchman Peter van Selow (1618–1648) became "Russian printer" in Stockholm and printed several books in Cyrillic. As a typefounder he cast not only Cyrillic type but also many other fonts which he supplied to printers throughout the realm. The leading printers of the century in Sweden were the Keysers. Henrik Keyser I emigrated from Germany to Stockholm and set up an office in 1633 which specialized in Swedish and Finnish Bibles as well as legal and religious works, didactic literature, psalm books, and the first Swedish armorial work (1650) with many copper engravings. His work is typographically superior, as is that of his son and successor, Henrik II (1670–1699). There was a branch of the office in Uppsala from 1695 to 1701 under his son, Henrik III (died 1707). Henrik II established a foundry and issued an extensive specimen book in 1691, and he began the great Bible of Charles XII, completed in 1703. Of other 17th-century printers in Stockholm notice may be made of the affiliate of Johannes Janssonius' Amsterdam office (1647–1656) and of the office of the German Gottlieb Burchardi (1693–1708), from which were issued several psalm books.

In Uppsala Eskil Mattson directed the royal press which Gustav Adolf gave to the university, and he printed academic pieces for the most part. Among his successors was the German Henrik Curio, who acquired the type from the old Janssonius office in Stockholm in 1664. In 1679 and 1689 he printed the first two parts of Olof Rudbeck's *Atlantica.* Later Rudbeck himself directed the office, which was destroyed in the fire of 1702. Other Swedish cities with printing offices in the 17th century were Vasterås, Strängnäs, Kalmar, Nyköping, Gothenburg, Lund, Malmö, Visingsborg, Jönköping, Skara, and Norrköping.

Finland's printing was done in Stockholm for almost a century and a half. In 1640 Åbo Akademi was founded and the printer Peder Eriksson Wald was called from Vasterås in 1642. He produced mainly academic tracts in Latin. After Wald's death in 1653, Petrus Hansson from Stockholm took over until his death in 1679, and he printed many works in Finnish as well as Latin. He was succeeded by Johann Larsson Wall (died 1710) of Stockholm. In 1668 Bishop Johan Gizelius set up a second office in Åbo to print inexpensive school books and placed it under the direction of Johan Winter (1706).

Printing for Norway (a part of Denmark until 1814) was done in Copenhagen for a century and a half, and this nation was the last in Scandinavia to have its own press. In 1643 Tyge Nielsen moved his press from Copenhagen to Christiania and printed three small pieces there in 1643. The next year he printed a few larger pieces, but he failed to produce the *Postilla catechetica* of his sponsor, Reverend Christen Bang. Bang went to court, took over the press, and Nielsen left

the country. In 1647 Melchior Martzan set up an affiliate in Christiania but sold it to Valentin Kuhn (died 1654). A few years later Michael Thomesen acquired an exclusive privilege to print in Christiania; and, among other things, he completed Bang's *Postilla* (partially printed by Martzan and Kuhn) in 1665, a work totaling 9,000 quarto pages. In spite of Thomesen's monopoly, the bookseller Hans Hoff established in the 1670s a press under the direction of two Germans, Jørgen and Wilhelm Wedemann. Naturally Thomesen complained, and Wilhelm moved to Fredrikshald, where he printed for a couple of years, then returned to Christiania and came to terms with Thomesen and acquired the latter's privileges upon his death.

Latvia was the first Baltic country to have printing. As in Finland, Norway, and Estonia, printing was done abroad for Latvia. In 1588 the Dutchman Niklas Mollyn (Mollinus) received a license to print in Riga, began to issue books 2 years later, and printed some 160 books—mostly in Latin, but some in Lettish—before he died in 1625. After a few months under Christian Rittau, the press was taken over by Gerhard Schröder, who printed until his death in 1657. There were many books in Lettish in his list, printed by Albrekt Hakelmann, H. Bessemesser, Johann Fischer, Johann Jakob Wilcken, and G. M. Möller. Their national origin is obvious from their names. A press was known to exist in Mitau (Jelgava) in 1665, and Georg Radetzky began to print there in 1684, but only two titles are known.

There is a *Katechismus in niederdeutscher und estnischer Sprache*, preserved in fragmentary form, printed in 1535 by Hans Lufft in Wittenberg. Other Estonian printing appeared sporadically. The Swedes founded the Gymnasium in Tallinn (Reval) in 1631 and the University in Dorpat (Tartu; oldest university in the present U.S.S.R.) in 1632, and both needed a printer. Jakob Becker, postmaster in Riga, moved to Dorpat in 1632 and produced 15 books before he stopped printing in 1636. He was succeeded by Johann Vogel (1639–1655), and there was a hiatus until 1689, during which period much printing for the university was done in Stockholm. In that year Johann Brendeken came to Dorpat and printed 28 books until he moved his press to Pernau (Pärnu) when the university moved to that city to avoid invasion. There was again no press in Dorpat until 1785. In 1635 Christoph Reusner (supra) left Stockholm and set up a press in Tallinn. He and Adolf Simon printed there until 1676, although their output was small. In 1676 Christoph Brendeken, probably Johann's brother, married Simon's widow and began a successful business, including the *Revalische Postzeitung*, begun in 1689.

Ivan Timofeev, son of Andronik Timofeev (supra) started printing in Moscow by himself in 1604. He was succeeded by Anikita Fedorov Fofanov. In 1610, we find Onisim Mihailov Radishevski, who had been in Ostróg with Ivan Fedorov. Radishevski went to Nizhni Novgorod after a fire in 1611 and began a psalter, which has not survived, but he was back in Moscow when the first Romanov, Mikhail III, became tsar; and he printed a number of books, of which there is only one title with secular content. Throughout the century the Pechatni Dvor, as the press was known, was quite productive, having as many as 160 employees at one time. The great majority of the books were religious in character, but gradually secular subjects be-

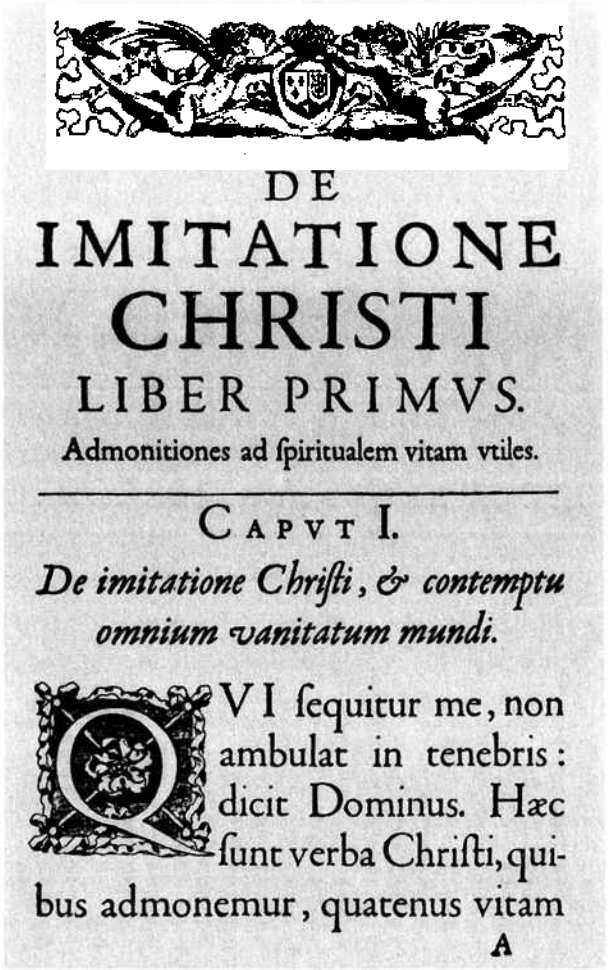
gan to appear in print. Only with Peter the Great did printing take a position in Russia as a major agency of communication in matters not related to the church.

Kiev assumed importance comparable to that of the capital, and the Kiev printers even had representatives in Moscow. The monastery of Ielissei Pletenetzkii in Kiev acquired a press in 1606 from the heirs of Theodor Balaban in Striatin near Sambor, and it was quite productive, beginning with a *Horologium* in 1617. In the same year a press was established in Mogilev, and in 1646 another was set up in Chernigov where the Archimandrite Cyril Trankvillion had a collection of his verses and other works printed in that year. Lwów acquired a second press in 1639, founded by Michael Slioska. Another appeared in Novgorod-Seversk in 1678 but was soon moved to Chernigov. There were other presses in Krilos near Galitsh and in the Unev monastery.

France

France, the richest, most populous, and the most powerful nation of Europe in the 17th century, was also the prototype of the absolute monarchy. The printing industry was influenced by this situation. Although provincial printing continued to flourish, even expanded, the major part of the history of printing in France in the 17th century may be drawn from the annals of the Imprimerie Royale, of which it might be said, "Le livre, c'est moi." In 1640 Louis XIII, on the advice of Richelieu, founded the Imprimerie Royale and provided quarters for it in the Louvre. There had been royal printers since the day of François I. Louis XIII installed a private press in the Louvre as early as 1620, possibly inspired by Richelieu, who had a private press in his chateau in Indre-et-Loire where the Parisian printer Étienne Migon printed some quite handsome books. Here, for the first time, we have a major national printing office. The statistic of 368,731 books produced at the Imprimerie Royale during the first 7 years of its existence indicates to some degree the vigorous support that it had from the beginning.

The first director was Sébastien Cramoisy (1585–1669) the best-known printer and publisher of his day. It would be impractical to record all of the major works printed during his administration, but at least one prime piece of Americana, the 41 volumes of the Jesuit relations of the missions among the Indians of New France, should be noted. Cramoisy's brothers, Claude and Gabriel, were also printers, but the directorship of the Imprimerie Royale fell to his grandson, Sébastien Mabre-Cramoisy, a man of less energy and imagination but who nevertheless maintained a status quo for two decades. He was succeeded in 1690 by Jean Anisson, scion of the main printing family of Lyon, who held the office until 1702. It is of some interest that the Anisson tradition was abiding, since Jean's grandson, Étienne Alexandre Jacques Anisson, was appointed to the office in 1783 but held it barely a decade until he was condemned by a revolutionary tribunal. The office had changed its name with the change of governments—thus, Imprimerie Nationale today, as it was in the Revolution, and Imprimerie Impériale under the Napoleons.



DE
IMITATIONE
CHRISTI
LIBER PRIMVS.
Admonitiones ad ſpiritualem vitam vtiles.

CAPVT I.
De imitatione Chriſti, & contemptu omnium vanitatum mundi.

QVI ſequitur me, non ambulat in tenebris: dicit Dominus. Hæc ſunt verba Chriſti, quibus admonemur, quatenus vitam

A

FIGURE 8. *The first imprint of the Imprimerie Royale, Thomas à Kempis,* De imitatione Christi *(1640).*

Not only did the Imprimerie Royale produce monumental folio works (some 67 in 2 years, beginning with *De imitatione Christi* in 1640; see Figure 8), but also the greatest care was given to typography and decoration. Nicolas Poussin created the originals from which Cl. Mellan engraved the handsome frontispieces for the Bible of 1642 and the Vergil and Horace of 1641. The *fêtes* of Louis XIV are preserved in volumes such as *Les plaisirs de l'isle enchantée* (1673), illustrated by Israël Silvestre, and *Le Labyrinthe de Versailles* (1679), illustrated by Sébastien Le Clerc, a student of Jacques Callot and Abraham Bosse. Mabre-Cramoisy brought out the *Cabinet du Roi* to glorify the Roi-Soleil in a collection of engravings recording his military campaigns, his amusements, his palaces, and all other aspects of the monarch who was the state. Le Clerc and A. Coypel were responsible for the engravings in the magnificent folio of 1702 entitled *Médailles sur les principaux événements du règne de Louis XIV, avec des explications historiques, par les membres de l'Académie royale des médailles et des inscriptions.* (See Figure 9.) The tone of free but refined elegance developed in the illustrations of books from the

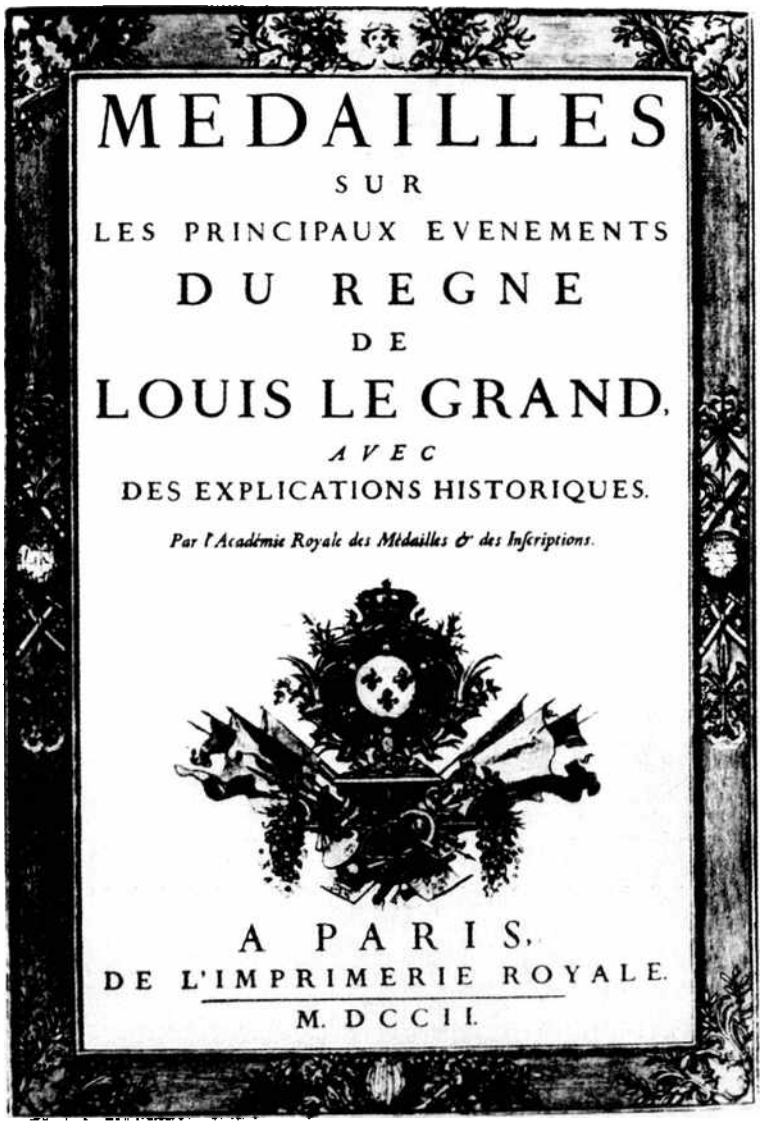

MEDAILLES
SUR
LES PRINCIPAUX EVENEMENTS
DU REGNE
DE
LOUIS LE GRAND,
AVEC
DES EXPLICATIONS HISTORIQUES.
Par l'Académie Royale des Médailles & des Inscriptions.
A PARIS,
DE L'IMPRIMERIE ROYALE.
M. DCCII.

FIGURE 9. *A monument of refined luxury in the best tradition of the Roi Soleil; composed in the* romain du roi.

Imprimerie Royale dominated the art of the French book until the end of the ancien régime. In many respects the 17th and 18th centuries in France represented the high noon of book illustration.

A contribution to the art of the book that was equally enduring was the typography of the Imprimerie Royale. In the beginning it had Garamond's *grecs du roi,* which were recovered from the hands of H. Lebé, Jr.; his romans and italics; and a good beginning with oriental fonts, specifically Arabic, Persian, and Syriac. The latter were engraved in Istanbul on the commission of Savary de Brèves, Henry IV's ambassador to the Sublime Porte in the period 1591–1606 and an ardent student of oriental languages. Savary de Brèves was later (1608–1614) ambassador to the Papal Court, and he had the designs for the type retouched by Guillaume

Lebé, already noted for the oriental type he had furnished to Plantin for the polyglot Bible. When Savary de Brèves died, Antoine Vitré, a learned and competent printer and scion of a bookselling family, bought them for the crown in his capacity of "imprimeur du Roi et du Clergé." To expand the potential of the Imprimerie Royale for serving the missionary effort, Vitré had Jacques Sanlecque design Armenian and, subsequently, Samaritan fonts. Only French printers were permitted to purchase the type. Here was a solid foundation for the great tradition of oriental printing which still flourishes in the Imprimerie Nationale.

The most enduring achievement of the Imprimerie Royale under Anisson was the *romain du roi Louis XIV*, or simply *romain du roi*. It had been decided that totally new roman and italic, incorporating the best features of the existing ones, but specifically appropriate for a major institution of the Roi-Soleil, should be created. In 1692 the Académie des Sciences set up a commission, of which the key member was the Abbé Nicolas Jaugeon. Resuming the notions of Dürer and Tory about the mathematical basis for type design, he drew his letters on graph paper with 2,304 squares. Philippe Grandjean de Fouchy (1666–1714) was chosen to cut the type, and, happily, he deviated when his artistic sense so dictated from the strict geometry of Jaugeon. Although the monumental *Médailles sur les principaux événements du règne de Louis XIV* was set in this type, the definitive font was not actually ready until 1745.

A special comment is appropriate for the so-called Delphine Editions ("ad [in] usum Delphini"), a set of 64 volumes of classical authors once much sought-after by collectors, and with no more real justification than the once-prevalent Elzevier-omania. The Duc de Montausier, governor of the Dauphin, was dissatisfied with existing editions from the standpoints of offensive passages and the lack of vocabularies and commentaries. He commissioned P.-D. Huet, later bishop of Avranches and Bossuet's assistant as the Dauphin's tutor, to edit the texts. They began to appear in 1671, mainly in Paris, but also in Lyon; and various Parisian printers and booksellers, among them Pierre Le Petit, François Muguet, Denis Thierry, and Frédéric Léonard, received letters patent for 20 years to issue them. Destined originally for a Dauphin, "absorbé dans sa graisse et dans ses ténèbres" according to Saint-Simon's sarcastic comment, the term "ad usum Delphini" has come to be synonymous for *editiones castigatae* such as Crusca's edition of the *Decamerone* (Florence, 1593) or "bowdlerized," in memory of Thomas Bowdler's *Family Shakespeare* of 1818.

The standards set by the Imprimerie Royale accentuated a tradition of superior typography and illustration already well established in 16th-century France, now essential for the world's greatest nation. Even the literary baroque cultivated by "Les Précieux"—of which the first significant manifestation was Honoré d'Urfé's famous pastoral romance, *Astrée* (four parts, 1607–1627, issued by Toussaint Du Bray, P. Firens, Léonard Gaultier, and François Pomeray)—revealed a literary and typographical restraint foreign to the Germans or Italians of the day. The same may be said of the first illustrated edition of the *Astrée* (Augustin Courbé, Paris, 1632–1633; 5 vols.), with some 60 engravings by Rabel. Other pastoral romances of the age are also distinguished by a delicate grace in the illustrations. Gombaud's

L'Endymion, with engravings by Crispin de Passe, is perhaps the best illustrated of the pastoral romances, setting a style that endured up to the Revolution. The pastoral and précieux tradition could not endure long in a France devoted to grandeur rather than sentiment. The "antiprécieux" found its protagonists in figures of the stature of Molière, Cyrano de Bergerac, and Scarron, and illustrators followed suit.

Protest was not unknown in 17th-century France, and censorship went along with absolutism in other matters political and cultural. Only one of many instances may be cited. In 1674 all printers and publishers were forbidden to issue dictionaries of the French language until that of the Académie Française was issued. Antoine Furetière, himself an academician, was expelled in 1685 on account of his *Essai d'un dictionaire universel* (1684). Nevertheless, his dictionary was published in 1690, 2 years after his death, by Leers in Amsterdam. Here is an example of a long list of French books actually or allegedly (by fictitious imprint) published abroad, mainly in Amsterdam, in the 17th and 18th centuries. It is a bibliographer's nightmare.

All varieties of French books of the 17th century were generally designed for *hommes de qualité*. Thus the first collected edition of Molière was published in 1666 by Louis Billaine in two duodecimo volumes with frontispieces and engraved title pages by Chauveau. La Bruyère's *Les caractères de Théophraste* was published by Michallet in 1688 in two columns, with the attractive arrangement of Theophrastus' text in large type on the right, of La Bruyère's in smaller type on the left. In the constantly expanding subsequent editions through the ninth, published a few months after the author's death in 1696, the arrangement was reversed. Some 20 editions, including piracies—a constantly more serious hazard to printers and publishers—have appeared up to this date.

Not only Louis XIV and his state, but the whole life-style of 17th-century France, including printing, book illustration, and publishing, dominated European cultural traditions until the cataclysm that began in 1789. It was, in many respects, a noble tradition, especially in book production, and one can only agree with Talleyrand: "He who did not live before the Revolution knows naught of the sweetness of life."

Italy

Italy, like most of the rest of Europe except the Low Countries and France, suffered from a period of typographical decadence in the 17th century. A large proportion of Italian books of this period are printed with unattractive type, often worn and broken, on inferior paper that stained badly in a few years, with poor ink, and rarely edited and proofread by the standards of Aldus and the other great Italian printers.

Decorative title pages and frontispieces from copper engravings were characteristic, and there are many superior examples. Stefano della Bella (1610–1664), a pupil of Jacques Callot, spent most of his productive years in his native Florence except for a decade in Paris (1640–1650), and he is responsible for many tasteful engravings of festivals, processions, and similar events. Unlike most of his contem-

poraries, he escaped much of the influence of the high baroque in the style of Bernini's architecture, which clearly had its influence on typography and ornamentation of the contemporary Italian book. Superior book production in 17th-century Italy was the exception rather than the rule. Francesco Barberino's richly illustrated *Documenti d'amore*, printed by Vitale Mascardi in Rome in 1640, and Lorenzo Magalotti's *Saggi di naturali esperienze fatte nell'Academia del Cimento*, printed by Giovanni Filippo Cecchi in Florence in 1691, may be noted among the few examples of the best tradition of the Italian book. Lorenzo and Nicolò Pezzana, successors of the Giunti in Florence, also issued creditable work.

The most significant printing office in 17th-century Italy was the Tipografia Poliglotta della Sacra Congregazione de Propaganda Fide. When Urban VIII founded the Congregation in 1626, the fundamental objectives were to promote the Counter-Reformation and to support the missions that were stepping up their activity to convert the heathen peoples of the Americas, Africa, and Asia. A printing office was established, an easy project to promote in view of the recent cessation of the old Typografia Medicea Linguarum Externarum under G. B. Raimondi (supra). The new printing office soon had the dies and matrices for 23 languages, and the number grew constantly. Among the types were the Illyrian font presented by Emperor Ferdinand II and the oriental fonts cut by Stefano Paolino, first director of the Stamperia Vaticana (founded 1587). The numerous works issued from the Tipografia Poliglotta went to missionaries throughout the world. The greatest period of the office was in the 18th century, when the director was the scholarly Abbé Constantino Ruggieri, the teacher and patron of Giambattista Bodoni. The armorial bearings of the Congregation, a globe with a cross and the motto "Euntes docete omnes gentes," are used as the printer's mark. During the Napoleonic period the type was sent to Paris. In 1812 the office stopped operations but was soon revived. In 1910 the Tipografia Poliglotta and the Stamperia Vaticana were combined as the Tipografia Poliglotta Vaticana.

Spain

Spain's typographical fortunes waned with her political decline. The great writers of the 17th century were served poorly by their printers. At the very beginning of the century the first part of *Guzman de Alfarache* was printed in Madrid (1600) by the Herederos de Yñiguez de Lequerica in such miserable format that only Mateo Alemán's genius could hold a reader. No more pretentious was the first edition of *Don Quijote* (see Figure 10), printed and published by Juan de la Cuesta in Madrid in 1605 and sold by Francisco de Robles. The second edition (first part only) in the same year and the third of 1608 offer nothing that is any more attractive to the reader. Juan de la Cuesta also printed the first edition of *Las novelas ejemplares* in 1613, no more pretentious typographically than the *Quijote* editions. The 17th century was the least productive of any age in the typographical history of Spain, what with the drab roman fonts, sloppy editing, inferior presswork, and absence of any illustrators of real competence.


EL INGENIOSO
HIDALGO DON QVI-
XOTE DE LA MANCHA,
Compueſto por Miguel de Ceruantes
Saauedra.
DIRIGIDO AL DVQVE DE BEIAR,
Marques de Gibraleon, Conde de Benalcaçar, y Bañares, Vizconde de la Puebla de Alcozer, Señor de las villas de Capilla, Curiel, y Burguillos.
Año, 1605.
CON PRIVILEGIO,
EN MADRID, Por Iuan de la Cueſta.
Véndeſe en caſa de Franciſco de Robles, librero del Rey nro ſeñor.

FIGURE 10. *First edition of* Don Quixote.

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LAWRENCE S. THOMPSON

THE 18TH CENTURY*

The typographical history of 18th-century Europe, especially in the larger and richer countries, is characterized by major advances in general and the appearance of such important figures as Baskerville, Didot, Bodoni, and Ibarra. The foundations of a refined tradition of printing and illustration in France were firmly rooted in the Imprimerie Royale and the work it inspired. Most parts of the Germanies recovered from the disastrous effects of the Thirty Years' War and were embarking on a new period of prosperity. Britain, with the weakest record of achievement in the quality of its books of any major country, now had printers whose work was comparable with the best on the continent.

France

There had always been an abundance of freethinkers in all areas in France, and after the death of Louis XIV they began to multiply. Censorship was rigid, and vir-

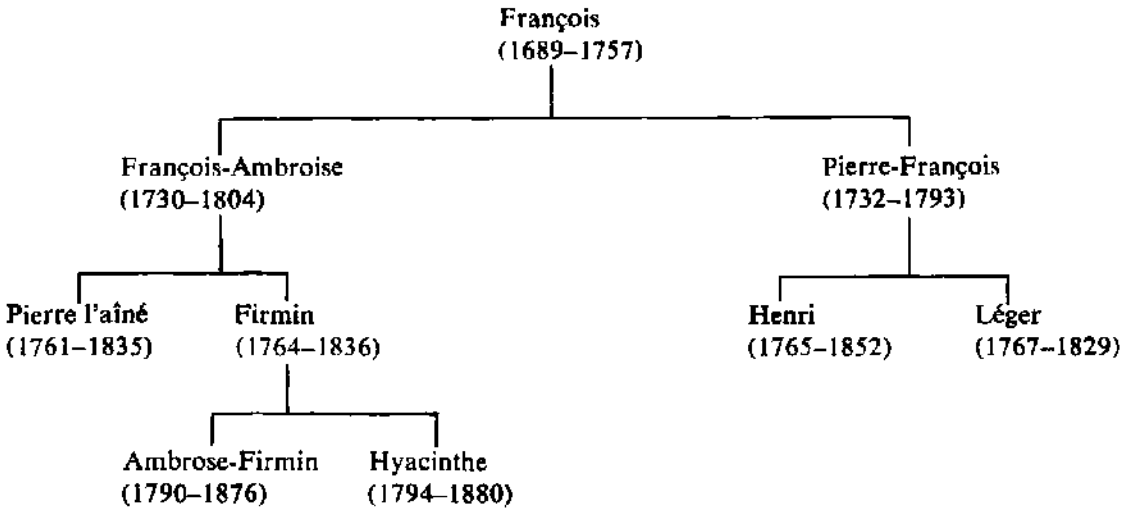
* The Bibliography for this section begins on page 474.

tually everything except reprints of older literary works and official documents were subject to inspection and approval. At the eve of the Revolution in 1789 there were 178 censors in Paris. Thus a custom already known in the Reformation, more and more prevalent in the 17th century, now became formalized. Original thinkers whose notions did not conform with those of the establishment, for example, Montesquieu, Voltaire, Diderot and other encyclopedists, and Beaumarchais often had their works published abroad, mainly in Holland, England, and Switzerland. Or at times they were printed in Paris with a fictitious imprint.

The French illustrated book, already at a high point in the 17th century, reached a point of artistic excellence that surpassed the illustrated books of any previous period in history. Artists of the stature of Boucher, Fragonard, Moreau le Jeune, Gravelot, Eisen, Oudry, Marillier, Choffard, and Cochin made the restrained elegance of the French rococo book an enduring standard for book illustration. Work such as Boucher's illustrations (masterfully engraved by Laurent Cars) for the six-volume Molière of 1734 or for the Ovid of 1767–1770, Fragonard's for Lafontaine and *Quijote*, Marillier's for Dorat's *Fables* (1773–1775) and Voltaire's *Contes* (1778), or Moreau le Jeune's for *La nouvelle Héloise* (1774) and *Émile* (1784–1789) are cornerstone pieces in any collection of the art of the book. These are but a few examples out of hundreds of exquisitely illustrated French books of that most refined of all centuries in matters of taste, at least up to 1789.

In matters typographical, the great Didot family dominated France, indeed, Europe in general through nearly two centuries. Again, as a matter of convenient reference, a genealogical table is borrowed from Rodenberg's study of 18th-century printing in the *Handbuch der Bibliothekswissenschaft* (Vol. 1, p. 608).

Genealogy of the Didot Family



The founder of the house, François, was a printer and publisher, well known for his mark of the golden Bible. Perhaps his best-known product is the 20-volume edition of the Abbé Prévost's *Histoire générale des voyages* (1746–1787). François-Ambroise was a man whose achievements in several areas are significant, as a

printer, typefounder, publisher, and inventor. Among his most attractive imprints we may note his set of the Delphine Editions, Tasso's *Gerusalemme liberata* (2 vols., 1784–1786), and Bitaubé's translation of Homer (12 vols., 1787–1788). He was deeply interested in papermaking as an ancillary industry, and in 1780 he brought out his *papier vélin*, a smooth, soft paper of which the model was possibly Baskerville's hot pressed paper. He also developed the cast metal reglet. His best-known innovation was the typographical "point" system. Up into the 18th century body sizes were designated by such names as Cicero, Gaillarde, Petit-Romain, St. Augustin, etc., unintelligible to any but the initiated. The punch cutter Pierre Simon Fournier had proposed the point system in 1737. François-Ambroise improved on it by designating a "point" as 0.4 mm, with each type body having a uniform number of points in height and width. New roman and italic types were engraved and cast under his direction, with the assistance of his son Firmin. His roman actually goes back to the *romain du roi;* but its characteristic features—thinning of hair lines, thickening of main strokes, and an increase in breadth, while maintaining the same height—mark the first real break with the renaissance or "medieval" roman. Baskerville's roman showed some of the same characteristics, and Bodoni refined them further. It is pertinent to observe that the *papier vélin* was particularly well adapted to this type.

Pierre-François Didot expanded the family's book manufacturing empire by establishing a paper mill in Essonnes, an ancient seat of that industry (see the article *Paper*, this encyclopedia, Vol. 21, pp. 333–364). It was there that Louis Robert, an employee of the firm, developed the first concept of the modern papermaking machine with an endless reel. Pierre-François' son Léger participated in the invention, which was finally developed for practical use in England. As a literary curiosity, but also indicative of the circles in which the Didots moved, it may be noted that a daughter of Pierre-François married Bernardin de Saint-Pierre, whose famous novel *Paul et Virginie* was written in Essonnes. Another son, Henri, is remembered for his development of microscopic type.

When François-Ambroise died, one son, Pierre l'aîné, took over the printing and publishing activities, while another, Firmin, assumed direction of the foundry; but they worked together in complete harmony for the family's interests. Firmin perfected the roman on which he had worked with his father, and it became a characteristic typeface of the 19th century in France as well as abroad. From a production standpoint, Firmin's greatest achievement was the perfection of stereotyping, or "polytype" as he called it, a process with which others had previously experimented without perfecting it for practical use. Once a page was composed, it was possible to strike off all new impressions from the "stereotype" impression, thus obviating the need for keeping type set in unused forms. With this process Pierre was able to print his inexpensive editions of French, English, and Italian books. Among Pierre's many successes as a publisher, the Éditions du Louvre, so called because the Imprimerie Impériale was still in the Louvre, should be noted. They are deluxe works in limited editions, beginning with a folio Vergil (1798), a Horace (1799), and a Racine in three volumes (1801–1805). Ambroise-Firmin and Hyacinthe, Firmin's sons, took over the business and maintained its position at the

QUINTI

HORATII FLACCI

CARMINUM

LIBER PRIMUS.

ODE I.

AD MAECENATEM.

MAECENAS, atavis edite regibus,
O et præsidium et dulce decus meum!
Sunt quos curriculo pulverem Olympicum
Conlegisse iuvat; metaque fervidis
Evitata rotis, palmaque nobilis,
Terrarum dominos evehit ad Deos:
Hunc, si mobilium turba Quiritium
Certat tergeminis tollere honoribus;

FIGURE 1. *Horace*, Carmina *(Pierre Didot, Paris, 1799)*.

head of the French book production industry into the 19th century. Ambroise-Firmin was a competent translator of Greek as well as a learned student of the history of his business. His *Essai sur la typographie* (1857) and *Alde Manuce et l'hellénisme à Venise* (1875) are studies of enduring value.

The Imprimerie Royale (Imprimerie de la République during the Revolution, Imprimerie Impériale under Napoleon) continued to be productive. Among its many important imprints may be noted the 44 volumes of Buffon's *Histoire naturelle, générale et particulière* (1749–1804). In 1745 Louis Luce and Jean Alexandre completed in its definitive form the *romain du roi*, begun in 1693 by Philippe Grandjean. Luce also designed other types, ornaments, and vignettes, later acquired by the Imprimerie Royale, and he reproduced them in his *Essai d'une nouvelle typographie* (1771), printed by Pierre Simon Fournier (1712–1768; called "le jeune" to distinguish him from his father, Jean Claude, also a punch cutter of distinction). Fournier established a type foundry in Paris in 1736 and created there

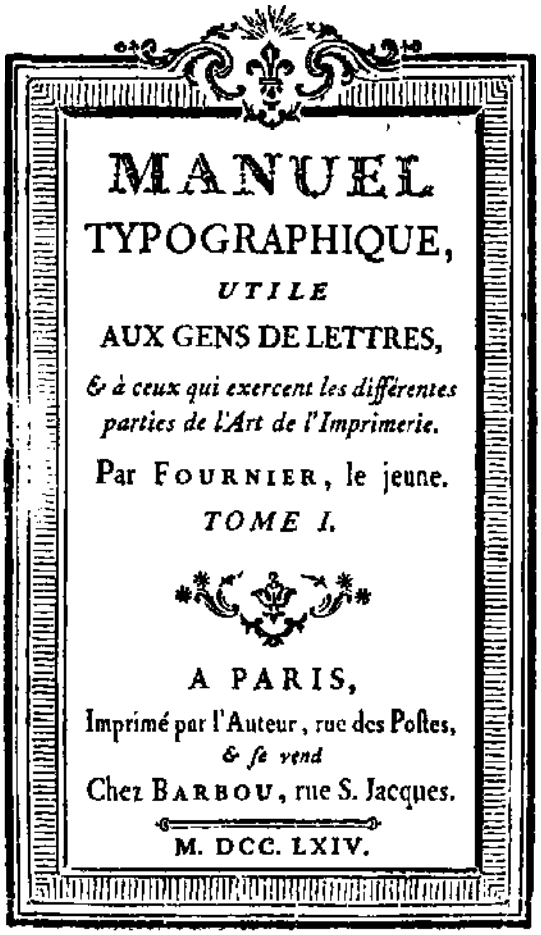

MANUEL
TYPOGRAPHIQUE,
UTILE
AUX GENS DE LETTRES,
& à ceux qui exercent les différentes parties de l'Art de l'Imprimerie.
Par FOURNIER, le jeune.
TOME I.
A PARIS,
Imprimé par l'Auteur, rue des Poftes,
& fe vend
Chez BARBOU, rue S. Jacques.
M. DCC. LXIV.

FIGURE 2. *The point system was set forth in a definitive version in Pierre-Simon Fournier's* Manuel typographique *of 1764.*

many faces which are still in use, especially his roman and his ornamental type. His association with the Charles-Nicolas Cochin (père, 1688–1754; and fils, 1715–1790, both distinguished copper engravers) suggested his tasteful borders, head- and tailpieces, and other ornaments still in use. Fournier's *Manuel typographique* (1764–1768, see Figure 2) was printed by Jean Josèphe Barbou, scion of a Lyon printing family dating back to 1524 who moved the business to Paris in 1704. Barbou, who also printed Luce's *Essai*, is best remembered for the *Éditions Barbou*, Latin classics with excellent textual editing in 73 volumes.

A significant paragraph in the history of French printing is the 70-volume edition of Voltaire published by Pierre Augustin Caron de Beaumarchais (1732–1799) in the fortress in Kehl in Baden in the years 1780–1790. He acquired for his Société Littéraire-typographique all of the equipment of John Baskerville (infra) in 1779 and moved it to Kehl, where an edition of Voltaire, whose works were forbidden in France, could be printed in safety, with Voltaire's corrections. At one time there were 78 printers and 14 typefounders in Kehl. The troubled years at the comple-

tion of the edition impeded effective distribution, and the set is now scarce in the entire 70 volumes. In 1795 the equipment was sold and dispersed.

Scientific illustration reached new heights in 18th-century France, above all in the four volumes of plates of Diderot's *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*, of which the first volume appeared in 1751 in Paris under the joint imprint of Briasson, David, Le Breton, and Durand and with Cochin's imaginative frontispiece. This is not the place to record the turbulent history of the publication of the *Encyclopédie*; but it is significant that when the storm finally broke in 1759 with official condemnation of the work, the plates were not included in the order revoking the license to publish. In various areas of applied science, ranging from naval architecture even to primitive aviation, French scientific book illustration of the 18th century was preeminent.

The development of printing for the blind deserves special notice. In 1785 Valentin Haüy conceived the notion of elevated letters, a concept improved by Charles Barbier and finally brought to its present form by Louis Braille (1809–1852). Braille, blind himself from the age of three, conceived a system of raised dots, of which a group of six in various arrangements permitted the reproduction of all the letters and numbers.

England

The restrictive decrees had gravely impeded English printing, quantitatively and qualitatively, until the end of the 17th century (1695). In the first decades of the 18th century printing appeared in several new cities of England (and of English-speaking North America). Typographically, English printing was still primitive, depending for the most part on types and ornaments imported from the continent (mainly Holland). However, the continuing progress of English literature, science, and political expansion was accompanied by a flowering of the art of printing.

Even Thomas James, the only English typefounder of the early 18th century, had Dutch matrices for the most part, since they were of better metal and the letters more carefully cut than any available in England. The time was ripe for the appearance of William Caslon (1692–1766), who attained in his early youth a substantial reputation for his book-binding tools and engraved flintlock rifle barrels. His genius was recognized by a leading printer, William Bowyer the Elder, around 1720. Bowyer and others (including John Watts) set up Caslon in his own foundry. He began at once to produce a roman and italic, remarkable for their beauty and regularity, and oriental types, including an Arabic font in which a New Testament was printed for the Society for Promoting Christian Knowledge in 1722. He also cast a handsome gothic letter which still shows its traces in modern gothics. Caslon published his first specimen sheet with 38 fonts in 1734, and he established firmly his reputation not only as the creator of characteristic and original English letters but also as a typographer whose tastes and style were consistent with those of an age of restrained elegance. The Caslon Foundry remained in the hands of

the family until it was sold to Thomas W. Smith in 1873; and Caslon types were popular in England for good book printing into our own century.

A younger contemporary of Caslon was John Baskerville (1705–1775), who started out as a writing master and teacher of bookkeeping as well as a carver of monumental inscriptions in Birmingham. A business in lacquer ware provided him with the means to establish a printing office, a type foundry, and a paper mill in 1750. He worked for 7 years until he produced his first book, a Vergil in 1757. His Milton (1758), four-volume Addison (1761), Congreve (1761), Bible (1763), and a series of quarto editions of Latin authors (1772–1773) are among his best-known works. (See Figures 3 and 4.) Baskerville was very careful to prepare a heavy black ink, and after each impression he pressed the leaves between two hot copper plates to lend a satiny appearance ("hot pressed paper," unfortunately a process which was also the cause of subsequent discoloration). In the preface to the Milton he wrote: "The improvement in the manufacture of the paper, the colour and firmness of the ink were not overlooked." This meticulous care in production is a major factor in the enduring attraction of Baskerville's work.

Baskerville also wrote in the Milton preface: "Amongst the several mechanic arts that have engaged my attention, there is no one which I have pursued with so much steadiness and pleasure as that of letter-founding." His roman is still basically that of the Renaissance, but the thinning hair lines and thickening main strokes, together with a greater rounding in the horizontal direction, represent a new trend

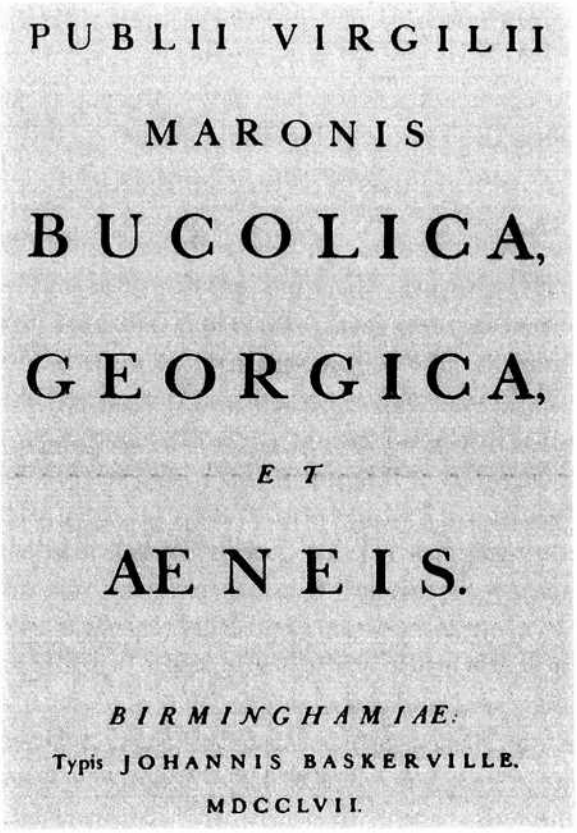
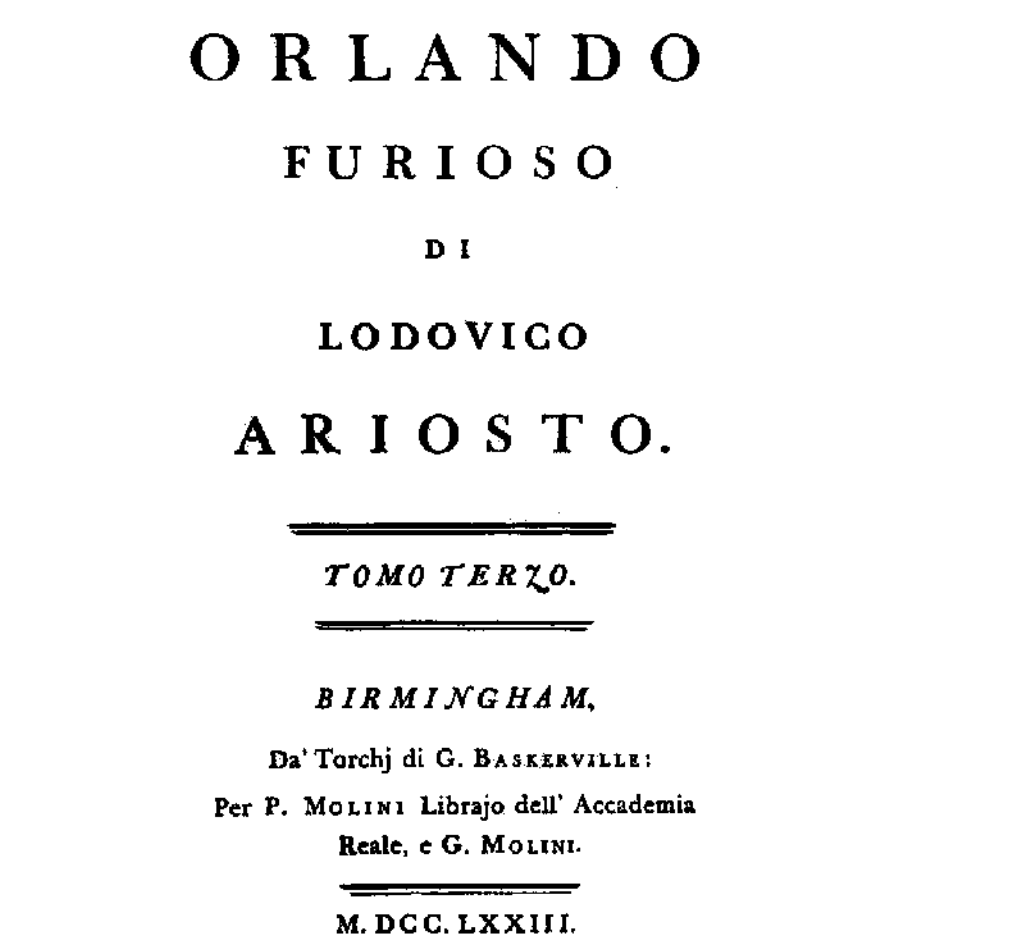


FIGURE 3. *One of Baskerville's most noteworthy imprints.*


ORLANDO

FURIOSO

DI

LODOVICO

ARIOSTO.

TOMO TERZO.

BIRMINGHAM,

Da' Torchj di G. BASKERVILLE:

Per P. MOLINI Librajo dell' Accademia Reale, e G. MOLINI.

M. DCC. LXXIII.

FIGURE 4. *John (G[iovanni]) Baskerville's edition of* Orlando furioso *for the Royal Academy of Naples.*

which was brought to final form in the Didot roman. But it may also be seen as a transitional form between the *romain du roi* and the classic romans of Bodoni and Walbaum. Baskerville also cut an undistinguished Greek type for the Oxford University Press, with which a New Testament was printed in 1765. His service as printer for Cambridge University (1758–1766) has already been noted. In the 18th century there was considerable debate about the relative merits of the types of Caslon and Baskerville, but there is actually no real basis for deciding whether or not one of the two is superior. Four years after Baskerville's death in 1775 his equipment was purchased for Beaumarchais (supra). After the Kehl Voltaire was printed and the types dispersed to various French foundries, they were used but unrecognized until 1917, when Bruce Rogers, then typographical consultant for the Cambridge University Press, identified them. In 1953 the firm of Deberny et Peignot gave the surviving punches in its possession to the Cambridge University Press.

The economic and political maturity of 18th-century England and the work of Baskerville and Caslon brought English book production to a point of excellence comparable to that of the continent for the first time. Of the many competent printers and enterprising publishers of London, only a few may be noted. The patron of

Caslon, William Bowyer the Elder (1663–1737) was originally one of the 20 printers licensed by the Star Chamber in London. He was a man of refined literary tastes and sharp commercial instincts. He used Dutch types for printing Pope's Homer and other books, but he used Caslon's roman for many later works. For Elizabeth Elstob's *An English-Saxon Homily on the Birth-day of St. Gregory* (1709) he used Anglo-Saxon type, later presented to the Oxford University Press. His son, William Bowyer the Younger (1694–1777), called "the learned printer," succeeded him and carried on the business successfully. He was printer of votes of the House of Commons (1729), printer to the Royal Society (1761), and to the House of Lords (1767), and he wrote the *Origin of Printing* (1767). John Nichols (1745–1826)—antiquary, biographer, and editor (inter alia, of the *Gentleman's Magazine* from 1778 until his death)—was an apprentice in the Bowyer office. John Bowyer Nichols (1779–1863) succeeded his father as editor of the *Gentleman's Magazine*.

Perhaps the most competent printer of the latter half of the century was William Bulmer (1754–1830). He learned printing in Newcastle, where he knew Thomas Bewick, then moved to London where he established his Shakespeare Press. He had close ties with the outstanding typefounder William Martin, who delivered virtually all his type to him, and with the bookseller George Nicol and the publisher John Boydell. For the latter he printed a folio Shakespeare (9 vols., 1791–1804), illustrated with material from Boydell's large collection of Shakespeariana. Bulmer's early friendship with Bewick continued in later life, and the handsome edition of Goldsmith and Parnell (1795) is illustrated with Bewick's wood engravings. (See Figure 5.) The Milton (3 vols., 1794–1797) printed for Boydell was illustrated by William Westfall; *The Arabian Nights Entertainment* (5 vols., 1802), by Robert Smirke. He also printed for members of the Roxburghe Club (founded 1812). For Thomas Frognall Dibdin he printed a new edition of Joseph Ames's *Typographical Antiquities* (4 vols., 1810–1819).

Thomas Bensley (1750–1835) did not measure up to his rival Bulmer as a printer, but he did some outstanding work, for example, Johann Kaspar Lavater's *Physiognomy* (1789–1798), with copper engravings by Francisco Bartolozzi and William Blake. His enduring contribution was his collaboration with Friedrich König, inventor of the cylinder press, whom he met in London in 1807. With Bensley's aid, König received a patent and put a machine into operation in 1811. The London *Times* began to use it in 1814. After a disagreement with Bensley, König returned to Germany in 1817, and in the next year he and Andreas Friedrich Bauer established their steam printing press near Würzburg. The first continental newspaper was printed on a steam cylinder press in 1823.

John Baskett, the first of two printers who have been lord mayor of London, is famous for the handsome "Vinegar" Bible (1716–1717) in two folio volumes, so called because of the typographical error for "vineyard" in the parable of the vineyard in Luke 20. Henry Woodfall is known for having printed the works of famous literary figures, among them Pope and Thomson, for various publishers. John Barber, a protégé of Lord Henry Bolingbroke, also printed works of literary celebrities, notably, Swift, Pope, and Goldsmith. Samuel Richardson, a mediocre craftsman, printed his own *Pamela* (4 vols., 1741–1742), *Clarissa Harlowe* (7 vols., 1748),

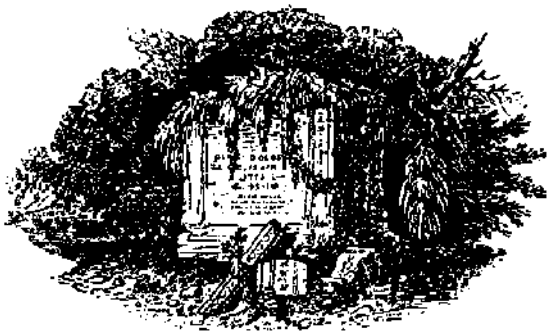
POEMS

BY

GOLDSMITH

AND

PARNELL.



LONDON:

PRINTED BY W. BULMER AND CO.

Shakespeare Printing Office,

CLEVELAND-ROW.

1795.

FIGURE 5. *One of William Bulmer's deluxe editions of British authors.*

and *Sir Charles Grandison* (7 vols., 1748). Daniel Defoe was a printer in Edinburgh, and Oliver Goldsmith was once an editorial reader. But printing and publishing in England was basically a "professional activity" from the early 18th century on.

One of the first important works of the Oxford University Press in the 18th century was *The History of the Rebellion* (3 vols., 1702–1704) by Edward Hyde, first earl of Clarendon. The press acquired a new building from the proceeds of the sale of this work, and it was named after the earl (hence, Clarendon Press in Oxford imprints). Among representative works from Oxford in the first half of the century were the Coptic New Testament (1716) from Bodleian manuscripts with a Latin translation by David Wilkins, and Sir Thomas Hanmer's six-volume Shakespeare (1744–1746). At Cambridge Richard Bentley, the foremost classicist of his age, promoted the publication of a well-printed series of classical authors. Another important Cambridge imprint is Zachary Grey's edition of Samuel Butler's *Hudibras* (2 vols., 1744) with Hogarth's engravings.

The concept of the private press had existed as early as the 15th century, but it

came to full bloom in the opulent 18th century with Horace Walpole's Strawberry Hill Press at his "little Gothic castle" in Twickenham. Among other famous Strawberry Hill imprints are Gray's two great odes and Walpole's own *Catalogue of Royal and Noble Authors* (1758), *Anecdotes of Painting in England* (1762–1771), and *Catalogue of Engravers in England* (1763). More important for the history of English society than of English printing was John Wilkes's private press, from which we have the scurrilous *Essay on Woman* (1703), a scatalogical parody of Pope's *Essay on Man.*

John Pine (1690–1737) was one of the ablest English illustrators of the early part of the century. He engraved the familiar frontispiece of the first edition of *Robinson Crusoe* (London, printed for W. Taylor, 1719), but he is best known for his Horace (2 vols., 1733–1737), the first book of which both text and ornaments were completely engraved in copper. It is possible that some of his engraved letters influenced Caslon. His son, Robert Edge, edited Vergil's *Bucolica and Georgica* (1755) from his father's uncompleted projects with vignettes and head- and tailpieces similar to those in the Horace. William Hogarth (1697–1764), best known for his series of caricatures, notably *A Harlot's Progress* (1731) and *A Rake's Progress* (1735), also illustrated books (e.g., Fielding's *Tragedy of Tragedies,* 1731). (See Figure 6.) Foreign artists such as Hubert François Gravelot (1699–1773) were much in demand by English publishers. Gravelot illustrated a Shakespeare (1744–1746), *Tom Jones* (1750), and a Boccaccio (1757), among others. Charles Eisen, Jean-Michel Moreau le jeune, and Charles-Nicholas Cochin fils were among other French artists in demand by London publishers.

The vast majority of books for cultured readers were illustrated with copper engravings, but Thomas Bewick (1753–1828) brought wood engraving to its highest point. At the age of 14 he was apprenticed to Ralph Beilby, a wood engraver in Newcastle, and within a year he was entrusted with major jobs of book illustration. During his apprenticeship Bewick illustrated several juvenile and didactic works, including 24 wood engravings for a *Horn Book* (1771) and 48 for *A New Lottery Book of Birds and Beasts for Children* (1771). His unusual technique was imitative of that of the copper engraver in that he worked from dark areas to the light and incised the lines appearing in white in the printed form. In 1777 he accepted a partnership with Beilby and began a series of masterful illustrations for books issued by the publisher T. Saint in Newcastle. His first independent work was for Gay's *Fables* (1779) with 67 illustrations and 33 vignettes. His art came to full maturity with the *General History of Quadrupeds* (1790). His chef d'oeuvre is the *History of British Birds* (1797), with the text by Beilby, with a second volume entitled *Water Birds* (1804). Other important works were his Thomson (1805), Burns (1808), Ferguson (1814), and Aesop (1818), always characterized by a profound love for nature. His brother John Bewick (1760–1795) was his collaborator in many projects (e.g., the Gay); and, while the latter's children and animals are superior, he never attained the technical skill or artistry of his brother.

William Blake (1757–1828), painter, copper engraver, illustrator, poet, and mystic, has a unique position in all of these areas. His earliest efforts were illustra-

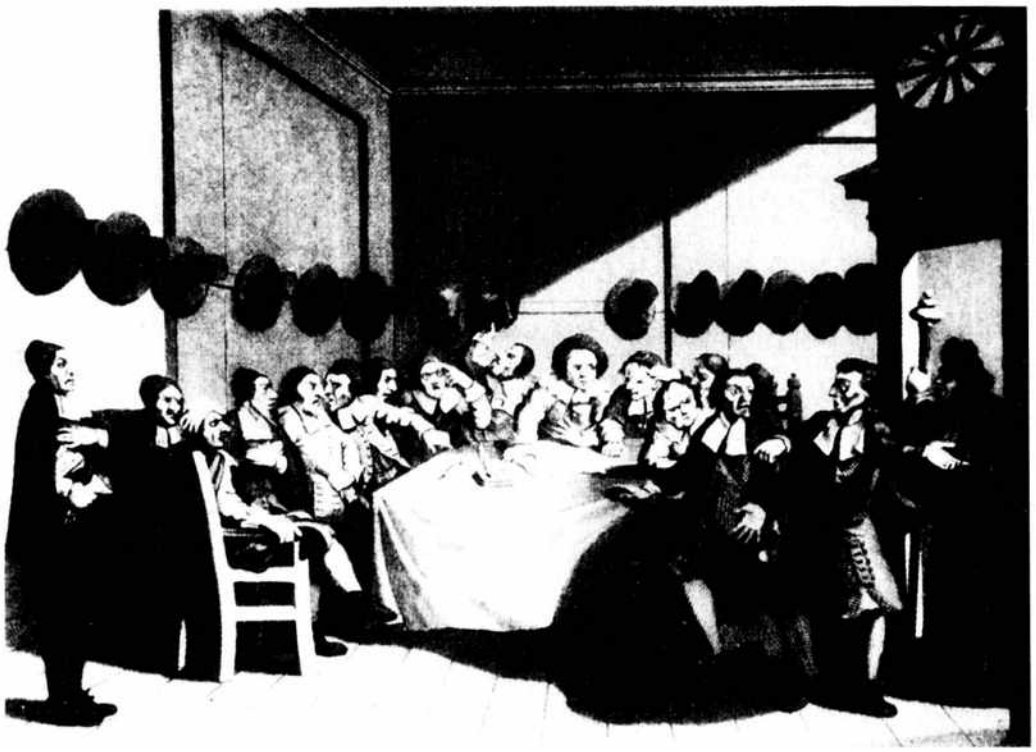


FIGURE 6. *Illustrations by William Hogarth for Samuel Butler,* Hudibras *(London, 1726).*

tions for *Don Quixote,* Sterne's *Sentimental Journey,* and *Gulliver's Travels,* which appeared in Volumes 8–10 of the *Novelists' Magazine.* In 1784 he and James Parker established a printing office, but it soon failed. In 1787 his favorite brother, Robert, died, and from then on his visions dominated his work. Using the technique of "relief etching," he produced *Songs of Innocence* (1789) with delicately wrought ornaments around the pictures and the text forming a harmonious unit. After 1793 Blake lived in Lambeth where he produced a series of illustrated works in that year: *Visions of the Daughters of Albion, Gates of Paradise,* and *America, a Prophecy.* In 1797 he engraved drawings for Young's *Night Thoughts* and issued them with the text. For a while after 1800 he lived with the poet William Hayley in Felpham and illustrated the poet's work in editions of 1802 and 1805. In 1804 he composed his symbolic epics *Milton* and *Jerusalem,* both illustrated with strong and impressive engravings. A final example of his prolific career was the incomplete Dante, of which only seven leaves were complete at the time of his death. Of Blake's numerous other works, which belong to literary as well as printing history, it may only be noted that all are in his highly original style, essentially a herald of expressionism. His one series of wood engravings, for Thornton's Vergil, was a late work but is in the same tone as his painting and engravings on copper.

With the removal of official restrictions, printing spread to most major communities in the 18th century, and it generally began with the publication of a newspaper. The *Norwich Post,* begun in 1701 by Francis Burgess, was probably the first. Before 1720 there were Bonny's *Bristol Post-Boy,* James Abree's *Kentish Post*

or Canterbury News-Letter, and Thomas Hinton's *Cirenchester Post*. Other communities which acquired printing for the first time were Nottingham (1710), Chester (1711), Birmingham (1716), and Manchester (1719).

The best-known and most sought-after Scottish book is Burns's *Poems, Chiefly in the Scottish Dialect* (Kilmarnock, John Wilson, 1786), but the most important press was that of Robert (1709–1775) and Andrew (1712–1778) Foulis in Glasgow. Robert began to print in 1742 with type that most likely came from Robert Urie, who had been printing books for him. He received the post of printer to the University of Glasgow and produced the first book printed in Greek in Glasgow. In 1744 Andrew joined Robert, and they began to use type supplied from the local foundry of Dr. Alexander Wilson, whose types clearly show the influence of Baskerville. The Foulis editions of classical authors are famous for their superior typography, and their Horace won the complimentary title of "the immaculate." Another distinguished example is their Homer (*Iliad*, 1756; and *Odyssey*, 1758). They also printed works of English, French, and Italian authors, of which the three folio volumes of Pope (1785) are particularly well known. After the brothers died—within 3 years of one another—Andrew, Jr., continued the press until the end of the century.

William Ged (1690–1749), a goldsmith of Edinburgh, deserves mention for his role in the development of stereotyping. To what extent he drew on the experiments in Holland at the beginning of the century is not clear. Ged simply made a plaster cast of the form, then made a new lead plate from it. He went to London and was for a while university printer in Cambridge, but his method was bitterly opposed, especially by typefounders. Returning to Edinburgh, he and his sons brought out a stereotyped Sallust in 1739. After his death his invention was all but forgotten, and it remained for the Didots and Lord Stanhope to put it to practical use.

The Germanies

Recovered from the Thirty Years' War, German-speaking areas once more assumed a leading position in the field of printing and publishing. Leipzig was firmly reinstated as the center of German publishing and printing. Publishers and booksellers such as Johann Friedrich Gleditsch (1653–1716), who started a firm that survives today (owned by Brockhaus and using that name since 1830), his younger brother Johann Ludwig Gleditsch (1663–1741), Philipp Erasmus Reich (1717–1787), and Georg Joachim Göschen (1752–1828) dominated the book production industry in the Germanies. Johann Ludwig Gleditsch married the widow of Moritz Georg Weidmann and, with the latter's heir Georg Moritz Weidmann, and Reich, gave the firm a leading position, publishing such authors as Wieland, Gellert, Lessing, Lavater, Heyne, and others. The most significant achievement of this team was probably to persuade the main Dutch booksellers to send their works to the Leipzig fair rather than to Frankfurt, thus ending for two centuries any threat of Frankfurt to Leipzig as the center of the German book trade. The Weidmannsche Buchhandlung survived into our own times after various changes of ownership.

The appearance of Bernhard Christoph Breitkopf (1695–1777) as a printer's apprentice was the signal for the beginning of the modern tradition of printing in Leipzig. He married into an old printing family of the city, and in 1719 he was able to establish a business which has endured in Leipzig for two and a half centuries. But it was his son Johann Gottlob Immanuel Breitkopf (1719–1794, see Figures 7 and 8), originally reluctant to give up scholarly studies to be a printer, who brought the business to the forefront of the industry in Germany.

Breitkopf not only developed his organization to a point of preeminence in terms of the quality and quantity of its production, but also made major contributions to typographical design. He was thoroughly acquainted with the background of his trade, and at the time of his death his personal library of works relative to printing numbered some 20,000 volumes. He had hoped to write a history of printing, and his reputation was such that Lessing did not hesitate to offer his help. Most significant was Breitkopf's concern with the traditional German Frakturschrift, which arose in Germany from a gothic minuscule in the 16th century. In the baroque era this type had often been deformed by fanciful, indeed, fantastic formations. By the

FIGURE 7. *Johann Gottlob Immanuel Breitkopf (1719–1794).*


Versuch,
den
Ursprung der Spielkarten,
die
Einführung des Leinenpapieres,
und
den Anfang der Holzschneidekunst
in Europa
zu erforschen.
Von
Joh. Gottl. Imman. Breitkopf.
Erster Theil,
welcher die Spielkarten und das Leinenpapier enthält.
Mit vierzehn Kupfertafeln.
Leipzig,
bey Joh. Gottl. Imman. Breitkopf.
1784.

FIGURE 8. *Breitkopf's study of playing cards, paper, and wood engraving.*

18th century gothic forms were permanently gone in the romance countries and England except for special purposes; it disappeared from common use in Scandinavia by the end of the century; and in Germany, where the Didot's new roman had many admirers, the old Fraktur was in a shaky position. Breitkopf dedicated a good portion of his life to the study of the problem, and he came out with the initial forms of a new Fraktur in 1793, a year before his death, in a small book entitled *Einige deutsche Lieder für Lebensfreuden*. Five years later the letter was brought to its definitive form by an unidentified typographer who built on Breitkopf's work, and it appeared in 1798 for the first time in Jean Paul's *Palingenesien* (hence the name "Jean Paul-Schrift"). It did not attain the clarity and legibility of the letters of Didot, Caslon, Baskerville, and Bodoni, but it did eliminate superfluous angles and unnecessary flourishes.

Breitkopf was closely associated with the Swiss punch cutter, typefounder, and mechanical engineer Wilhelm Haas (1741–1800) in Basel. His father, a native of Nuremberg, had moved to Basel and acquired the old type foundry established by the printer Johann Jakob Genath (1582–1654). Wilhelm Haas made important improvements on the technique of casting type, and his types enjoyed wide respect.

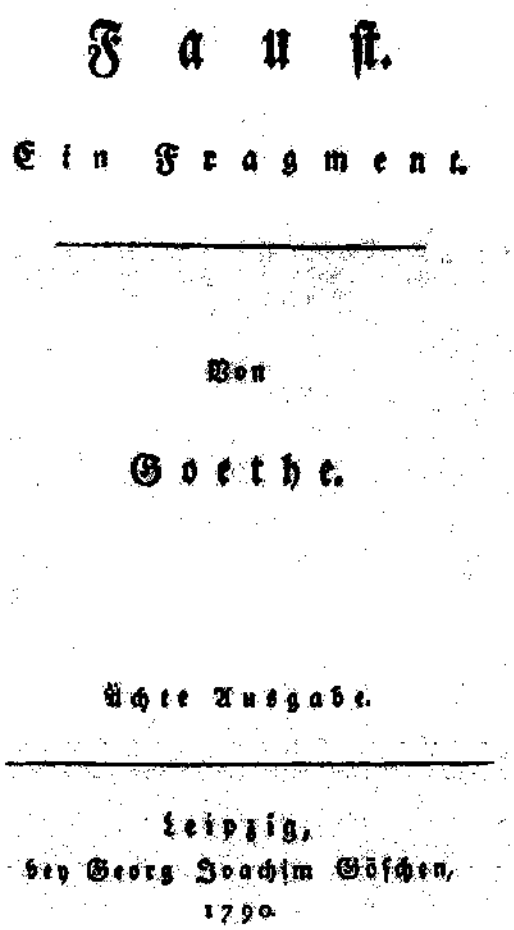
He also invented a hand press made completely of iron (1772) and, in 1790, a system for using type in maps. The Haas'sche Schriftgiesserei still exists and is associated with H. Berthold in Berlin and D. Stempel in Frankfurt.

Christoph Gottlob Breitkopf inherited one of the leading printing houses of Europe from his father, but he felt compelled to take in Gottfried Christoph Härtel (1762–1827) as a partner in 1795. In 1798 the firm became Breitkopf und Härtel, and when Härtel became the sole owner in 1800, he began to concentrate on musicalia. The firm had already printed the collected works of Mozart and Haydn, and in the future it was to add the names of Beethoven, Schumann, Chopin, Berlioz, Schubert, Brahms, Wagner, and others to its lists. Scholarly works in other fields also were published, and subsequent directors of the firm maintained its reputation at a high level.

The first Berlin printer of major significance was Johann Friedrich Unger (1753–1804), whose contributions to the development of Fraktur came at the same time as Breitkopf's. The son of a Berlin printer and wood engraver, he opened his own printing office in 1780 and had an eminently successful business. His firm shared with those of Göschen in Leipzig and Johann Friedrich Cotta in Stuttgart the honor of being one of the main printers of Goethe, Schiller, and some of the leading German romanticists. Schiller requested Unger to print the first edition of *Die Jungfrau von Orleans* in roman, but the latter was too concerned with his notions about reforming the Fraktur to give any real attention to naturalizing roman type into Germany. In 1791 Unger set up a foundry in connection with his printing office, and 3 years later he came out with his simplified Unger-Fraktur, of which the definitive form appeared in Goethe's *Wilhelm Meister* and August Wilhelm Schlegel's translation of *Hamlet* (1800). After Unger's early death, his widow was unable to hold his flourishing business together and sold it in a few years. The merit of Unger-Fraktur was not fully recognized until it was pointed out by Carl Ernst Poeschel in the 20th century. Emil Rudolf Weiss acknowledged his indebtedness to Unger when his own popular Fraktur was issued by the Bauer' sche Giesserei in 1913.

Another important Berlin printer was Georg Jakob Decker (1732–1799), son of a well-known Basel printer. In 1755 he married the daughter of the Berlin printer Johann Grynäus, and in 1763 he became the sole proprietor of Grynäus and Decker. His printing and publishing business developed rapidly, and for his type foundry he acquired matrices from Fournier and Baskerville. He was given the privilege of printing the works of Frederick the Great in an office set up in the royal palace. Daniel Nikolaus Chodowiecki (1726–1801), the leading German book illustrator of the century, provided engravings for many of his publications. The firm remained in the family until 1879 when it was bought by Königliche Preussische Reichsdruckerei.

Göschen founded his publishing house in Leipzig in 1785, and in 1793 he set up a printing office. Both were moved to Grimma on the outskirts of Leipzig in 1797. He absorbed the best of the typographical art of his day, and the influences of Bodoni, Didot, Bulmer, and Bensley are all reflected in various works. His collected edition of Wieland (1794–1801) in 42 volumes, illustrated by Johann Hans Veit Schnorr von Carolsfeld and Johann Heinrich Ramberg, among others, was


Faust.

Ein Fragment.

Von

Goethe.

Achte Ausgabe.

Leipzig,
bey Georg Joachim Göschen,
1790.

FIGURE 9. Faust-Fragment *printed by C. J. Göschen in Fraktur at Goethe's specific request.*

set in roman type designed by Justus Erich Walbaum (1768–1839). The roman and Fraktur cut by him and his son Theodor (died 1830) were cast at their foundry in Weimar, which was sold to F. A. Brockhaus in 1836 and again to H. Berthold A.-G. in 1918. In 1838 Göschen publishing interests were sold to the J. G. Cottasche Buchhandlung in Stuttgart. Founded by Johann Friedrich Cotta (1764–1807), this house is distinguished in many ways as printer and publisher. It was the first book printing firm to use König's cylinder press, and there it acquired its German name of *Schnellpresse*.

The best-known name of a German publisher to English and American travelers before 1939 was that of Karl Christoph Traugott Tauchnitz (1761–1836), who established a small press in Leipzig in 1797 and began to publish the next year. In 1816 he introduced the stereotype process to Germany. He published handy, well-printed classical texts and oriental books, for his printing facilities were well provided with many types. His "Collection of British and American Authors," for which he paid royalties to authors but not publishers, began in 1841. The Bern Convention of 1886 altered this practice, but the "Tauchnitz editions" were already a permanent fixture in continental railroad coaches and hotels.

Muſen-Almanach

für

das Jahr 1798.

herausgegeben

von

SCHILLER.

Tübingen,

in der J. G. Cottaiſchen Buchhandlung.

FIGURE 10. *Schillers* Musenalmanach für 1798, *printed in roman type at Schiller's request by J. G. Cotta in Tübingen, 1797.*

Vienna's position as the capital of the Hapsburg Empire lent to this city a special role in the history of printing. Traditional conservatism dominated typographical styles here, but the new fonts of Fournier, Didot, Baskerville, and Bodoni were also accepted and used. Perhaps the leading printer was Johann Thomas Trattner (1717–1798; after 1764 Edler von T.). After apprenticeship with Johann Peter van Ghelen, he established a printing office in 1748 and a type foundry soon thereafter. His ruthless policy of reprinting German authors and his general aggressiveness made a fortune and also many enemies. Klopstock complained that Trattner should have at least permitted him to proofread the unauthorized reprint of his work. Trattner was also interested in bibliography and printing history and wrote the supplement to *Wiens Buchdruckergeschichte bis MDLX* (1793) and the *Suffragium pro Johanne de Spira Venetiarum typographo* (1794).

Another important Viennese printer was Joseph Lorenz Kurzböck (1736–1792; after 1776 Edler von K.), who took over the printing office of his father Gregor, in 1755. In 1770 he was granted a 20-year patent to print Greek, Slavic, and oriental books, an assignment which he handled with considerable diligence and success, thus continuing the work of Meninski in the previous century and strengthening Vienna's position as a center for printing in non-Roman alphabets. He translated from Italian and had strong antiquarian interests (e.g., his edition of *Der Weiss*

Kunig, 1775). Leopold Johann Kaliwoda (1705–1781) was distinguished as the printer of Nicolaus Josef, Freiherr von Jacquin's *Hortus botanicus vindobonensis* (5 vols. with 500 colored plates). He also established Vienna's first independent type foundry. In 1775 he sold his press and publishing business to Josef Gerold, whose family name is still attached to a leading Viennese publishing house. One year after his death, Anton Magatsch bought the foundry.

The Low Countries, Scandinavia, and Eastern Europe

In the Low Countries, publishing and bookselling continued to thrive, but only one printing house, that of Isaac Enschedé, founded in 1705, acquired distinction comparable to that of the great Dutch printers of previous centuries. His great collection of type fonts has already been noted. In 1726 he took in his son Johann as a partner, and the firm still bears the name of Joh. Enschedé en Zonen. The partners acquired the Wetstein type foundry, and with it came the great type designer J. M. Fleischmann, whose types were popular until the early 19th century when they were pushed into the background by the Didot fonts. Jacques François Rosart of Namur also worked for the Enschedés for a while until he set up his own foundry in Brussels.

In Sweden, Peter Momma (died 1772), a Dutchman, acquired the office of Johann Henrik Werner in 1738 and was able to continue the fine tradition of 17th-century Swedish printing. Among his numerous important imprints, Linné's *Museum Regis Adolfi Friderici* (1754) with Jean Rehn's engravings is perhaps his most distinguished. He also had a type foundry, but he depended mainly on types imported from his native Holland. Momma issued *Stockholms Gazette* in French from 1742 to 1753. In 1745 he began to publish *Stockholms Weckoblad*, and in 1767 he added a supplement, *Allehanda*. In the same year it became the *Dagligt Allehanda*, and was the first Swedish daily newspaper. Before his death Momma transferred the press to his son-in-law Henrik Fougt, a competent and successful printer and publisher. His widow carried on, but his son Henrik II was less successful and had to sell out to P. A. Norstedt and Söner in 1835. Another important Stockholm printer and bookseller was Lars Salvius, who published the *Lärde Tidningar*, Sweden's principal literary and scholarly journal, from 1745 until his death in 1773.

In Lund, Carl Gustav Berling became printer to the university, and later the family became important in Copenhagen and elsewhere. Among the Swedish cities which acquired printing for the first time in the 18th century was Skara, where Bishop Jesper Svedborg provided equipment for the local gymnasium with Anders Kjellberg as the first printer. Nyköping had a printer, David Kampe, for a few months in the 1680s, but printing was first firmly established there in 1723 by the local minister, Reinerus Broocman, with his son Carl as the foreman of the office. In Uppsala the academic printing office was operated by Johan Edman from 1767 until his death in 1791; and after various owners in the 19th century it finally was incorporated in 1928 with Almqvist and Wiksell, one of the most important printing firms in modern Sweden.

Johan Christopher Frenckell bought half interest in Jacob Merckell's academic printing office in Åbo and established a dynasty of printers that is still preeminent in Finland. He was a meticulously careful printer and established an enduring tradition of superior craftsmanship in the firm. He was the publisher of Finland's first newspapers, *Tidningar* (1771–1778) and *Suomenkieliset tieto-sanomat* (1776). After the catastrophic fire in Åbo (now Turku), the Frenckell press moved to Helsingfors along with other important activities such as the university formerly in Åbo.

In Copenhagen, Vaisenhusets Officin, supervised by Gotthard Friederich Kisel, issued many important works, among them F. L. Norden's *Voyage d'Égypte et de Nubie* (2 vols., 1755), the most pretentious work published in Denmark up to that time. Andreas Hartvig Godiche printed a number of important books, notably Pontoppidan's *Dansk Atlas* (1763–1781) and the famous quarto edition of Holberg's *Peder Paars* (1772) in roman type. Nicolai Møller printed a number of important books such as Carsten Niebuhr's *Reisebeschreibung* (1774–1778) and O. F. Müller's *Zoologica Danica* (1788). Among other important printing offices of late 18th-century Copenhagen were those of Johan Rudolph Thiele, founded in 1770 and continuing until 1936, and Johan Frederik Schultz, founded in 1783 and still in existence. Schultz's office was destroyed by fire in 1795, but he acquired the business of the Høpffner family and its position as printer to the university and the crown. In 1732 Ernst Heinrich Berling, a relative of the Lund Berling (supra), settled in Cophenhagen and began to print the *Københavnske danske Posttidender*, still in existence as the *Berlingske Tidende*.

In 1758 Samuel Conrad Schwach, a German, married the widow of Jens Andersen Berg, who had acquired the Wedemann office in Christiania. In 1763 he began to publish *Norske Intelligenssedler*, Christiania's first newspaper, which survived until 1920. When Schwach died in 1781, Jens Ørbek Berg acquired the press and operated it until 1815 when the present owner, Christiania Vaisenhus, acquired it.

In nearly all respects—not the least literature, science, and printing—a new day came for Russia with Peter the Great. In 1702, the same year in which St. Petersburg was established, the first number of the *Moskovskiie Vedomosti* appeared in Moscow, was suppressed in 1727, and revived in 1756. In 1719 the first press was installed in St. Petersburg by Mihail Petrovich Avramov, and his first imprint was the *Marsovaia Kniga* (1713). In 1720 a second press was set up in the Nevskii monastery for ecclesiastical works and textbooks (12 imprints in all), but both were closed in 1727 when the printing office of the Academy of Science (founded 1725) was established. Also in 1727 the *St. Petersburger Zeitung* was established, and continued until 1915. In 1728 a Russian-language newspaper, the *Sanktpetersburgskiie vedomosti,* began to appear from the same press. The first nonofficial press was established in 1769 by three Germans, and when Catherine II lifted restrictions on printing in 1783, some 15 other printers set up offices in St. Petersburg, although there was again a short period (1796–1802) when there were again restrictions on privately owned presses.

Theodor Polikarnov was in charge of the Moscow press in the years 1701–1722 and 1726–1731, and as early as 1701 he introduced Greek and roman type to Russia. About this time, as part of Peter the Great's reforms, a new, simplified

Cyrillic resembling roman appeared and was called *grazhdanski* ("bourgeois," "civil," as opposed to ecclesiastical). In 1707 Mihail Efremov cast three new fonts of *grazhdanski.* In 1755 Mihail Vassilievich Lomonosov (1711–1765), the first major figure of modern Russian literature, founded the University of Moscow (now named for him), and a press followed in 1756. Nikolai Ivanovich Novikov (1744–1818) began his noteworthy career as a publisher in 1768, the first real professional in this field in Russia. In 1749 the liberal writer Aleksandr Nikolaevich Radishchev established a press from which he issued his one book. Russian printing and publishing was almost three centuries behind the industry in the rest of Europe, but the breakthrough came after the reforms of Peter the Great.

Italy

Giambattista Bodoni (1740–1813; Figure 11) towers above all other aspects of typography and printing in 18th-century Italy, but there were still substantial remnants of the great traditions of the 15th and 16th centuries. The high level of Italian book illustration and engraving in general, especially in Venice but also in Rome, were adequate evidence of the importance of the Italian book industry in general in the 18th century.

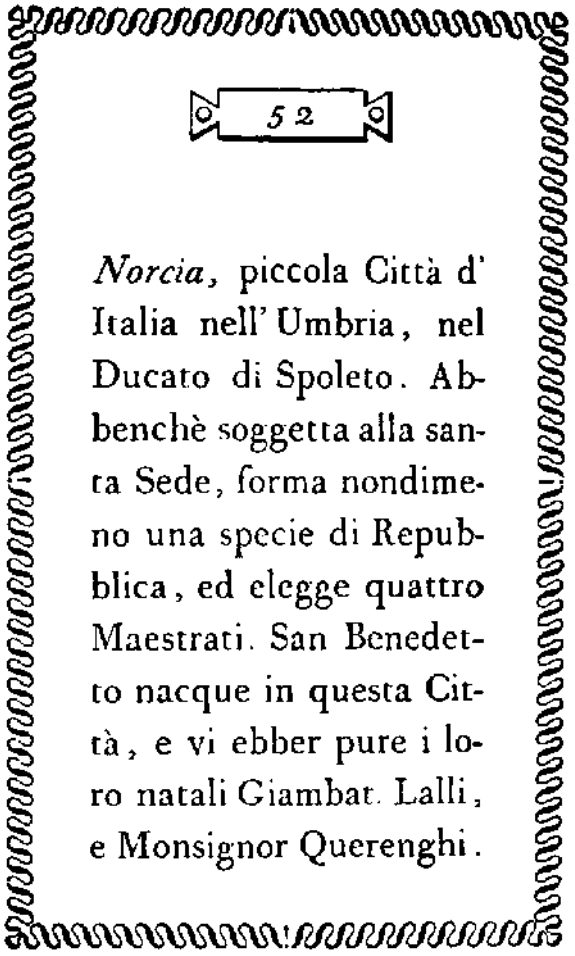
Outstanding among Italian printers and publishers at the beginning of the new century was the Albrizzi family of Venice. They organized the Società Albrizziana, a counterpart to the modern book club, with some 400 members, including outstanding scholars and churchmen, each obligated to purchase works printed for the society up to the price of 40 ducats. Best known among these editions is that of Tasso's *Gerusalemme liberata,* with copper engravings by Giambattista Piazzetta. The Albrizzi also published the *Galleria di Minerva,* the first Italian literary periodical. Another prolific Venetian printer, Antonio Zatta, was also responsible for a wide variety of books, ranging in size from folios to miniatures such as *Giornaletto galante;* in genre from newspapers, fashion magazines, breviaries, and philosophical treatises, to fiction. The well-known Goldoni edition of 1788–1795 in 44 volumes has over 400 vignettes, and the Ariosto (4 vols., 1772–1773) has 88 vignettes and 58 copper engravings by Pietro Antonio Novelli, poet, painter, and a favorite illustrator of Venetian publishers.

Perhaps the most famous Italian engravers and illustrators of deluxe books were Giovanni Battista Piranesi (1720–1778) and his son Francesco (1758–1810). The elder Piranesi came to Rome in 1640 and learned engraving from Giuseppe Vasi. In 1745 he prepared some 50 views of Rome for the publisher F. Amidei, and as early as 1743 he had begun the architectural fantasies (*Carceri*) which Jean Bouchard began to publish in 1750 and in which he shows very clearly his characteristic style. In a collected edition of 137 leaves in double folio, these engravings of the ancient and baroque architectural monuments of Rome are Piranesi's chef d'oeuvre. The preciseness of his reproductions of the ancient monuments of Rome as they appeared in the mid-18th century is seen in *Le antichità romane* (4 vols. and sup-

FIGURE 11. *Giambattista Bodoni (1740–1813).*

plement with 262 leaves, 1756). Clement XIII showed his appreciation by setting Piranesi up as his own publisher, and thereafter his style shifted from baroque to classical. Much of his work, particularly the archaeological, remained unfinished but was completed after his death by Francesco, who inherited the business. The latter brought out new editions of his father's work, often augmented with new plates. He also produced a *Raccolta de tempi antichi* (2 parts, 1780 and 1790), a collection of engravings of the 30 best marble statues in Rome (1780–1786), *Antiquités de la Grande Grèce* (3 vols., 1804–1807), and various other works with his brother Pietro. The Piranesi plates were acquired by the Vatican in 1839 and were reprinted in toto in 1870.

Printing expanded considerably in 18th-century Italy, and some 70 cities acquired presses for the first time. There were also some important printers in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Norcia, piccola Città d' Italia nell' Umbria, nel Ducato di Spoleto. Abbenchè soggetta alla santa Sede, forma nondimeno una specie di Repubblica, ed elegge quattro Maestrati. San Benedetto nacque in questa Città, e vi ebber pure i loro natali Giambat. Lalli, e Monsignor Querenghi.

FIGURE 12. *First edition of Giambattista Bodoni,* Manuale tipografico *(Parma, 1788).*

cities with a strong typographical heritage. In Padua two outstanding classicists, Giovanni Antonio Volpi and his brother, the Abbot Gaetano, established their own press, directed by Giuseppe Comino from 1717 to 1762, then by Giuseppe's son Angelo. Editions of the Tipografia Volpi-Cominiana have always been highly appreciated for their textual accuracy and beauty of design. In Milan, the main center of the printing industry in modern Italy, the printing office known as the Società Palatina (founded 1721) issued the monumental *Rerum italicarum scriptores* planned by the Ambrosian librarian Ludovico Antonio Muratori (28 vols., 1725–1751). In Modena the important printing family of Soliani—whose activity extended from 1698 to 1870—was represented by Bartolomeo Soliani (1695–1752), a meticulously careful printer and a man with a great sensitivity for typographical design. In Rome the Stamperia Vaticana and the Tipografia Poliglotta have already been noted. In 1716 another press with a stock of oriental type rivaling that of the latter was founded by the Mechitarists, an Armenian monastic order following the Benedictine rule, on San Lazzaro, an island in the Venetian laguna. The press brought out many works of Armenian literature as well as several editions of a translation of the Bible into Armenian. When the Mechitarists split ranks, some

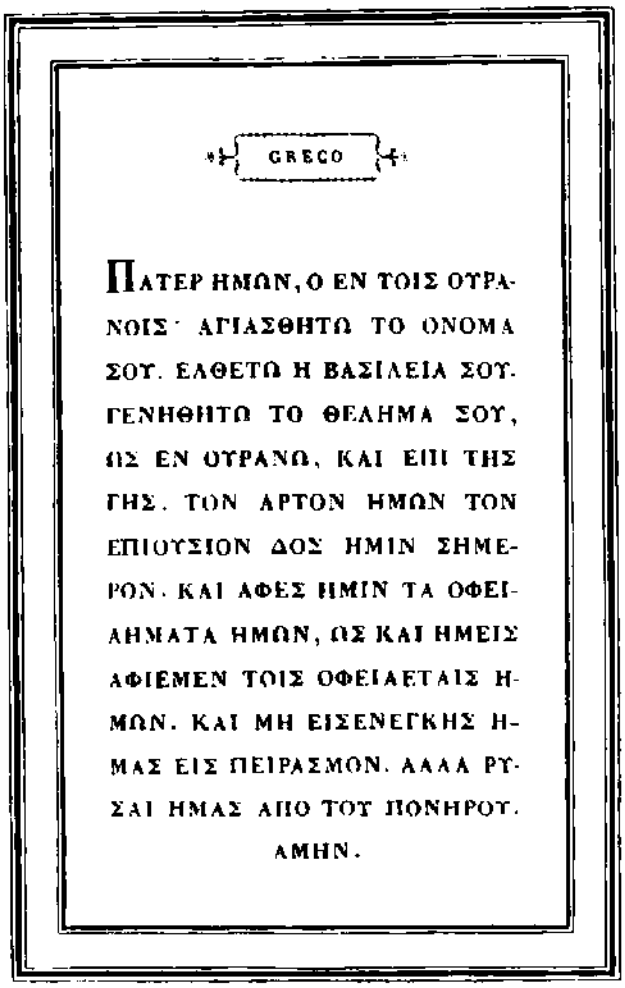


FIGURE 13. *Bodoni,* Manuale tipografico *(Parma, 1818).*

went to Triest, others to Vienna in 1810, where they established another press that was quite active.

Bodoni, born at Saluzzo in the Piedmont, began his apprenticeship in the Tipografia Poliglotta in 1757, and there he acquired not only competence in the craft but also a knowledge of oriental languages and, above all, punch cutting. In 1768 the art-loving Duke Ferdinando of Parma, who aspired to make his city "una nuova Atene," called Bodoni to direct his private press, the Stamperia Ducale. This Bodoni did with brilliant success until his death in 1813. He also had his own private press ("co' tipi Bodoniani"), founded in 1791, operated by his widow after his death.

Bodoni bought Fournier type at first, but soon he began to design his own, publishing the first as *Fregi e maiuscole incise e fuse da Giambattista Bodoni* (1771). His *Manuale tipografico,* first published in 1788, quickly brought his work to the admiring eyes of printers throughout Europe. (See Figures 12 and 13.) Despite flattering offers, he remained in Parma, but he continued to receive honors and recognition, including Spanish and French pensions. He caught the spirit of an age of typographical reform when he said, "Je ne veux que du magnifique et je ne travaille

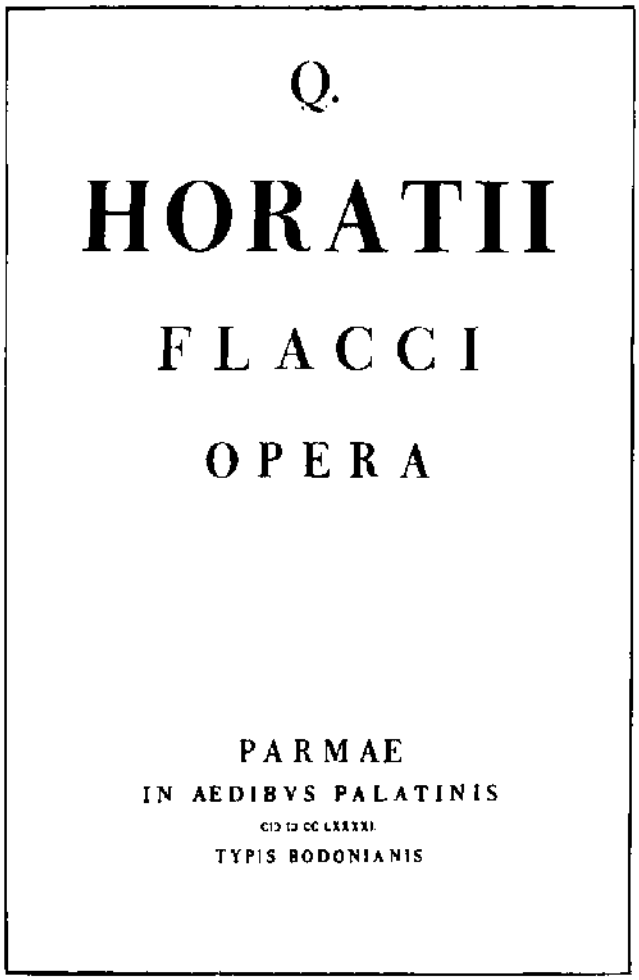


FIGURE 14. *Bodoni's* Horace *(Parma, 1791).*

pas pour le vulgaire des lecteurs," and yet he was always the *artista della simplicità*. Bodoni removed all unnecessary apparatus from letters and sought a purely classical style of the roman letter, sometimes bordering on a cold pomposity, but always dignified but practical. He printed books in all major languages. His masterpieces cannot easily be segregated, for he permitted only superior work. A few examples that may be mentioned are Tasso's *Aminta* (1789), Horace (1791), Vergil (1793), Tacitus (1795), the *Iliad* (1808), and Fenélon's *Télémaque* (1812). (See Figures 14–16.) Bodoni considered the last his masterpiece. It is a work in which the art of the printer is primary, with no consideration of the book as a commercial object. But Bodoni belonged to an older tradition—and printed the *Télémaque* only 1 year earlier than Friedrich König received his patent for a cylinder press.

PVBLII
VIRGILII MARONIS
BVCOLICON
LIBER.

ECLOGA PRIMA.

TITYRVS.

MELIBOEVS, TITYRVS.

M. Tityre, tu patulae recubans sub tegmine fagi
Silvestrem tenui Musam meditaris avena:
Nos patriae fines, et dulcia linquimus arva;
Nos patriam fugimus: tu, Tityre, lentus in umbra
Formosam resonare doces Amaryllida silvas.
T. O Meliboee, deus nobis haec otia fecit:
Namque erit ille mihi semper deus; illius aram
Saepe tener nostris ab ovilibus imbuet agnus.
Ille meas errare boves, ut cernis, et ipsum
Ludere, quae vellem, calamo permisit agresti.
M. Non equidem invideo; miror magis: undique totis

FIGURE 15. *Vergil,* Opera *(Bodoni, Parma, 1793).*

DEGLI

ANNALI

DI

C. CORNELIO TACITO

LIBRO PRIMO.

Sesto Pompejo, e Sesto Apulejo Consoli,
Nerone Claudio Druso Cesare,
e Cajo Norbano Consoli.

I.

Roma nascente fu dominata da'Regi. Stettero per fatto di Bruto la libertà, e il Consolato. Le Dittature eran temporanee, nè il potere Decemvirale prevalse piu d'un biennio, nè lungamente l'autorità Consolare de'militari Tribuni. Non Cinna, non Sulla ritennero durevolmente il dominio, e in breve si concentrarono la possanza di Pompejo e di Crasso in Cesare, e l'armi di Lepido e d'Antonio in Augusto, che la Repubblica, stancata dalle civili discordie, occupò col titolo di

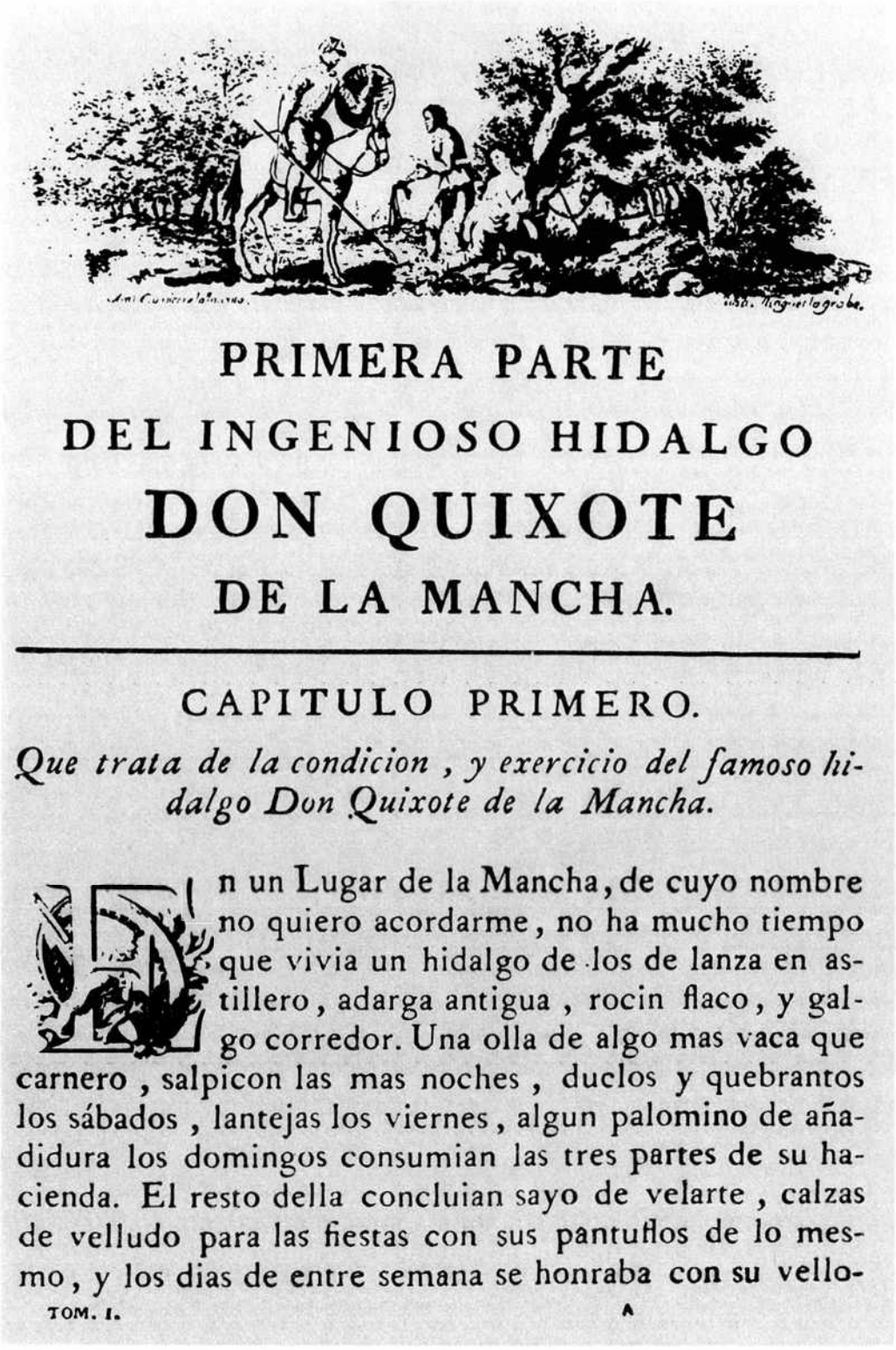
FIGURE 16. *Tacitus,* Annals, *composed and printed by Bodoni (1795).*

Spain and Portugal

One name dominates Spanish typographical history of the 18th century, Joaquín Ibarra y Marín (1725–1785). The son of a printer in Zaragoza, he earned respect at an early age for his superior work in Madrid and was granted the title and privileges of "Impresor de Camera de S. M. y de la Real Academia." The meticulous design, composition, and presswork (including Baskerville's "hot-pressing" process) of Ibarra's work have given it a place as the best Spanish printing between the 16th and the 20th centuries. From the standpoint of national pride, Spain honors him as the printer of the first typographically decent edition of the *Quixote* (4 vols., 1780; see Figure 17), with engravings and illustrations by Antonio Carnicero and others. Perhaps the most famous Ibarra imprint, and the most sought after—only 120 copies were printed—is the Spanish translation of Sallust (1772). (See Figure 18). The Spanish text is in cursive, the Latin (in two columns at the bottom of every page), in roman, both fonts from Antonio Espinosa. There is an engraved title page, and at the end is a treatise on the Phoenician language by Pérez Bayer, a Salamanca professor who was actively involved in a movement to improve the respectable mediocrity of traditional Spanish printing. In 1783 Ibarra began to print Nicolas Antonio's history of Spanish literature to 1684, *Biblioteca hispana, vetus et nova*, a four-volume work completed by his widow in 1788. While Ibarra shows strong influence by Baskerville and Bodoni, he had neither predecessors nor successors in Spain. He is *sui generis* in the typographical history of the peninsula, but his wholesome influence is reflected in the better Hispanic typography of both hemispheres in our own day.

Antonio de Sancha (1720–1790) of Madrid was a printer who introduced trends from France, particularly from the Didots. He is best known for a prime item of Americana, Antonio de Solís's *Historia de la conquista de Mexico*. Benito Monfort (1716–1785), a Valencian, established an office in Madrid in 1757, and later became printer to the university. He printed the first of the two volumes of Pérez Bayer's *De numis hebraeo-samaritanis* (1781–1790).

In Portugal many reforms in the cultural and social life of that country were introduced by the Marquis de Pombal, who established a national printing office, the Impressão Regia (today Imprensa Nacional) in 1768, with a foundry and a school for engravers. Under the first director, Miguel Manescal da Costa, a number of books were produced which were considerably superior to anything printed in Portugal up to that time.



PRIMERA PARTE

DEL INGENIOSO HIDALGO

DON QUIXOTE

DE LA MANCHA.

CAPITULO PRIMERO.

Que trata de la condicion, y exercicio del famoso hidalgo Don Quixote de la Mancha.

En un Lugar de la Mancha, de cuyo nombre no quiero acordarme, no ha mucho tiempo que vivia un hidalgo de los de lanza en astillero, adarga antigua, rocin flaco, y galgo corredor. Una olla de algo mas vaca que carnero, salpicon las mas noches, duclos y quebrantos los sábados, lantejas los viernes, algun palomino de añadidura los domingos consumian las tres partes de su hacienda. El resto della concluian sayo de velarte, calzas de velludo para las fiestas con sus pantuflos de lo mesmo, y los dias de entre semana se honraba con su vello-

TOM. I. A

FIGURE 17. *Joaquín Ibarra's* Quixote *of 1780.*

LA GUERRA
DE JUGURTA
POR
CAYO SALUSTIO CRISPO.

SIN causa alguna se quexan los hombres de que su naturaleza es flaca y de corta duracion ; y que se govierna mas por la suerte , que por su virtud. Porque si bien se mira , se hallarà por el contrario , que no hai en el mundo cosa mayor , ni mas excelente ; y que no la falta vigor ni tiempo , si solo aplicacion e industria. Es pues la guia y el govierno entero de nuestra vida el animo ; el qual , si se encamina a la gloria por el sendero de la virtud , harto

C. SALLUSTII CRISPI IUGURTHA.

FALSO queritur de natura sua genus humanum , quod imbecille , atque ævi brevis, sorte potius , quam virtute , regatur. Nam contra reputando , neque majus aliud , neque præstabilius invenias ; magisque naturæ industriam hominum , quam vim , aut tempus deesse. Sed dux , atque imperator vitæ mortalium , animus est : qui ubi ad gloriam virtutis via grassa-

FIGURE 18. *C. Sallustius Crispus*, La conjuración de Catilina y la guerra de Jugurta (*Ibarra, Madrid, 1772*).

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LAWRENCE S. THOMPSON

FROM 1800 TO THE PRESENT *

We have already noted how the cylinder press, along with the related invention of the endless reel for papermaking, revolutionized book production at the beginning of the last century. The constant advance of mechanization up to our day has been the key to printing history of the last century and a half. Yet the old tradition of manual craftsmanship persists; and it is indeed fortunate that it does, for some of the most productive ideas and styles, and some of the most significant ad-

* The Bibliography for this section begins on page 510.

vances in the art of the book have come from typographers who had their private presses. Of the many examples in modern times we will cite only two, Frederic W. Goudy and his Village Press and Victor Hammer and his Stamperia del Santuccio. Although the history of printing in the last century and a half has been parallel to technological progress in general, the history of good printing has been that of the judicious application of traditional craftsmanship to the machine product.

Printing as a business has always been international in character, from the time of the first itinerant German printers of the 15th century. But the first four centuries of printing showed a distinctly nationalistic trend in their methods and products, while in later periods this aspect is of diminishing importance. Composing and printing machines are protected by patents in nearly all countries at the same time, and the major firms have offices throughout the world.

Presses and Composing Machines

The invention of the cylinder press by Friedrich König and of the endless reel in papermaking were parallel developments and were virtually essential to satisfy the needs of the new century characterized by industrial expansion, greater speed of communication and transportation, and increasing literacy. Rather surprisingly, the steam-driven cylinder press was slow to win acceptance, perhaps due to the existence of old equipment, the expense, and the armies of trained pressmen. During the disturbances in Paris in 1830 a mob of pressmen destroyed imported printing machines, and similar attitudes were in evidence in other countries. But a handpress could turn out barely 250 sheets per hour, while König's machine more than quadrupled production. In 1828 Augustus Applegath and Edward Cowper developed a machine for the London *Times* that turned out 4,000 sheets in an hour. In the latter part of the century the rotary press came into common use for newspapers with large circulation lists, and today some 40,000 sheets can be produced in an hour.

Charles, earl of Stanhope (1753–1816)—inventor, scientist, and politician—invented a new handpress, made entirely of iron. A sheet could be printed from it with a single pull, thanks to a system of levers attached to the bar operating the screw. Later presses (e.g., the Albion, Columbian, and Washington) were characterized by a much more revolutionary change in that the screw was given up in favor of a lever or fulcrum. To be sure, these new handpresses had about the same production potential, but they were much easier to operate. Concomitant with this development was the displacement of the old inking ball with a roller, again making for ease of production.

The stereotype process has already been noted (from στερεός, stiff, firm; and τυπός, sign, symbol, letter). Lord Stanhope promoted the older method of making metal plates cast from sunk faces in plaster, and he was largely responsible for its spread. However, this rather tedious method went out of favor when Claude Genoux, a compositor of Lyon, invented a device in 1830 for making the masters from papier mâché. Stereotyping cuts in half the time for preparation to print, and cheap

book production became a reality with it. Another form of stereotyping is the galvanized plate, invented by Moritz Hermann Jacobi in Dorpat in 1838, enabling very sharp reproduction of line drawings and other nontype material.

As useful as stereotyping was, another invention about the same time, lithography—by Alois Senefelder (1771–1834)—was ultimately to develop into modern offset printing and to displace stereotyping in our time, with the aid of photographic techniques. Senefelder experimented with stereotyping and engraving before he developed his process of printing on the surface of an absorbent stone in Munich in the closing years of the 18th century. He was granted an English patent in 1800 for his discovery, which is based on the separation of oil and water. In the year before his death he printed, on linen, oil paintings which had been reproduced on stone. Subsequently lithography became the most widely used process for reproducing art works. Later metal plates were substituted for stone. Today offset, as lithography is now called, is rapidly moving ahead of letterpress as the standard device for printing books, periodicals, and newspapers in large editions.

The efforts to develop a composing machine go back to the 18th century (the idea was considered even earlier) when Henry Johnson, a London composer, developed his "logotypes," or syllabic types with two or more letters which appear in combination frequently. The first actual mechanical devices for composition began to appear in the third decade of the last century, and some 200 were developed from then on. The early machines were simply devices to select type, by touching a key, from containers with the various types. Best known, perhaps, was that of Charles Kastenbein, who took the idea from a dying composer and offered the machine to the trade as his invention in 1869. The first practical model was used by the London *Times* in 1872, and by 1908, when it was discontinued, 25 Kastenbein machines were in operation there. The major problems with the Kastenbein and similar machines were the tendency of types to be stuck in the containers, the necessity of justifying by hand, and the time-consuming process of redistribution. The latter two were partially solved by spacing between words and recasting new type from the old metal without redistribution.

The modern composing machine is based on a different principle and it is essentially the product of the inventive genius of Ottmar Mergenthaler (1854–1899), a native of Württemberg who emigrated to Baltimore. A watchmaker by trade, Mergenthaler, with the help of colleagues, first tried a machine which would impress the form of the type in a paper matrix. When this proved to be impractical, he hit upon the idea of arranging matrices in a circulating row, which, upon activation by the operator, were arranged into a complete line ("slug") into which molten metal, forming raised letters, could be poured. The matrices were then returned by their proper slots or channels, from which they could be brought up for arrangement for casting another slug. The first practical "linotype" machine was in operation in 1886. Various refinements have been introduced, both to the original machine and to others. Tolbert Lanston (1844–1913), a native of Ohio, developed the Monotype in 1889 (commercially produced only in 1897), in which perforated tape controls the composing machine and which also has a superior justification device. Other machines developed in the United States were those by John R. Rogers

(Typograph), Wilbur Stephen Scudder and Hermann Ridder (Intertype), and Washington J. Ludlow. In the last decade photographic composition, activated by programmed computers, has been displacing the metal type machines. Even more elaborate is the optical character recognition device by which a manuscript is scanned and the master is set up by computerized photocomposition. Much the same type of process applies to photogravure, by which illustrations are etched on copper cylinders with the aid of an electronic scanning device.

For nearly four centuries type was cast with hand molds, but in 1838 David Bruce, Jr., of New York, developed a rudimentary machine on which substantial improvements were soon made in the foundry of Eduard Haenel in Berlin, by the Dane Lauritz Brandt. It was operated by a crank to pump the metal into the matrices, and later a mechanical device for trimming uneven edges was developed. Constant improvements were made, and, by the end of the century, there were machines capable of producing upwards of 60,000 types in a working day.

England and the United States

Although publishing, as separate from printing, had existed since the 15th century, the two industries became sharply differentiated in the last century, even in the case of publishers who owned their own printing plants. Many publishers have their own staffs of typographical designers, a situation particularly prevalent in the modern university presses where some of the handsomest books of our times are produced. Oxford, Cambridge, and Yale are egregious examples of institutional presses with whom distinguished typographers have been associated. But the prevalent tradition has become a contractual arrangement of publishers with printers and binders, often too with designers, many of whom are today peripatetic freelancers.

The mechanization of printing and consequent mass production had grave consequences for the run-of-the-mine book, but early in the industrial revolution of printing there were printers and publishers who attempted to maintain the better aspects of the older tradition. In England this trend was best represented by Charles Whittingham the Younger (1795–1876) and William Pickering (1796–1854). The Whittingham printing and publishing interests began with the former's uncle Charles Whittingham the Elder (1767–1840) of Chiswick. With the support of the Caslons he established a small press in London and was among the first in England to produce bibliophilic editions (e.g., Gray's *Poems*, 1799). He turned to the reprinting of contemporary classics in small format, and they were superior to any others in terms of convenience, general quality, and price. Well-known sets of this type were the 22 volumes of *British Classics* of 1802 and the 100 volumes of *British Poets*. His books were illustrated by some of the best wood engravers of the day such as A. R. Branston, William Harvey, and John Thompson. It is significant that the elder Whittingham saw no conflict between mechanization and fine book production. In 1809 he acquired a paper mill in Chiswick, and he was one of the first English papermakers to use steam power.

In 1824 his nephew assumed partnership in the Chiswick Press, and he also had his own business in London, where both houses were finally combined in 1852. He had studied with the Didots, and much of his work reflects this influence. The friendship of Whittingham with Pickering was most productive. In 1820 Pickering had founded an antiquarian bookselling business in London, and he was also a publisher. In the period 1821–1831 his "Diamond Classics" were printed at the Chiswick Press. In 1830 he adopted the famous dolphin and anchor symbol of Aldus Manutius and the motto of "Aldi Discip. Anglus" under which he brought out the "Aldine Edition of English Poets," followed by "Christian Classics" and "Oxford Classics." Chiswick produced many other important books for Pickering, including titles illustrated by Robert and George Cruikshank. In 1843–44 the Chiswick Press began to use Caslon's type of 1720, and among the first books printed in this face were Pickering's *Juvenal* and the *Diary of Lady Willoughby* for Longman. The Chiswick Press remained in the Whittingham family, but Pickering's business passed through several hands until it became Pickering and Chatto. The historical importance of the Chiswick Press is obvious, but most striking is the fact that William Morris had printed there some of the first books that were to herald a new age in printing.

I. THE TEMPLE

The Dedication.

Lord, my firſt fruits preſent themſelves to thee;
Yet not mine neither: for from thee they came,
And muſt return. Accept of them and me,
And make us ſtrive, who ſhall ſing beſt thy name.
Turn their eyes hither, who ſhall make a gain
Theirs, who ſhall hurt themſelves or me, refrain.

1. The Church-porch.

Perirrhanterium.

THOU, whoſe ſweet youth and early
hopes inhance
Thy rate and price, and mark thee for
a treaſure,
Hearken unto a Verſer, who may chance
Ryme thee to good, and make a bait of pleaſure
A verſe may finde him, who a ſermon flies,
And turn delight into a ſacrifice.

Beware of luſt; it doth pollute and foul
Whom God in Baptiſme waſht with his own blood
It blots thy leſſon written in thy ſoul;
The holy lines cannot be underſtood.
How dare thoſe eyes upon a Bible look,
Much leſſe towards God, whoſe luſt is all their book!

FIGURE 1. *George Herbert,* The Temple *(William Pickering, London, 1850) in Caslon type.*

THE

LAY

OF

THE LAST MINSTREL,

A POEM;

BY

WALTER SCOTT, Esq.

Dum relego, scripsisse pudet, quia plurima cerno,
Me quoque, qui fecit, judice, digna lini.

LONDON:
PRINTED FOR LONGMAN, HURST, REES AND ORME,
PATERNOSTER-ROW, AND A. CONSTABLE AND CO. EDINBURGH.
By James Ballantyne & Co. Edinburgh.
1806.

INTRODUCTION.

THE way was long, the wind was cold,
The Minstrel was infirm and old;
His withered cheek, and tresses gray,
Seemed to have known a better day;
The harp, his sole remaining joy,
Was carried by an orphan boy.
The last of all the bards was he,
Who sung of Border chivalry;
For, well-a-day! their date was fled,
His tuneful brethren all were dead;
And he, neglected and oppressed,
Wished to be with them, and at rest.
No more, on prancing palfrey borne,
He carolled, light as lark at morn;

FIGURE 2. *Title page and introduction of Scott's* Lay of the Last Minstrel *printed at the Ballantyne Press.*

In Scotland the tradition of the Foulis family was ably continued by such Edinburgh firms as Morrison and Gibb, Constable, and E. and R. Clark, and by Maclehose in Glasgow. The firm of Ballantyne, Hanson and Company in Edinburgh produced some unusually fine books at the end of the century. The press was founded by James Ballantyne (1772–1855), who established himself in Edinburgh and printed Sir Walter Scott's works and the *Edinburgh Review*. (See Figure 2.) When he went bankrupt, Scott assumed the burden of the entire debt of £ 117,000.

The motley cultural life of Victorian England can show a variety of interesting typographical phenomena, many of which were productive for the future. An isolated phenomenon was the Daniel Press, founded by Henry Daniel, rector of Worcester College in Oxford in 1877. Here the noted Fell types preserved by the University Press from the 17th century were reintroduced in books from this pioneer private press. However, in the field of book production one man, William Morris (1834–1896; see Figure 3), brought forth theoretically and practically new concepts that spread far beyond England. In addition to his broad interests in socialism, poetry, architecture, painting, and handicrafts, he was also deeply concerned with a revival of printing. In 1891, with the aid and advice of Emery Walker (1851–

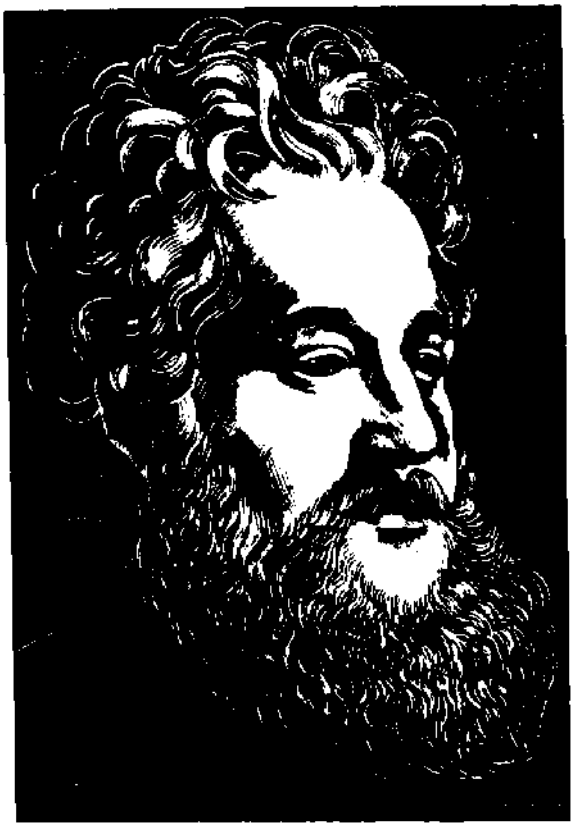


FIGURE 3. *William Morris (1834–1896).*

1933), he founded the Kelmscott Press in Hammersmith, a western suburb of London. It was named for the village of Kelmscott on the upper Thames where Morris and Dante Gabriel Rossetti had a country house. The first Kelmscott book was the *Glittering Plain*, a novel by Morris, and in the following lustrum the press issued 55 titles in 66 volumes and 16 smaller pieces, including over 606 wood engravings by Morris, Edward Burne-Jones, and Walter Crane. The type used for the *Glittering Plain* was a roman cut by Edward P. Prince and named the Golden Type from Caxton's translation of the *Legenda aurea*, originally planned as the first imprint but not completed until 1892. In addition, two round gothic types also cut by Prince were used by the press, the Troy Type, so-called after the edition of *The Recuyell of the Historyes of Troye* in which it first appeared, and a smaller variety of Troy, the Chaucer Type. (See Figures 4–6.) Morris believed that type, ink, and paper should be in harmony; that the opened book of two facing pages should be the basis of typographic design rather than a single page; and that only meticulous hand composition and presswork could produce a beautiful book. Contrary to the trends in four centuries of development of the printing trades, Morris believed that only manual craftsmanship could produce fine books. In the last half century this concept has been disproven; but, on the other hand, only bold, painstaking enterprises such as the Kelmscott Press could give the commercial printer and publishers Morris's ideals of his "religion of beauty."

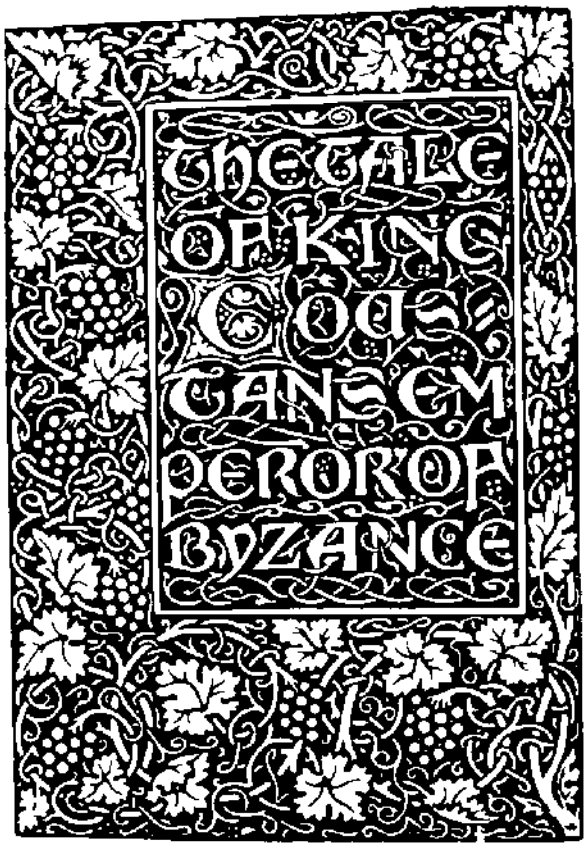


FIGURE 4. *William Morris's* The Tale of King Coustons Emperor of Byzance *(London, 1894).*

In the 20th century the private press movement has proliferated, and the full story of manual book production in our times is yet to be written. The movement has flourished in English-speaking countries in particular, and many an idea productive in commercial bookmaking has originated in them. Only a few may be mentioned here. In 1900 Walker and Thomas James Cobden-Sanderson, previously a binder for the Kelmscott Press, founded the Doves Press in Hammersmith and produced 51 books in a handsome roman modeled on Jenson's type and, unlike the Kelmscott books, with no illustrations. (See Figure 7.) The five-volume Doves Bible was the most significant work from this press. Walker withdrew in 1909, and in 1916 Cobden-Sanderson threw all the type, including punches and matrices, into the Thames. In 1894 C. H. St. John Hornby established the Ashendene Press which remained in operation until 1914. Its best-known product is a Dante in a type designed by Walker and Sidney Cockerell, the Subiaco, a revival of the type of Sweynheym and Pannartz. As a partner of W. H. Smith and Sons, Hornby was able to apply his ideas to commercial printing and publishing, and it was he who gave Eric Gill his first commission for lettering.

The Eragny Press (1894–1914) was founded by the French artist Lucien Pissarro and his wife Esther. The Vale Type and Brook Type originated there, and 32 exceptionally well-produced books bear the Eragny imprint. The Vale Type, mod-

HERE ends the tale of the Wood beyond the World, made by William Morris, and printed by him at the Kelmscott Press, Upper Mall, Hammersmith, finished the 30th day of May, 1894.

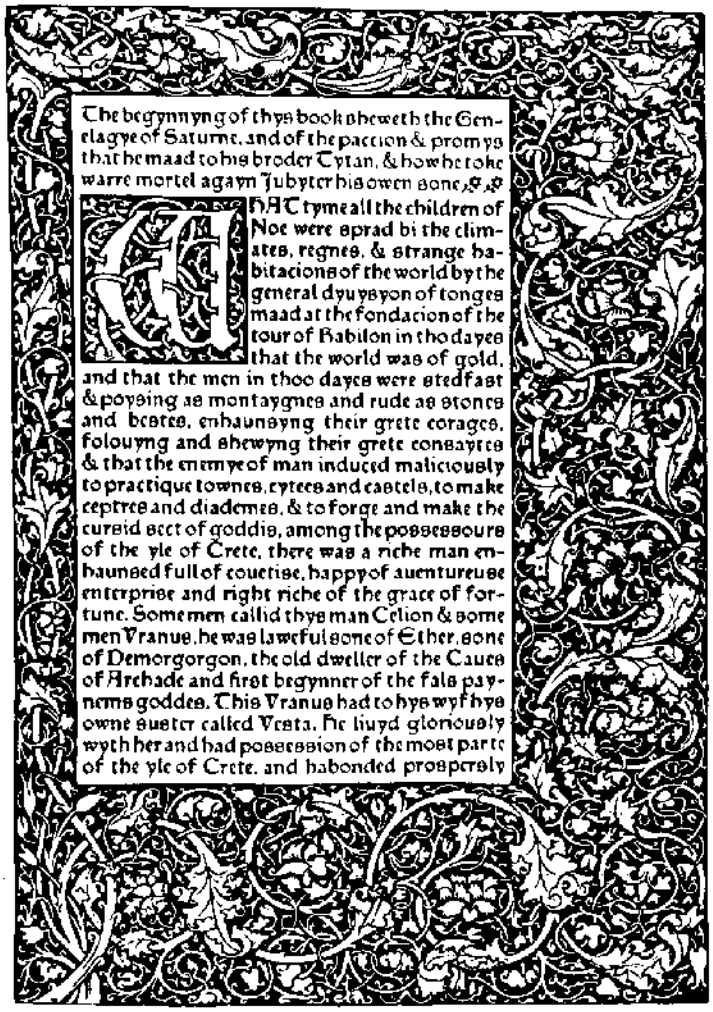
Sold by William Morris, at the Kelmscott Press.

FIGURE 5. *Set in the Chaucer Type.*

eled on Venetian romans of the 15th century, was cast for the use of Charles Ricketts at his Vale Press (1898–1904). Ricketts had his books printed at the Ballantyne Press under his personal supervision. In 1903 most of the original blocks with Ricketts's wood engravings were lost in a fire, and when the press stopped operation, all its type was destroyed. C. R. Ashbee used two special faces, the Prayer Book and Endeavour, at his Essex House Press (1898–1910). Harold Midgely Taylor's Golden Cockerell Press (1920–1924) and the Gregynog Press (1922–1940) of the Misses G. E. and M. S. Davies are other important private presses that followed in the wake of Kelmscott.

After the First World War several other presses developed in England which supported vigorously the ideals of superior book production. The Curwen Press in Plaistow, London, originally a small printer of music, came into prominence after 1916 when Oliver Simon took over supervision of typography and design. Simon founded *The Fleuron* (1923–1930), edited by him and Stanley Morison, a typographical annual which was the major forum for seminal ideas of printing in its decade. The Curwen Press also printed some unusually handsome books for the Fleuron, Ltd. Sir Francis Meynell's Nonesuch Press (1923) and the First Edition Club, founded by A. J. A. Symons in 1922, are other representatives of the ideas ventilated in *The Fleuron*.

Among the major personalities in British typography, Stanley Morison stands at the top in our time. He served as typographical adviser for the Cambridge University Press under the imaginative Walter Lewis, and he created a noble new type, the Times New Roman, which appeared first in the *Times* for October 3, 1932. Bruce Rogers of Indiana, creator of the Brimmer, Montaigne, and Centaur types (see Figure 10), served not only the Oxford and Cambridge University Presses, but


The begynnyng of thys book sheweth the Genelagye of Saturne, and of the paccion & promys that he maad to his broder Tytan, & how he toke warre mortel agayn Jubyter his owen sone, &c.

AT tyme all the children of Noe were sprad bi the climates, regnes, & strange habitacions of the world by the general dyuysyon of tonges maad at the fondacion of the tour of Babilon in tho dayes that the world was of gold, and that the men in thoo dayes were stedfast & poysing as montaygnes and rude as stones and beestes, enhaunsyng their grete corages, folouyng and shewyng their grete conseyrte & that the enemye of man induced maliciously to practique townes, cytees and castels, to make ceptres and diademes, & to forge and make the cursid sect of goddis, among the possessours of the yle of Crete, there was a riche man enhaunsed full of couetise, happy of auentureuse enterprise and right riche of the grace of fortune. Some men callid thys man Celion & some men Vranus, he was lawful sone of Ether, sone of Demorgorgon, the old dweller of the Cauos of Archade and first begynner of the fals paynems goddes. This Vranus had to hys wyf hys owne suster called Vesta. He liuyd gloriously wyth her and had possession of the most parte of the yle of Crete, and habonded prosperely

FIGURE 6. *William Caxton,* The Recuyell of the Hystoryes of Troye *(1892) printed by William Morris.*

also the Harvard University Press and Carl Purington Rollins's Montague Press (1911–1918) in Montague, Massachusetts. Rollins, later printer to Yale University, first used Rogers's Centaur in a little book entitled *The Centaur* (1915).

The United States reflected trends in England to some extent. Elbert Hubbard's much maligned Roycroft Press in East Aurora, New York, at least brought to the American public a concept of styles different from the drab typography of 19th-century America, and he attracted such men as Dard Hunter, leading authority on papermaking, and Peter Franck, the distinguished German-born bookbinder. Earlier, Theodore Low de Vinne (1828–1912), long associated with Francis Hart and Company in New York, and among the founders of the Grolier Club and the United Typothetae, had a salubrious influence on the dismal American typographical scene. In the 20th century there have been a number of outstanding American type and book designers in addition to Bruce Rogers. Daniel Berkeley Updike (1860–1941) is particularly significant. He founded his Merrymount Press in 1893 and printed nearly 800 books in the next four decades. *The Altar Book* (1896), printed by de

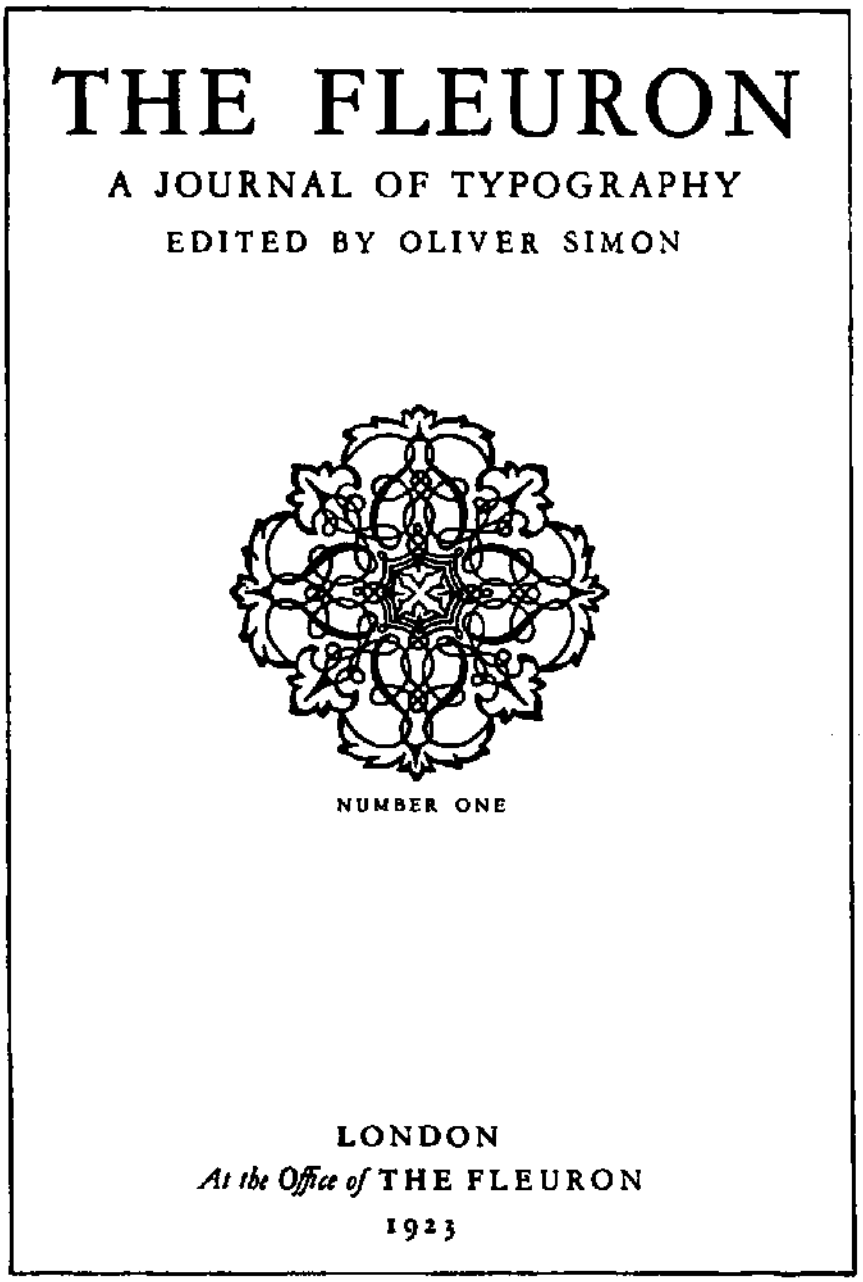
Florish. Enter Claudius, King of Denmarke, Gertrad the Queene, Counsaile: as Polonius, and his Sonne Laertes, Hamlet, Cum Alijs.

King. Though yet of Hamlet our deare brothers death
The memorie be greene, and that it vs befitted
To beare our harts in griefe, and our whole Kingdome
To be contracted in one browe of woe:
Yet so farre hath discretion fought with nature,
That we with wisest sorrowe thinke on him
Together with remembrance of our selues:
Therefore our sometime Sister, now our Queene,
Th'imperiall ioyntresse to this warlike state,
Haue we as twere with a defeated ioy,
With an auspitious, and a dropping eye,
With mirth in funerall, and with dirdge in marriage,
In equall scale waighing delight and dole
Taken to wife: nor haue we heerein bard
Your better wisdomes, which haue freely gone
With this affaire along (for all our thankes).
Now followes that you knowe young Fortinbrasse,
Holding a weake supposall of our worth
Or thinking by our late deare brothers death
Our state to be disioynt, and out of frame,
Coleagued with this dreame of his aduantage
He hath not faild to pestur vs with message
Importing the surrender of those lands
Lost by his father, with all bands of lawe
14

FIGURE 7. *Page from Doves Press* Hamlet, *printed with revived "Jenson type" by T. J. Cobden-Sanderson, 1909.*

Vinne under Updike's supervision, shows traces of Morris's influence, but later he revealed a high degree of originality, tempered by restraint and much common sense.

Frederic William Goudy (1865–1947) of Illinois designed some 90 types, of which the best known are the Village, Kennerley, Goudy Old Style, and Goudy Modern. He and his wife Bertha established their Village Press at Marlborough-on-Hudson in 1913 and the Village Letter Foundry in 1926. William Addison Dwiggins (1880–1956) of Ohio was creative in all aspects of book production, but particularly as a type designer (Metro, among others). (See Figure 11.) William Edwin Rudge (1876–1931) of Mount Vernon, New York (see Figures 12 and 13), John Henry Nash and the brothers Robert and Edwin Grabhorn of San Francisco, Joseph Blumenthal's Spiral Press of New York, Elmer Adler's Pynson Printers of New York, and Melbert B. Cary, Jr.'s Press of the Woolly Whale are among other distinguished private and quasi-private presses and printers who have set high typographical standards in 20th-century America. The annual selection of 50 outstanding books of the American Institute of Graphic Arts, the regional Midwestern (see this encyclopedia, Vol. 18, pp. 120–123) and Southern (q.v.) Book Competitions, and the Chicago Book Clinic, all with annual handlists, are guides to the quality of contemporary American printing.


THE FLEURON

A JOURNAL OF TYPOGRAPHY

EDITED BY OLIVER SIMON

NUMBER ONE

LONDON

At the Office of THE FLEURON

1923

FIGURE 8. *The first number of* The Fleuron.

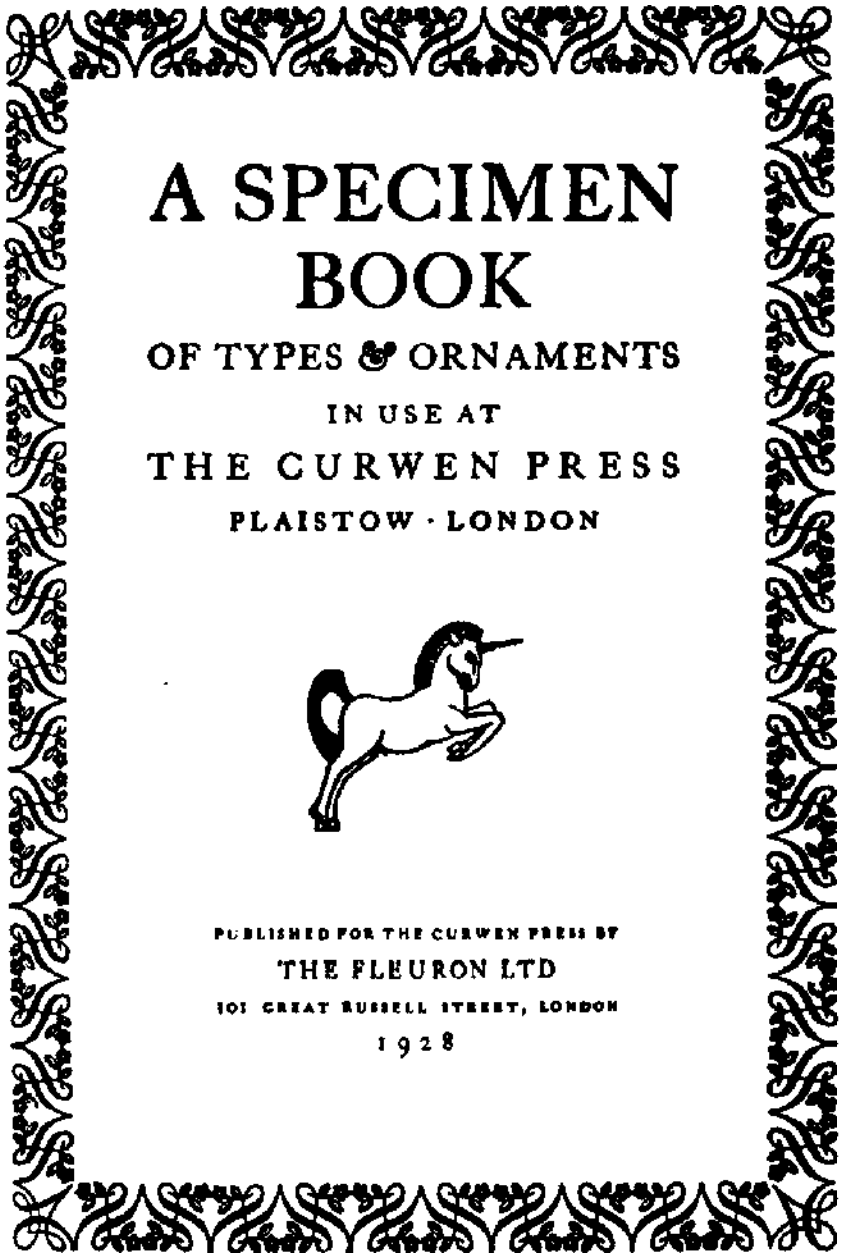
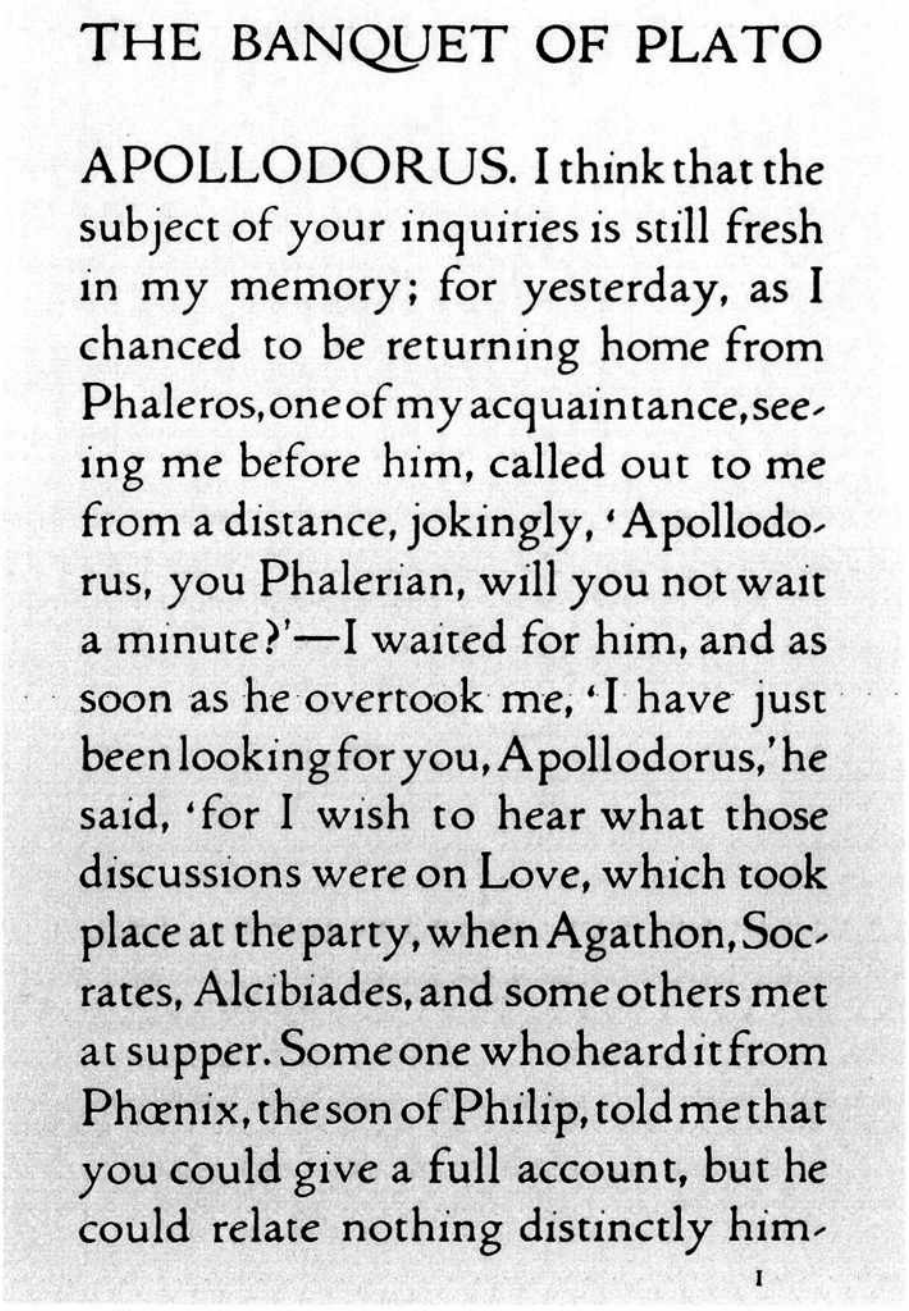


FIGURE 9. *Designed by Oliver Simon.*


THE BANQUET OF PLATO

APOLLODORUS. I think that the subject of your inquiries is still fresh in my memory; for yesterday, as I chanced to be returning home from Phaleros, one of my acquaintance, seeing me before him, called out to me from a distance, jokingly, 'Apollodorus, you Phalerian, will you not wait a minute?'—I waited for him, and as soon as he overtook me, 'I have just been looking for you, Apollodorus,' he said, 'for I wish to hear what those discussions were on Love, which took place at the party, when Agathon, Socrates, Alcibiades, and some others met at supper. Some one who heard it from Phœnix, the son of Philip, told me that you could give a full account, but he could relate nothing distinctly him-

1

FIGURE 10. *Designed by Rogers for the Riverside Press in Cambridge, Mass., 1908 and set in Montaigne type.*

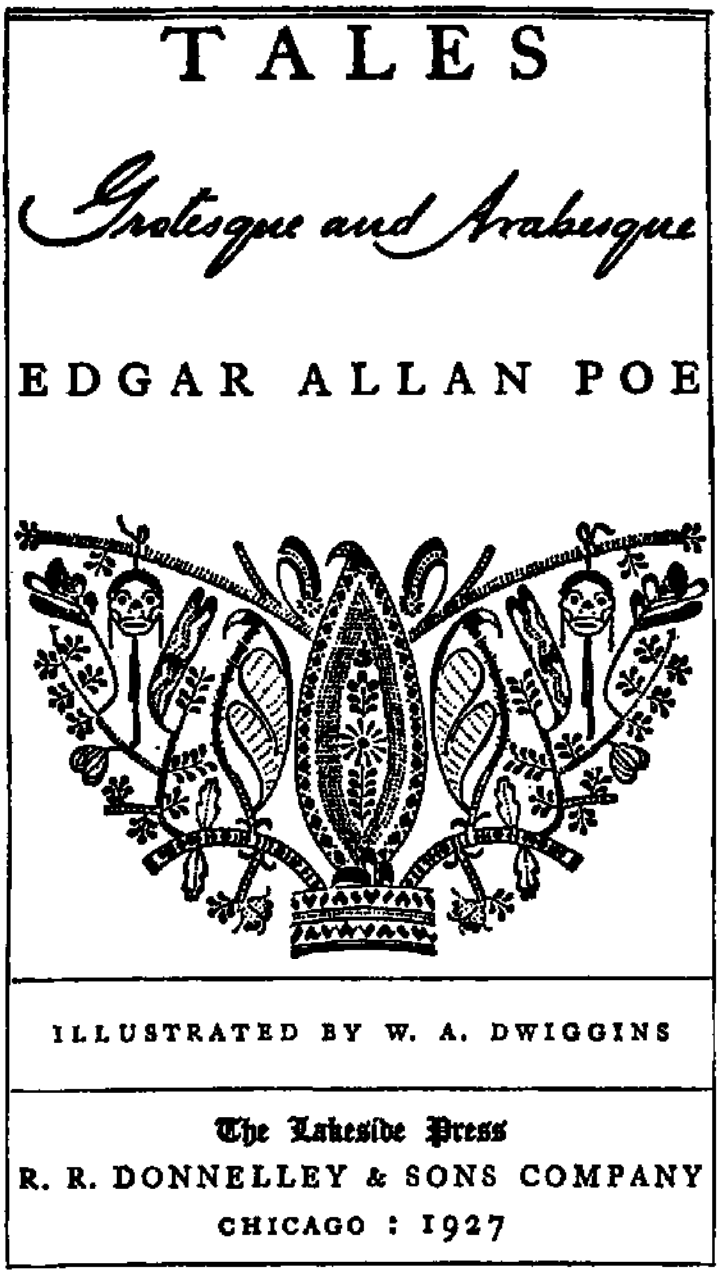


FIGURE 11. *Title page designed by William Addison Dwiggins.*

Men of Letters

OF THE BRITISH ISLES

PORTRAIT MEDALLIONS FROM THE LIFE
BY THEODORE SPICER-SIMSON
WITH CRITICAL ESSAYS BY
STUART P. SHERMAN
AND A PREFACE
BY G. F. HILL

NEW YORK
WILLIAM EDWIN RUDGE
1924

FIGURE 12. *William Edwin Rudge imprint, designed by Bruce Rogers and set in Garamond Roman.*

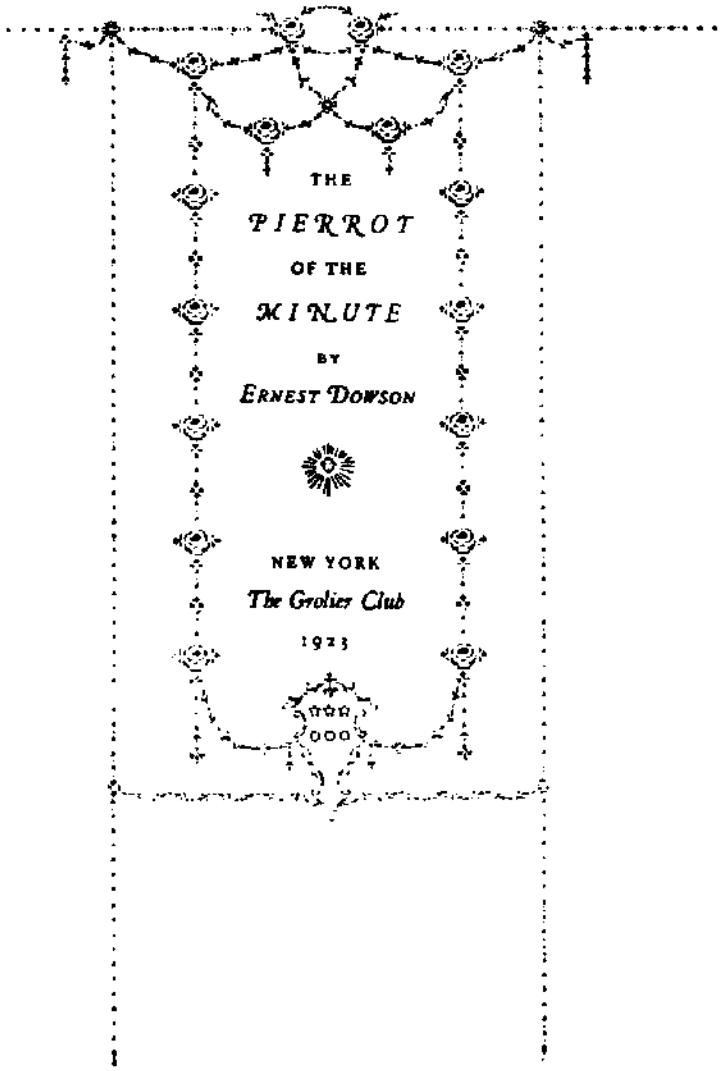


FIGURE 13. *Printed by William Edwin Rudge for the Grolier Club.*

The Germanies

Leipzig remained the center of German printing until 1945, although it was quantitatively overtaken by Berlin early in this century, while Frankfurt am Main, Stuttgart, Munich, and Vienna also continued to hold leading positions. Many of the great publishing firms such as F. A. Brockhaus and B. G. Teubner of Leipzig had their own printing plants. The former is best known for its encyclopedia, still appearing in new editions from the present Wiesbaden office; the latter, now in Stuttgart, for the continuing *Biblioteca scriptorum graecorum et latinorum*. There are still totally unrelated Leipzig offices, state-owned by the German Democratic Republic, carrying the names of Brockhaus and Teubner, a situation which has also existed with several other major German publishers since 1945. Joseph Meyer's Bibliographisches Institut (founded in Gotha in 1826, moved to Leipzig in 1874, and now in Mannheim) issued and still issues the rival to the Brockhaus, *Meyers enzyklopädisches Lexikon* (formerly *Meyers Konversations-Lexikon*). The Catholic-oriented encyclopedia, *Der grosse Herder*, and other basic Catholic reference works come from the firm founded in Meersburg on Lake Constance by Bartholomäus Herder in 1801, moved to its present home in Freiburg im Breisgau in 1810. Anton Philip Reclam founded the Verlag Philip Reclam jun. in Leipzig in 1828, moved to Stuttgart after World War II, and began the first and still most successful series of "pocket books," *Reclams Universal-Bibliothek*, in 1867.

The firm of J. J. Weber was founded in 1834 in Leipzig and had a large corps of wood engravers, especially for the *Illustrierte Zeitung* (founded 1843, the same year as *L'Illustration*, 1 year after *The Illustrated London News*). Carl Berend Lorck, a Dane who learned printing in Leipzig, a partner of Weber and cofounder of the *Illustrierte Zeitung*, was a major figure in 19th-century German printing. In 1856 he acquired the Niessche Buchdruckerei und Schriftgiesserei and sold it in 1868 to Wilhelm Eduard Drugulin, whose printing firm (later Haag-Drugulin) had an important role in the reform of German printing in the 1880s. Franz Otto Spamer established a publishing house in Leipzig in 1847 and the Spamersche Buchdruckerei in 1877, expanded to one of the largest printing houses in Europe by Josef Petersmann after he acquired the business in 1891. Carl Gottlieb Roder's firm established in 1846 in Leipzig specialized in offset printing and music, as did Oscar Brandstetter, who set up his business in Leipzig in 1880 on the foundation of Friedrich Wilhelm Garbrecht's Notenstich- und graphische Anstalt (1862). In 1877 Leopold Ullstein established the printing firm which carries his name and soon became the largest in Germany. The Propyläen-Verlag (1919) is an outgrowth of the Ullstein enterprises.

In the late 19th and the 20th centuries there have been substantial contributions to the art of printing in the Germanies. A forerunner was the bibliophilic diplomat Eduard Grisebach, who issued some of his own works in tasteful format in Vienna from 1873 to 1875. The publishers Velhagen and Klasing in Bielefeld followed suit with series of "Ausgaben für Bücherfreunde" and "Ausgaben der Kabinetsstücke" in the period 1876–1880, printed by Drugulin. About the same time the so-called Munich Renaissance began with the Munich Arts and Crafts ("Kunstge-

werbe") exhibition of 1876. Publishers such as Knorr and Hirth and Max Huttler sought to return to the simple beauty exemplified in the German renaissance of the 15th and 16th centuries. The art periodical *Pan* (1895–1899) began to appear under the editorship of Julius Meier-Graefe and Otto Julius Bierbaum, with the collaboration of leading authors and artists, among them Harry Graf Kessler, later to found the Cranach-Presse. Eugen Diederichs established his press first with the imprint of Florence and Leipzig and moved it to Jena in 1904. Emil Rudolf Weiss, later to create the roman, Fraktur, and gothic types known by his name; and Fritz Helmuth Ehmcke, designer of types, books, and bindings, were the artists responsible for the external form of Diederichs's books.

In 1899 Alfred Walter Heymel, Rudolf Alexander Schröder, and Otto Julius Bierbaum founded the periodical *Insel*, the real impetus for the renaissance of the book in Germany. Weiss and Heinrich Vogeler were art advisers, and Drugulin printed the text. The actual beginning of the Insel-Verlag came in 1905 when Carl Ernst Poeschel (1874–1944) and Anton Kippenberg established it as a book publishing firm. Poeschel left in 1906 to take over his father's printing firm, Poeschel and Trepte, in Leipzig and make it one of the leading printers, qualitatively speaking, in Germany. The Insel-Verlag is distinguished for its handsome editions of German classics, facsimiles (the *Manessische Liederhandschrift*, 1926), and, particularly, the inexpensive and attractive *Insel-Bucherei*. Leading English typographers and artists such as Emery Walker, Eric Gill, and Edward Johnston collaborated in the design of Insel books.

If Poeschel had the strongest influence in modern Germany on the improvement of the finished book, it was Karl Klingspor (1868–1950) who was the leading figure in the field of type design as director of the family business in Offenbach am Main, the Gebrüder Klingspor Schriftgiesserei. Type designers such as Otto Eckmann, Peter Behrens, Walter Tiemann, Otto Hupp, and Rudolf Koch created some of the finest typefaces of our time for Klingspor. (See Figures 17 and 18.) Keepsakes and calendars issued by the firm demonstrated type and design and are much sought after by collectors of fine printing. Other foundries followed similar policies. Weiss and Paul Renner served the Bauer'sche Giesserei in Frankfurt. (See Figure 19.) D. Stempel A.G. in Frankfurt, and H. Berthold A.G. in Berlin have also made substantial contributions to typographical art. (See Figure 20.)

The so-called New Typography, closely related to abstract painting, had its chief proponents in Jan Tschichold and E. Lissitaky of the U.S.S.R. The basic concept is one of movement rather than symmetry, supported by the notion that much traditional ornament is superfluous.

One of the most curious phenomena in German printing has been the atavistic dedication to Fraktur. In 1853 the C. G. Schoppe foundry in Berlin even brought out a fantastic letter of which the upper part was roman, the lower Fraktur. But the death knell of Fraktur was not finally sounded until January 3, 1941, when the National Socialist government's typographical advisers announced the astounding discovery that Fraktur was actually a "Schwabacher-Judenletter," hence unusable for the Thousand-Year Reich.

Private presses in Germany have thrived to a degree second only to those in

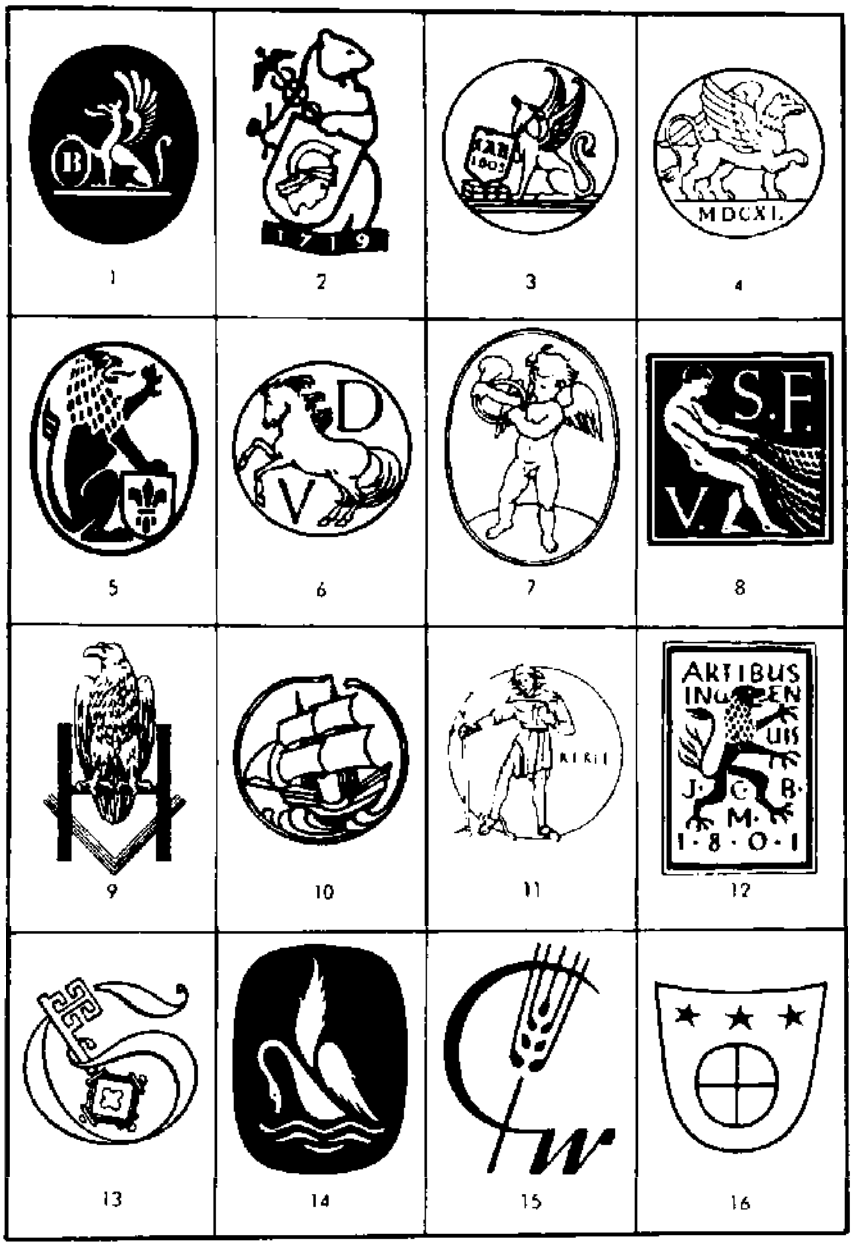


FIGURE 14. *Modern German publishers' devices: (1) Beck'sche Verlagsbuchhandlung (F. H. Ehmcke); (2) Breitkopf und Härtel (H. M. Tibor); (3) F. A. Brockhaus (A. Hildebrandt); (4) Cotta'sche Buchhandlung Nachfolger (C. Keidel); (5) Eugen Diederichs (F. H. Ehmcke); (6) Droemersche Verlagsanstalt (E. Preetorius); (7) Engelhornverlag (P. Renner); (8) S. Fischer (by E. R. Weiss after a design by W. Tiemann); (9) Hiersemann (K. Stratil); (10) Insel-Verlag (P. Behrens); (11) Kerle (Ruth Schaumann); (12) J. C. B. Mohr (R. Koch); (13) Schünemann (Magda Koll); (14) Schwann-Verlag (Ed. Ege); (15) Westermann (Boehland); (16) Rainer Wunderlich-Leins (W. Brudi).*

English-speaking countries. In 1907 Poeschel and Tiemann established their Janus-Presse, which used for its five imprints types designed by the two men on the basis of Renaissance roman. In the same year Grand Duke Ernst Ludwig of Hessia estab-

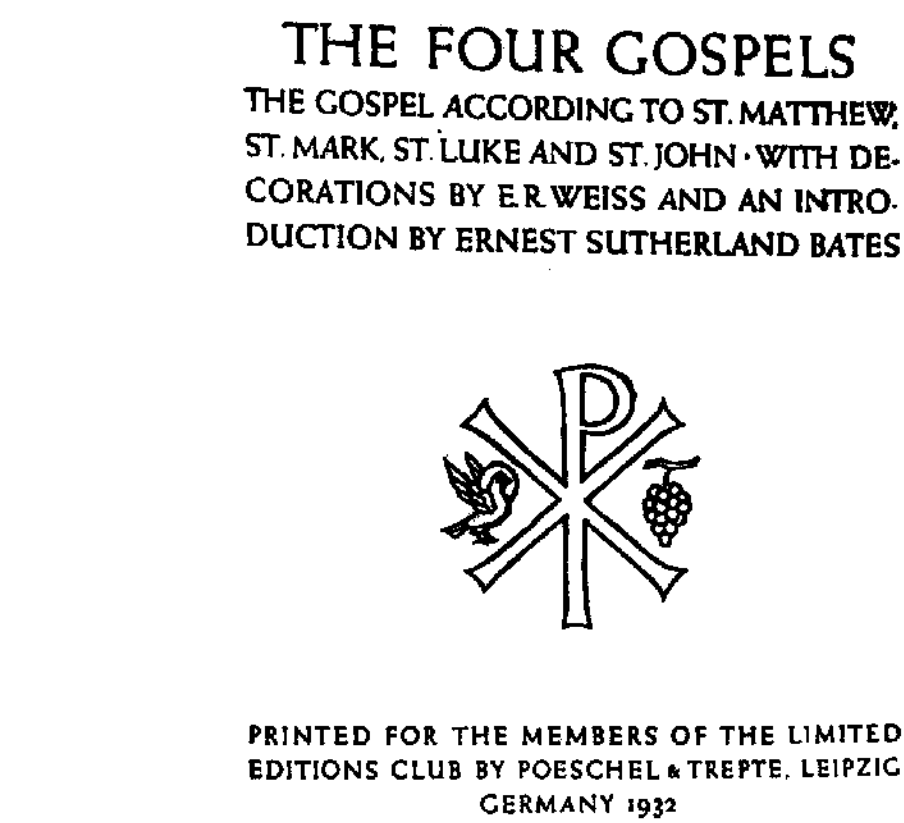
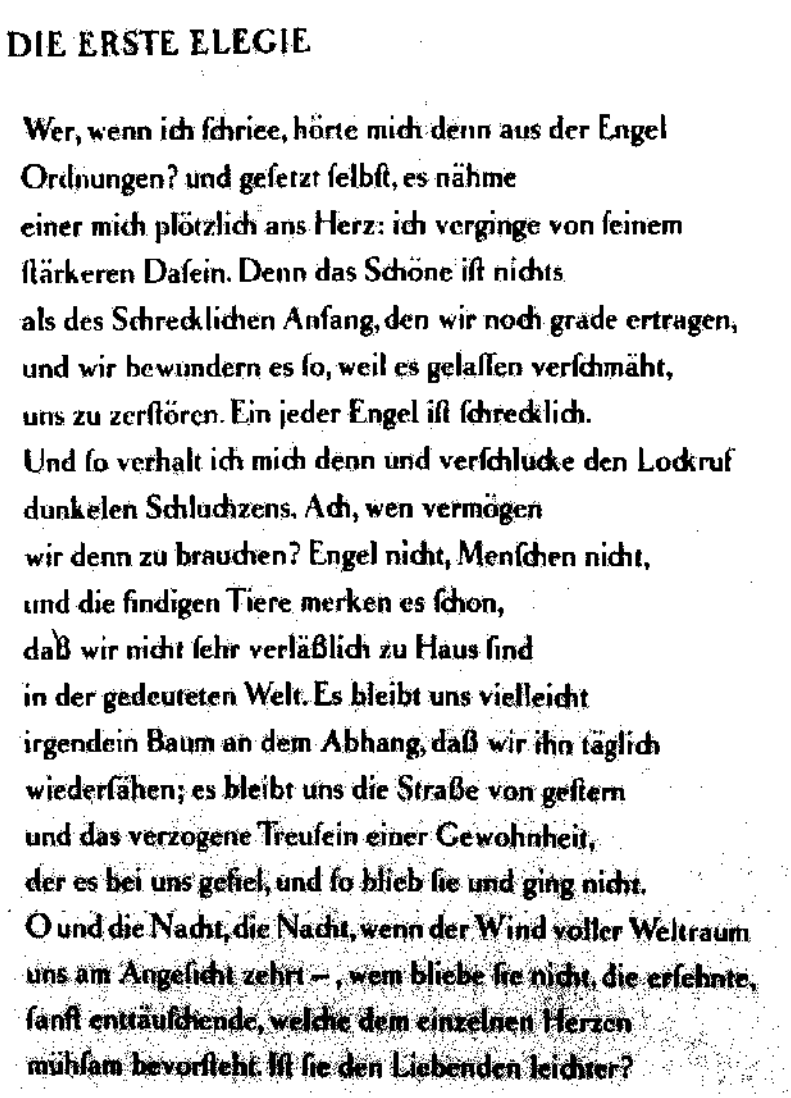


FIGURE 15. *Weiss Roman from the Bauer'sche Schriftgiesserei in a Poeschel and Trepte imprint.*

lished the Ernst Ludwig-Presse in Darmstadt under the direction of Friedrich Wilhelm Kleukens, whose own typefaces were used for its imprints. Kleukens's brother Christian Heinrich was compositor and pressman and took over the full direction in 1914. (See Figure 21.) Later Christian Heinrich and others founded the Kleukens-Presse in Frankfurt, which operated until 1923. The Bremer Presse was established in Bremen in 1911 by Ludwig Wolde and Willi Wiegand, the latter as supervisor of printing, with collaboration of Hugo von Hofmannsthal, Rudolf Alexander Schröder, and Rudolf Borchardt. Its first book appeared in 1913. The publishing organization developed in 1922 in Munich used a power press but continued to have hand composition. After 1918 the noted calligrapher Anna Simons, a student of Edward Johnston, worked with the Bremer Presse. Frieda Thiersch operated the Bremer Presse bindery. In 1913 Harry Graf Kessler began the Cranach-Presse using a roman designed by Edward P. Prince under the direction of Emery Walker, a cursive from drawings by Edward Johnston, and a gothic modeled on the Mainz Psalter of 1457. (See Figure 22.) Kessler had a paper mill in Monval near Marly, with Aristide Maillol and his nephew Gaspard. Maillol, Edward Gordon Craig, Eric Gill, and Renée Sintenis were some of the illustrators for the Bremer Presse. Edward Wilhelm Tieffenbach started his Officina Serpentis in Berlin-Steglitz in 1911, using imported types and also a new one modeled on the Schöffer Bible type of



DIE ERSTE ELEGIE

Wer, wenn ich ſchriee, hörte mich denn aus der Engel
Ordnungen? und geſetzt ſelbſt, es nähme
einer mich plötzlich ans Herz: ich verginge von ſeinem
ſtärkeren Daſein. Denn das Schöne iſt nichts
als des Schrecklichen Anfang, den wir noch grade ertragen,
und wir bewundern es ſo, weil es gelaſſen verſchmäht,
uns zu zerſtören. Ein jeder Engel iſt ſchrecklich.
Und ſo verhalt ich mich denn und verſchlucke den Lockruf
dunkelen Schluchzens. Ach, wen vermögen
wir denn zu brauchen? Engel nicht, Menſchen nicht,
und die findigen Tiere merken es ſchon,
daß wir nicht ſehr verläßlich zu Haus ſind
in der gedeuteten Welt. Es bleibt uns vielleicht
irgendein Baum an dem Abhang, daß wir ihn täglich
wiederſähen; es bleibt uns die Straße von geſtern
und das verzogene Treuſein einer Gewohnheit,
der es bei uns gefiel, und ſo blieb ſie und ging nicht.
O und die Nacht, die Nacht, wenn der Wind voller Weltraum
uns am Angeſicht zehrt –, wem bliebe ſie nicht, die erſehnte,
ſanft enttäuſchende, welche dem einzelnen Herzen
mühſam bevorſteht. Iſt ſie den Liebenden leichter?

FIGURE 16. *Rainer Maria Rilke,* Duineser Elegien *(Insel-Verlag, Leipzig, 1923), designed by C. E. Poeschel and set in Winckelmann Roman.*

1462 as developed by Creussner and Koberger. Fritz Helmut Ehmcke founded his Rupprecht-Presse in Munich in 1914 and used his own typefaces.

Many German publishers were inspired at least in part by the work of the private presses to give more attention to typography, design, and illustration of their products. The Tempel-Verlag in Leipzig, a consortium of several publishers, was directed by Poeschel, with Weiss as director of design. It used the Weiss-Fraktur from the Bauer'sche Giesserei. Weiss was also in charge of design for S. Fischer in Berlin. Georg Müller in Munich entrusted the physical appearance of his imprints to Paul Renner. The superior quality of books from these publishers and from publishers in English-speaking countries, particularly university presses with staff specialists for design, has inspired publishers throughout the world to adopt a similar policy.

FIGURE 17. *Title page designed by Walter Tiemann.*

Wilhelm-Klingspor-Schrift

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 1234567890

Jessen-Schrift

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 1234567890

Wallau

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 1234567890

Marathon

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 1234567890

Koch-Antiqua

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 1234567890

Neuland

ABCDEFGHIJKLMNOPQRSTUVWXYZ
1234567890

Leichte Kabel

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz 1234567890

FIGURE 18. *Typefaces designed by Rudolf Koch for the Gebrüder Klingspor, Offenbach.*

FIGURE 19. *Various sizes of Paul Renner's Futura, designed for the Bauer'sche Giesserei, Frankfurt am Main.*

Ratio-Latein 1923 F. W. Kleukens (D. Stempel AG)

Die Tradition der Schrift ist als die dauerhafteste, stillste, wirksamste Gottesanstalt anzusehen, wodurch Nationen auf Nationen, Jahrhunderte auf Jahrhunderte wirken und sich das ganze Menschengeschlecht vielleicht mit der Zeit an einer Kette brüderlicher Tradition zusammenfindet.

Ehmcke-Schwabacher 1920 F. H. Ehmcke (D. Stempel AG)

Die Schrift wurde die Trägerin des Edelsten, was in den beiden großen Sphären, der Intelligenz und der Gefühle, des forschenden Sinnes und der schaffenden Einbildungskraft, die Menschheit errungen und als eine unvergängliche Wohltat der späteren Nachwelt vererbt hat.

Palatino 1950 Hermann Zapf (D. Stempel AG)

Wir sind Schriftzeichner, Stempelschneider, Holzschneider, Schriftgießer, Setzer, Drucker und Buchbinder aus Überzeugung und aus Leidenschaft, nicht etwa, weil unsere Begabung zu dürftig wäre für andere, höhere Dinge, sondern weil für uns die höchsten Dinge in engster Beziehung dazu stehen.

Virtuosa 1952 Hermann Zapf (D. Stempel AG)

Aus reiner Anschauungslust darüber nachzusinnen, wieviel tüchtigen Händen und Köpfen das Zustandekommen eines einzigen schönen Buchstabens zu verdanken ist, das weckt mehr Gemeinschaftsgefühl als aller Redestreit der Weltverbesserer.

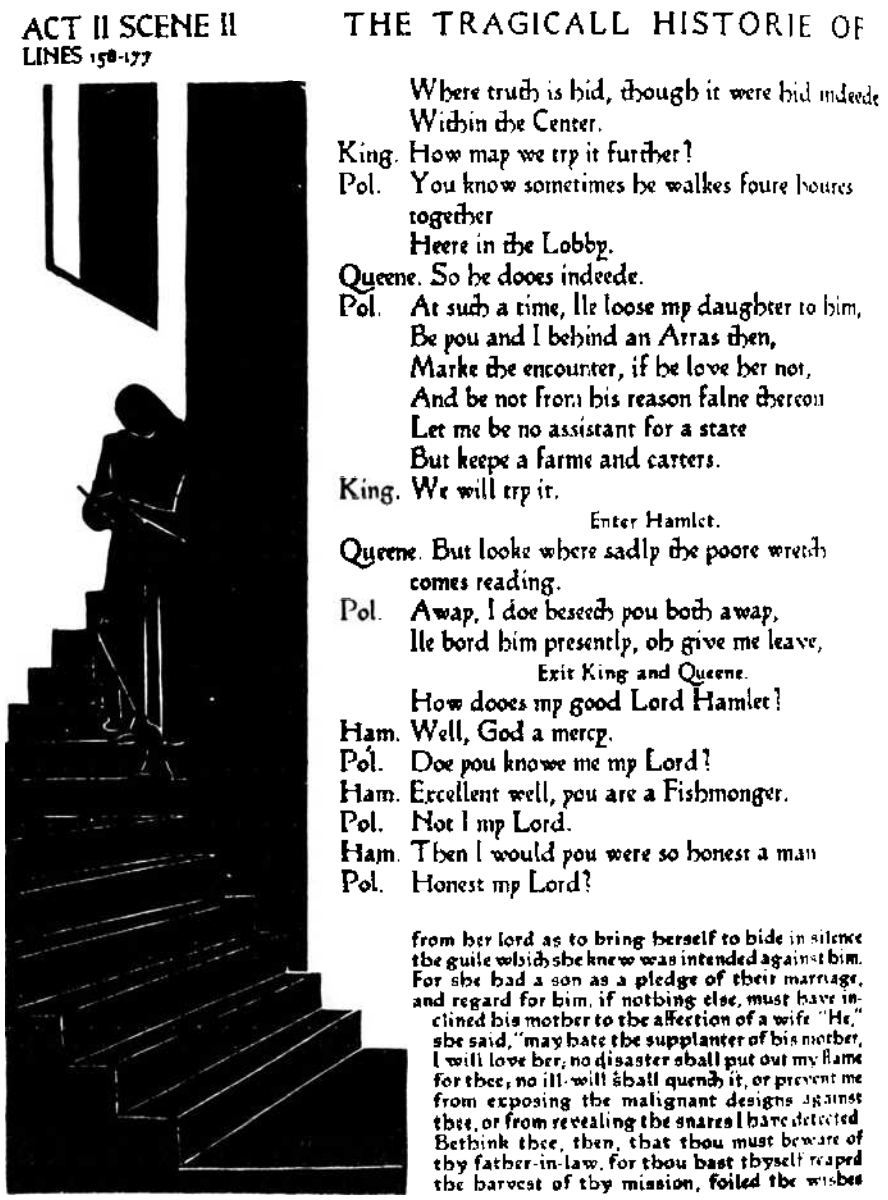
Gilgengart 1950 Hermann Zapf (D. Stempel AG)

Wohl ist es notwendig, daß der Buchdrucker unserer Zeit die Mittel seines Handwerks kennt, wohl, daß er weiß, dem Tag und dem Nächsten zu dienen; sein höchstes Ziel aber sei dieses: Jeden Gegenstand, der aus seinen Händen kommt, zu einem Sinnbild des Unendlichen zu machen, daß er ihn schön macht.

FIGURE 20. *Type designed by Fr. H. Ehmcke, Fr. W. Kleukens, and Hermann Zapf for D. Stempel A.G., the well-known typefoundry of Frankfurt am Main.*

Arphaxad, der Meder König, hatte viel land und leute unter sich bracht, und bauete eine grosse, gewaltige Stadt; die nannte er Ekbatana. Ihre Mauren machte er aus eitel Werkstücken, siebenzig Ellen hoch und dreissig Ellen dicke. Ihre Türme aber machte er hundert Ellen hoch und zwanzig Ellen dicke ins Gevierte. Und der Stadt Tore machte er so hoch als Türme. Und trotzete auf seine Macht und grosse Heereskraft. ¶ Nebukadnezar aber, der König von Assyrien, regierte in der grossen Stadt Ninive, und stritt im zwölften Jahr seines Königreichs wider den Arphaxad. Und die Völker, die am Wasser Euphrates, Tigris und Hydaspes wohneten, halfen ihm; und schlug ihn im grossen Feld, Ragau genannt, welches vor Zeiten gewesen war Ariochs, des Königes von Ellasar. ¶ Da ward das Reich Nebukadnezars mächtig, und sein Herz stolz. Und sandte Botschaften zu allen, die da wohneten in Cilicien, Damaskus, auf dem Libanon, Karmel und in Kedar; auch zu denen in Galiläa und auf dem grossen Felde Esdrelom; und zu allen, die da waren in Samaria und jenseit des Jordans bis gen Jerusalem; auch ins ganze land Gosen bis an das Gebirge des Mohrenlands. Zu denen allen sandte Nebukadnezar, der König von Assyrien, Botschaften. Aber sie schlugen's ihm alle ab, und liessen die Boten mit Schanden wieder heimziehen. Da ward der König

FIGURE 21. *Chr. H. Kleukens,* Das Buch Judith *(Ernst-Ludwig-Presse, Darmstadt, 1923) in the "Judith Type."*



ACT II SCENE II
LINES 158-177

THE TRAGICALL HISTORIE OF

Where truth is hid, though it were hid indeede
Within the Center.
King. How may we try it further?
Pol. You know sometimes he walkes foure houres together
Heere in the Lobby.
Queene. So he does indeede.
Pol. At such a time, Ile loose my daughter to him,
Be you and I behind an Arras then,
Marke the encounter, if he love her not,
And be not from his reason falne thereon
Let me be no assistant for a state
But keepe a farme and carters.
King. We will try it.

Enter Hamlet.

Queene. But looke where sadly the poore wretch comes reading.
Pol. Away, I doe beseech you both away,
Ile bord him presently, oh give me leave,

Exit King and Queene.

How does my good Lord Hamlet?
Ham. Well, God a mercy.
Pol. Do you knowe me my Lord?
Ham. Excellent well, you are a Fishmonger.
Pol. Not I my Lord.
Ham. Then I would you were so honest a man
Pol. Honest my Lord?

from her lord as to bring herself to bide in silence the guile which she knew was intended against him. For she had a son as a pledge of their marriage, and regard for him, if nothing else, must have inclined his mother to the affection of a wife "He," she said, "may hate the supplanter of his mother, I will love her; no disaster shall put out my flame for thee, no ill-will shall quench it, or prevent me from exposing the malignant designs against thee, or from revealing the snares I have detected. Bethink thee, then, that thou must beware of thy father-in-law, for thou hast thyself reaped the harvest of thy mission, foiled the wishes

52

FIGURE 22. *Shakespeare,* Hamlet *(Weimar, Cranach-Presse, 1930), with wood engravings by Edward Gorden Craig, wood-engraved title page by Eric Gill, type by Edward Johnston after that of the Fust-Schöffer Psalter of 1457, leather binding by Otto Dorfner of Weimar.*

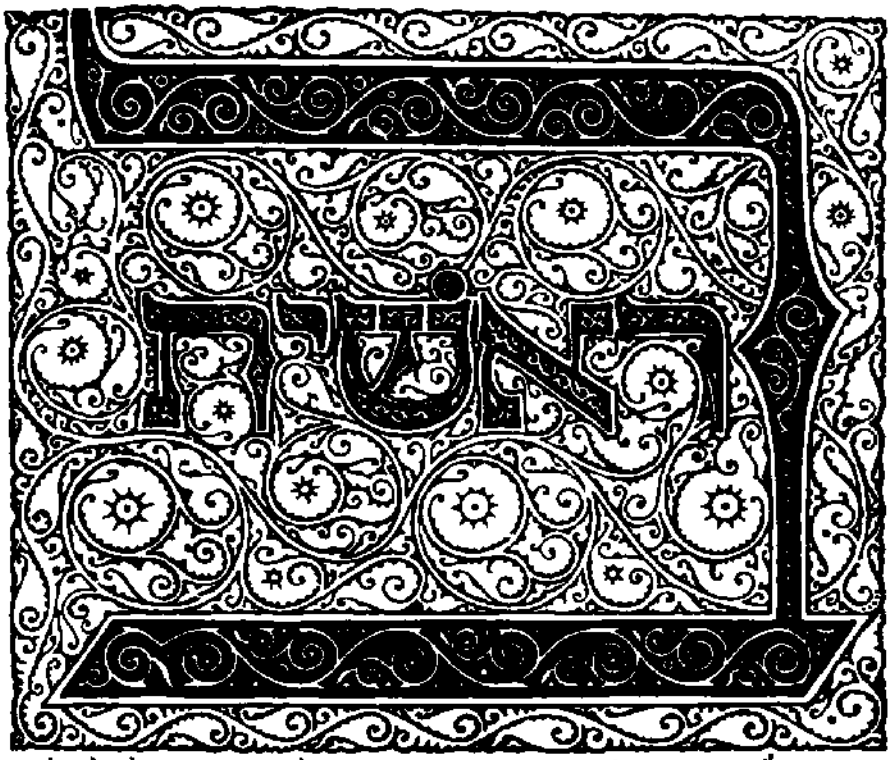


FIGURE 23. *Beginning of Soncino Bible of 1931 (B*rē'šit bara') with type and ornaments by Marcus Behmer, composed and printed in the Officina Serpentis (E. W. Tieffenbach) in Berlin-Steglitz.*

Das Geſchlecht der Merovinger, aus dem die Franken früher ihre Könige zu wählen pflegten, endete nach der gewöhnlichen Annahme mit König Hilderich, der auf Befehl des römiſchen Papſtes Stephan abgeſetzt, geſchoren und ins Kloſter geſchickt wurde. Aber obwohl es erſt mit ihm ausſtarb, ſo war es doch ſchon längſt ohne alle Lebenskraft und machte ſich nur noch durch den eiteln Königstitel bemerklich; denn die Macht und die Reichsgewalt waren in den Händen der höchſten Beamten des Palaſtes, die Hausmeier hießen, und denen die ganze Regierung oblag. Dem König war nichts übrig geblieben, als daß er, zufrieden mit dem bloßen Königsnamen, mit langem Haupthaar und ungeſchorenem Bart auf dem Throne ſaß, um die Herrſcherfigur zu ſpielen, die von überall herkommenden Geſandten anzuhören und ihnen bei ihrem Abgange die ihm eingelernten oder anbefohlenen Antworten wie aus eigener Machtvollkommenheit zu erteilen. Außer dem nutzloſen Königstitel und einem unſicheren Lebensunterhalt, den ihm der Hausmeier nach Gutdünken zumaß, beſaß er nur noch ein einziges, noch dazu ſehr wenig einträgliches Hofgut zu eigen und hatte darauf eine Wohnung und die für die notdürftigſten Dienſtleiſtungen ausreichende, gar nicht zahlreiche Dienerſchaft. Ueberall, wohin er ſich begeben mußte, fuhr er auf einem Wagen, den ein Joch Ochſen zog und ein Rinderhirte nach Bauernweiſe lenkte. So fuhr er nach dem Palaſt, ſo nach der öffentlichen Volksgemeinde, die jährlich zu des Reiches Wohlfahrt zuſammen tagte, und ſo kehrte er dann wieder nach Hauſe zurück. Die ganze Staatsverwaltung aber und alles, was im Innern oder nach außen hin anzuordnen oder auszuführen war, beſorgte der Hausmeier.

Dieſes Amt bekleidete zu der Zeit, da Hilderich abgeſetzt wurde, Pippin, der Vater König Karls, ſchon wie ein erbliches Recht.

FIGURE 24. *Einhard,* Kaiser Karls Leben *(Rupprecht-Presse, Munich, 1922), with initials by Anna Simons.*

Other Parts of Europe

Nineteenth-century printing in the Low Countries was of much the same low quality as that elsewhere in the world during the initial industrialization of printing. Just as in Germany, where the periodicals *Pan* and *Insel* were heralds of a new age, several Flemish periodicals obviously designed and illustrated in good taste began to appear: *Van nu en straks* (1894), styled by Henry van de Velde; *Vlaamsche School* (1894), styled by Jul. de Praetere, Edm. Van Offel, and Charles Doudelet from Ghent; and *Onze Konst* (1901), directed by Paul Buschmann. Book publishers in both Belgium and the Netherlands soon picked up the ideas ventilated in these journals as well as their concrete exemplification of design, illustration, and typography. While many Dutch and Belgian books of the early 20th century were handsomely illustrated, the typographical standards did not measure up to those of the 15th and 16th centuries.

In the Netherlands the poet Jan Greshoff, J. F. van Royen, and Sjoerd Hendrik de Roos were leaders in a movement to improve typographical standards. The last-named was adviser for many years to the Amsterdamer Lettergietterij vorheen N. Tetterode, and he operated a private press, the Heuvelpers, in Hilversum, for which he designed a special type. Jan van Krimpen, typographical adviser to the famous old firm of Enschedé is the other well-known name in modern Dutch typography. Especially worthy of note is the Amsterdamer Graphische School, which has produced many highly competent practitioners of the printing trades.

In Scandinavia the picture of 19th-century printing was again a reflection of the general European situation. In Sweden the number of presses increased dramatically in the last century, although mechanization was relatively slow. A major printing house was established in Stockholm in 1821 by Per Adolf Norstedt of Örebro. Later known as P. A. Norstedt and Sons, it is not only a very large plant but is also distinguished for having had Akke Kumlien as typographical adviser. Hugo and Carl Abraham Lagerström founded their printing plant in Stockholm in 1903 and were major factors in the improvement of Swedish printing by insistence on a strict classical tradition. In Gothenburg the press of Waldemar Zachrisson (1861–1914) performed similar services. Bror Zachrisson of Stockholm maintains family tradition as a leading student of typographical theory and practice. The high level of modern Swedish typography is evident from many sources, for example, the journal *Nordisk Boktryckarekonst* and the handsome and comparatively inexpensive publication of the bibliophilic society known as Sällskapet Bokvännerna.

A situation similar to that of Sweden prevailed in the Danish printing industry of the last century. In 1831 Bianco Luno set up his printing plant, an establishment that has consistently produced superior work. Significant too was the composing machine developed by Christian Sørensen which received an award at the Universal Exhibition in Paris in 1855. The work of Frederik ("Xylograph") Hendriksen (1847–1938) was of major importance. In 1888 he established the Forening for Boghaandvaerk and in 1893 the Fagskol for Boghaandvaerk in Copenhagen, directed by him for many years. Of the Danish printing firms of the present, H. H. Thiele, the Berlingske Boktrykkeri, and Gyldendal may be mentioned among the leading ones.

In 1812 Christopher Grøndahl established a printing firm in Oslo which soon acquired a position of major prestige. In 1840 Grøndahl introduced the first mechanical press in Norway. In 1838 Peter Tidemand Malling founded a press which has produced many handsome works, especially for the great publishing firm of Aschehoug. John Griegs Forlag in Bergen (1881) continues to produce work of high quality today. Fabritius and A. W. Brøgger of Oslo are other major Norwegian printing houses of today.

French book production since the Revolution followed international trends, although mechanization came to France, as continental Europe's most developed country, earlier than anywhere else except England. The great Paris typefoundry of Deberny et Peignot has introduced several superior typefaces, and Charles Peignot edited the distinguished journal *Arts et métiers graphiques*. Lyon has maintained its traditional position as the second printing city of France. Among major printing houses in Paris are the Draeger Frères, François Bernouard, and Léon

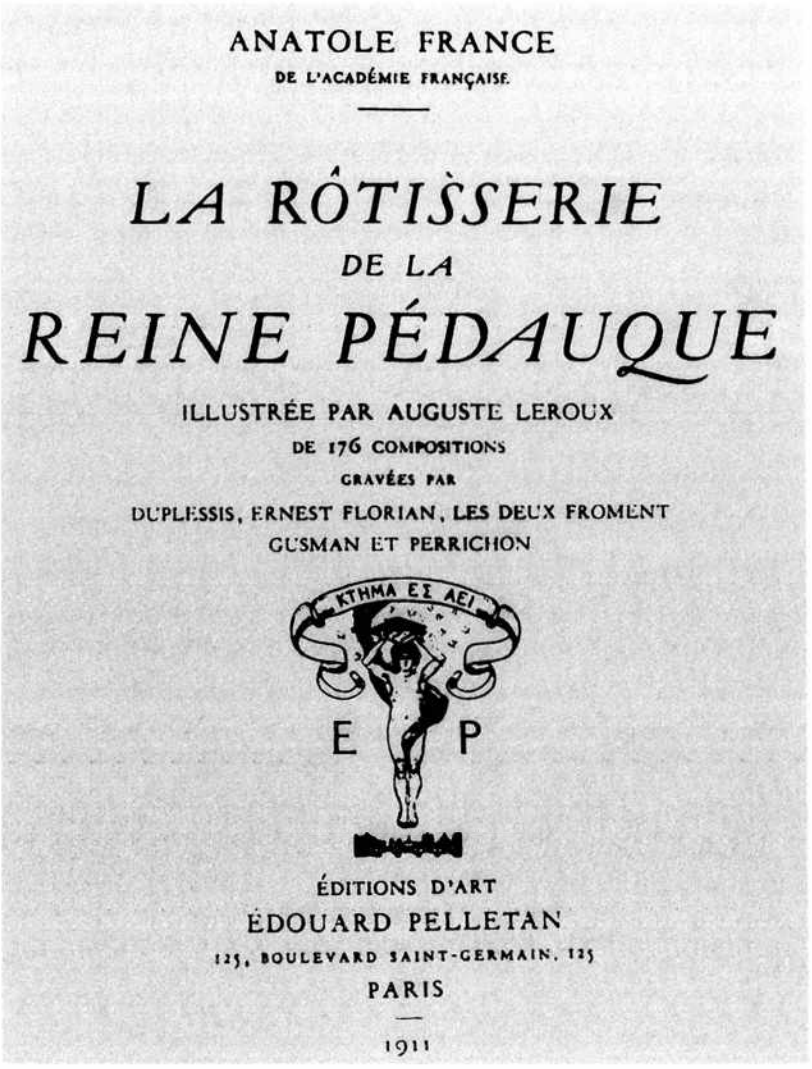


FIGURE 25. *Set in Garamond Roman and Garamond Italic (in text) and printed by the Imprimerie Nationale. The publisher's mark was designed by H. J. F. Bellery-Desfontaines.*

Pïchon; in Lyon, Marius Audin. France has maintained its position as the source off some of the finest illustrated books of our time, and outstanding artists from all countries have done much of their best work for French publishers of deluxe books.

In Italy the discouraging typographical situation of the mid-19th century was alleviated by the work of Raffaello Bertieri (1875–1942) of Milan. Editor and publisher of *Il risorgimento grafico* (Vol. 1, 1904), author of several important theoretical and historical works on printing, printer, and type designer, his work had definitive influence on modern Italian printing. The influence of Bodoni has been an abiding one in Italy in part due to Bertieri's *l'Arte di Giambattista Bodoni* (1913). Among several major printing firms in modern Italy the Istituto Geografico de Agostini in Novara may be noted for the many commissions it receives from foreign countries.

Thanks in large measure to the enthusiasm of Lenin for books and reading, book production in the Soviet Union was stepped up enormously over that of czarist Russia. The printing and publishing industry was subjected to strict rationalization, with specialized houses for various types of literature and regional houses for the various republics. The same pattern has been followed in other Communist countries, and therefore the number of publishers and printers in the U.S.S.R. and Eastern Europe in general is far smaller than elsewhere. Lenin, a broader intellect than many of his Soviet epigoni, argued that even deluxe books were not out of the scope of Bolshevik policy. Thus in the annual *Luchshie izdaniia*, the equivalent of the AIGA and other national book competitions, there are many attractively printed and illustrated books, especially in the field of juvenile literature. There is even a Society of Miniature Book Collectors, whose two-volume *Miniatiurnye knigi S.S.S.R.* (1975) represents a refined typographical tradition.

National Printing Houses

With the increasing paternalism of nearly all governments and the geometrical growth of bureaucracies, the scope of the national and provincial official printing and publishing agencies has increased enormously in the 20th century. Although governments sponsored publications or even had their own official or quasi-official presses since the 15th century, the Imprimerie Royale (*vice*, Impériale, Nationale) of France has been the prototype. A selection of U.S. Government Printing Office or British H.M.S.O. publications could form a basic library in many fields. A collector of illustrated bird and animal books would have a princely collection if he owned all the publications of the U.S. Fish and Wildlife Service and the various U.S. and Canadian state and provincial wildlife services. It is almost possible to compose a history of early printing on the basis of facsimiles of famous books issued by national libraries and national and provincial historical agencies.

The Imprimerie Nationale of France has remained essentially unchanged for three centuries, a monument to the one stable element of French politics, its bureaucracy. It prints all official documents, including such items as the *Catalogue général des livres imprimés de la Bibliothèque Nationale*. There have always been monu-

mental series with the imprint of the Imprimerie Nationale which cannot easily be produced by commercial publishers. Thus its rich stock of oriental types made it a logical printer for the *Corpus inscriptionum semiticarum*. It has preserved all its old punches, but the types in actual use are modern ones, mainly in the Didot tradition.

His (Her) Majesty's Stationery Office (H.M.S.O.) was officially established in 1786 under John Mayor as superintendent. By 1824 it had grown substantially and acquired considerable freedom in its internal operations. Over the last century and a half its publications have acquired major importance, above all as a source for English history. In addition to the Parliamentary Papers, it has issued such basic works as the reports of the Historical Manuscripts Commission, the *British and Foreign State Papers*, reports of the Royal Commission on Historical Monuments, and state archives of the Record Office. Its economic and statistical publications are voluminous. In the field of science and technology its publications range from naval architecture to cleaning and restoring antiques. H.M.S.O. has its own plant, and in recent decades its typographical advisers have been some of ablest people in the field.

United States government printing was done by contract with commercial printers, just as in the individual states (many to the present day), until 1860. Since then all public printing has been done by the Government Printing Office, and sales handled by the Superintendent of Documents. It is the largest printing plant in the United States, and its equipment is among the most sophisticated. However, the far-flung activities of the federal government have dictated the extensive use of office printing equipment by individual agencies. Furthermore, the same factors are making more and more microform publication a practical and financial necessity.

The Österreichische Staatsdruckerei in Vienna (originally K. K. Hof- und Staatsärarialdruckerei) is today somewhat more significant than national printing plants of other small countries, but from its foundation in 1804 through 1918 and even thereafter it had a distinguished history. Under Aloys Auer (ennobled as Ritter von Welsbach), director from 1841 to 1866, the plant expanded and was quite active. Its types were displayed in a Pater Noster in 608 languages in 1844 and a *Typenschau des gesamten Erdkreises* (1845). In the early years of this century the office printed some of the work of the noted calligrapher and designer Rudolf von Larisch (1856–1936) and used the Fraktur of Rudolf Junk (1880–1945). After World War I the office printed two well-known facsimiles of 15th-century manuscripts in the Austrian National Library, the Duke René of Anjou's *Livre du cuer d'amours espris* (1926) and *Das schwarze Gebetbuch des Herzogs Galeazzo Maria Sforza* (1930).

The present Staatsdruckerei der Deutschen Bundesrepublik, in Berlin, formerly the Reichsdruckerei, has ultimate roots as far back as 1540 in the Wittenberg press of Hans Weiss, called to Berlin in 1540 by the elector of Brandenburg. Its lineal ancestor is Georg Jakob Decker (1722–1799), who acquired a printing office in Berlin in 1763 and also became director of the Königliche Preussische Lotterie-Druckerei, court printer, and printer to the Preussische Akademie der Wissenschaften. The Decker firm was acquired by the state in 1877 and combined with the

Preussische Staatsdruckerei in 1879 as the Reichsdruckerei. It acquired a large stock of oriental and ancient type (e.g., cuneiform, runic, and hieroglyphic) and became a leading center for printing in languages using these types. Among some of its important works are Friedrich Lippmann and Robert Dohme, *Druckschriften des XV. bis XVIII. Jahrhunderts* (1884–1887); Karl Burger and Ernst Voullième, *Monumenta Germaniae et Italiae typographica* (1892–1896); and Freidrich Lippmann, *Kupferstiche und Holzschnitte alter Meister in Nachbildungen der Reichsdruckerei zu Berlin* (10 vols., 1887–1899). The last, known as the "Lippmannsche Atlas," came to an untimely halt, but the single leaves, known as "Reichsdrucke," have been reprinted. Numerous important types were designed for the Reichsdruckerei and cast in its foundry, and at the turn of the century there were new types in the spirit of the age of typographical reform, for example, Josef Sattler's "Nibelungen-Schrift" cast in 1897 for an edition of the *Nibelungenlied* (1904); the Neudeutsch, Borussia, and Germania of Georg Schiller, the last of which was used for the great edition of the Luther Bible in 1908; and one by Otto Hupp first used in a small but informative work on *Die Reichsdruckerei in Berlin, eine kurze Darstellung ihres Werdens und Wirkens* (1928).

Bibliophilic Societies

Since the establishment of the Roxburghe Club in London in 1812 the bibliophilic societies of Western Europe and America have issued many important books which have exemplified the highest standards of book production in their day. The long and distinguished list of Roxburghe Club publications includes some of the most sought-after books of all time, and many have had a fundamental influence on tastes and trends in the world of printing and collecting. The Grolier Club (1884) numbered Theodore Low de Vinne among its founders, and the books he printed for the members are only the first in a collection that is almost a museum of the best in American book production.

The Bannatyne Club, founded in 1822 as the Scottish equivalent of the Roxburge Club, has brought out a number of significant titles. Other British societies such as Ye Sette of Odd Volumes (1878), the Double Crown Club (1921), and the First Edition Club (1922) have performed comparable service. In the United States the Rowfant Club in Cleveland, the Caxton Club in Chicago, the Book Club of California in San Francisco, and the Zamorano Club in Los Angeles are less prolific than the Grolier Club, but many of their publications are designed and produced by the best talent in their regions. The main publication of the Rounce and Coffin Club in Los Angeles is the handlist for the annual Western Books show, a project that has done much to stimulate superior printing in the Far West in the last four decades and has also inspired the Southern Books Competition and the Midwestern Books Competition in the early 1950s.

The Société des Bibliophiles Français, founded in 1922, was the first of a number of French societies, several of which have issued or sponsored the production of fine books by the best artists and craftsmen. Among those which may be noted here

are Les Amis des Livres (1873), Les Cents Bibliophiles (1895), Société du Livre d'Art (1904), Les Amis du Livre Moderne (1908), Le Cercle Lyonnais du Livre (1919), Société des Medecins Bibliophiles (1919), Les Cent-une (1926), Société de la Gravure sur Bois Originale (1920), and Les Bibliophiles du Cornet (1929). Les Cent-une was the first French book club for ladies, and the Hroswitha Club in New York was also for ladies. It is unlikely that there will be further bibliophilic sexual segregation since the Caxton Club and the Grolier Club decided to admit both sexes in 1975 and 1976, respectively.

The Gesellschaft der Bibliophilen founded in Weimer in 1899 published handsome volumes of bibliographical and bibliophilic interest as well as the *Zeitschrift für Bücherfreunde* (1897) and a *Jahrbuch* (1899–1927). Some 30 other German bibliophilic societies subsequently came into existence, of which some of the more important are the Maximilian-Gesellschaft (1915) in Berlin, the Gesellschaft hessischer Bücherfreunde (1918) in Darmstadt, the Frankfurter Bibliophilen-Gesellschaft (1922), and the Soncino-Gesellschaft der Freunde des jüdischen Buches (1924) in Berlin. Many have issued important publications exemplifying the best in German book production. A particularly ambitious project was the Soncino Hebrew Bible of 1931–1933 (the Pentateuch only was printed before the assumption of power by Hitler), with decorations and a handsome Hebrew type by Marcus Behmer and printed in E. W. Tieffenbach's Officina Serpentis in Berlin-Steglitz.

There are comparable societies in most advanced countries of the world. The Moscow Club of Miniature Book Collectors has already been noted. The Sociedad de Cien Bibliófilos de Argentina has produced for its members a series of illustrated works, mainly in Argentine literature, which reflect typographical standards in the Southern Hemisphere comparable to the best in the Northern. Most bibliophilic societies tend to be exclusive, catering to weathy collectors and learned bibliographers. Of several exceptions a noteworthy one is the Swedish Sällskapet Bokvännerna, of which Thure Nyman is the guiding spirit. It has issued inexpensive publications, mainly on Swedish literature, printing, and book collecting, in the last three decades, as well as the periodical *Bokvännen*.

The countless facets of printing and book production in the last quarter of this century are indicative of a vigorous and thriving art, craft, and industry. There have been and will be incursions of other forms such as film, tapes, and computers. But printing with a typographical basis is here to stay in the foreseeable future.

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