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Some Conjectures about the Impact of Printing on Western Society and Thought: A Preliminary Report

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We should note the force, effect, and consequences of inventions which are nowhere more conspicuous than in those three which were unknown to the ancients, namely, printing, gunpowder, and the compass. For these three have changed the appearance and state of the whole world.—FRANCIS BACON, *Novum organum*, Aphorism 129

This paper presents portions of a work that is still in progress. It deals with “the force, effect, and consequences” of the first invention singled out by Bacon. Much has been written about how the way was paved for Gutenberg’s invention and about the problem of defining just what he did invent. There are few studies, however, of the consequences that ensued once the new process had been launched.¹ Explicit theories as to what these consequences were have not yet been framed, let alone tested or contested. To develop such theories is much easier said than done. Still, I think the effort should be made. Consequences entailed by a major transformation have to be reckoned with whether we pay attention to them or not. In one guise or another they will enter into our accounts and can best be dealt with when they do not slip in unobserved.

To dwell on the reasons why Bacon’s advice ought to be followed by others is probably less helpful than trying to follow it oneself. This

¹ The scarcity of historical treatments of this topic came to my attention when reading Marshall McLuhan’s *The Gutenberg Galaxy: The Making of Typographical Man* (Toronto, 1962). The author has deliberately jumbled his data and is unconcerned about historical context. Despite the vast literature on printing, an adequate context has not yet been supplied. A good recent selective bibliography is in W. T. Berry and H. E. Poole, *Annals of Printing A Chronological Encyclopaedia from Earliest Times to 1950* (London, 1966), pp. 287–94. More recent works include two particularly pertinent titles, i.e., J. Carter and P. Muir (eds.), *Printing and the Mind of Man: The Impact of Print on the Evolution of Western Civilization during Five Centuries* (Cambridge, 1967)—an enlarged descriptive catalogue offering four hundred-odd entries on “great books” displayed at a 1963 London exhibition—and Rudolph Hirsch, *Printing, Selling, Reading 1450–1550* (Wiesbaden, 1967)—an uneven study whose defects and merits are summarized in the *Times Literary Supplement* (Sept. 21, 1967), p. 848. There is a large monographic literature on early printers, the book trade, censorship, journalism, and other special aspects. Different portions of it have been synthesized by Lucien Febvre and H. J. Martin, *L’Apparition du livre (L’Évolution de l’humanité, Vol. XLIX [Paris, 1958])*, and by S. H. Steinberg, *Five Hundred Years of Printing* (rev. ed.; Bristol, 1961). It has not been assimilated into other historical treatments. When sections are devoted to printing in general works, the topic is segregated from related developments.

task clearly outstrips the competence of any single individual. It calls for the pooling of many talents and the writing of many books. Collaboration is difficult to obtain as long as the relevance of the topic to different fields of study remains obscure. Before aid can be enlisted, it seems necessary to develop some tentative hypotheses and to suggest how they relate to particular historical problems. This is the purpose of my work in progress, some samples of which I am offering here. Speculations that are possibly unfounded and certainly still shaky will be presented to stimulate thought and encourage further study.

I. DEFINING THE INITIAL CHANGE OF PHASE: AN INVISIBLE REVOLUTION IN THE LATE FIFTEENTH CENTURY

As you may have noted, I have already reformulated Bacon's advice by taking it to pertain, not to a single invention that is coupled with others, but rather to the launching of a new process and to a major transformation. Indecision about what is meant by the advent of printing has, I think, helped to muffle concern about its possible consequences and made them more difficult to track down. It is difficult to find out what happened in a particular Mainz workshop in the 1450's. When pursuing other inquiries, it seems almost prudent to bypass so problematic an event. This does not apply to the appearance of new occupational groups, workshops, techniques, trade networks, and products unknown anywhere in Europe before the mid-fifteenth century and found in every regional center by the early sixteenth century. To pass by all that when dealing with other problems would seem to be incautious. For this reason, among others, I am skipping over the perfection of a new process for printing with movable types and will take as my point of departure, instead, the large-scale utilization of this process.

By the advent of printing, then, I mean the establishment of presses in major urban centers throughout Europe during an interval that coincides, roughly, with the era of incunabula.² So few studies have been devoted to this point of departure that no conventional label has yet been attached to it. One might talk about a basic change in a mode of production, or a communications revolution, or (most explicitly) a shift from scribal to typographical culture. Whatever label is used, it should be understood to cover a large cluster of relatively simultaneous, closely interrelated changes, each of which needs closer study and more explicit treatment—as the following quick sketch may suggest.

² That the era of incunabula should be extended to encompass the first few decades of the sixteenth century is persuasively argued by Steinberg. By subdividing the first century of printing into successive phases, Steinberg brings out the initial transformation more clearly than do the other authorities cited above.

First of all, the marked increase in the output of books and the more drastic reduction in the number of man-hours required to turn them out deserve stronger emphasis. At present there is a tendency to think of a steady increase in book production during the last century of scribal culture followed by a steady increase during the first century of printing. An evolutionary model of change is applied to a situation that seems to call for a revolutionary one. A hard-working copyist turned out two books in little less than a year. An average edition of an early printed book ranged from two hundred to one thousand copies. Chaucer's clerk longed for twenty books to fill his shelf; ten copyists had to be recruited to serve each such clerk down to the 1450's, whereas one printer was serving twenty before 1500.³ The point is that references to "enormous numbers" of scribal books are deceptive.⁴ With regard to quantitative output, an abrupt change, not a gradual one, probably occurred.

Similarly, qualitative changes affecting the nature of the book itself—its format, arrangement of contents, page layouts, and illustrations—need to be underlined. That late manuscripts resembled early incunabula, that scribes and printers copied each others' products for several decades,⁵ should not distract attention from changes that occurred when the single text was replaced by a first edition and the manuscript became "copy" that was edited and processed before duplication. Even before 1500 such changes were being registered. Title pages and running heads

³ I have simplified figures offered by D. McMurtrie, *The Book* (Oxford, 1943), p. 214, as to 268 printers in Venice who turned out two million volumes between 1481–1501 and those given by M. Plant, *The English Book Trade* (London, 1939), p. 22, concerning the ten thousand copyists at work in regions near Paris and Orleans during the fifteenth century in order to contrast very roughly the probable output of a major center of scribal book production with that of a main early printing center.

⁴ See, e.g., remarks by P. O. Kristeller, *Renaissance Thought*, Vol. I: *The Classic, Scholastic and Humanist Strains* (New York, 1961), pp. 14–15. The establishment of paper mills probably did *not* produce an effect "similar" to that of the printing press. Paper could quicken the pace of private, official, and commercial correspondence and enable more men-of-letters to be their own scribes. But, since it still took almost a year for a professional scribe to turn out two books, a relatively sluggish increase in the output of books probably occurred.

⁵ Curt F. Bühler, *The Fifteenth Century Book The Scribes The Printers The Decorators* (Philadelphia, 1960), describes the late fifteenth century as a "no-man's-land" between written and printed books (p. 16) and proves that most late manuscripts are copies of printed books. This temporary physical resemblance makes it more difficult to see how incunabula differed from late manuscripts and more important to emphasize that two fundamentally disparate products were involved. A detailed, vivid account of this disparity is given by E. P. Goldschmidt, *Medieval Texts and Their First Appearance in Print* (Bibliographical Society Publication [London, 1943]), pp. 89 ff.

were becoming common, and texts were being illustrated by “exactly repeatable pictorial statements” designed by woodcarvers and engravers.⁶ Not only were products from artisan workshops introduced into scholarly texts, but the new mode of book production itself brought metalworkers and merchants into contact with schoolmen. A most interesting study might be devoted to a comparison of the talents and skills mobilized within printers’ workshops with those previously employed in scriptoria.

Other changes associated with the shift from a retail trade to a wholesale industry also need to be explored. Early crises of overproduction and drives to tap new markets could be contrasted with the incapacity of manuscript dealers and copyists to supply existing demands. The movement of centers of book production from university towns and patrician villas to commercial centers, the organization of new trade networks and fairs, competition over lucrative privileges and monopolies, and restraints imposed by new official controls have all been covered in special accounts.⁷ But the implications of such changes need to be spelled out. If it is true that the main bulk of book production was taken out of the hands of churchmen, who ran most large scriptoria, and was lodged in those of early capitalists, who established printing plants, this is surely worth spelling out. If such a statement will not hold up or merely needs to be qualified, then this too is something we need to be told.

We also need to hear more about the job printing that accompanied book-printing.⁸ It lent itself to commercial advertising, official propaganda, seditious agitation, and bureaucratic red tape as no scribal procedure ever had. A new form of silent publicity enabled printers not only to advertise their own wares but also to contribute to, and profit from, the expansion of other commercial enterprises. What effects did the appearance of new advertising techniques have on commerce and industry? Possibly some answers to this question are known. Probably others can still be found. Many other aspects of job printing and the changes it entailed clearly need further study. The calendars and indulgences issued from the Mainz workshops of Gutenberg and Fust, for example, warrant at least as much attention as the more celebrated Bibles. Indeed the mass production of indulgences⁹ illustrates very

⁶ See William Ivins, *Prints and Visual Communication* (Cambridge, Mass., 1953). Ivins persuasively describes the revolutionary effects produced by woodcuts and engravings but underestimates (in my view) those produced by typography. His study is nonetheless invaluable.

⁷ Much of this is covered in detail by Febvre and Martin. See chap. vi.

⁸ Although Steinberg, p. 22, stresses this aspect of Gutenberg’s invention as the most far reaching, it is underplayed in most accounts.

⁹ *Ibid.*, p. 139. On an interesting connection between the fall of Constantinople

neatly the sort of change that often goes overlooked so that its consequences are more difficult to reckon with than perhaps they need be.

In contrast to the changes sketched above, those that were associated with the consumption of new printed products are more intangible, indirect, and difficult to handle. A large margin for uncertainty must be left when dealing with such changes. Many of them—those associated with the spread of literacy, for example—also have to be left for later discussion, since prolonged transformations were entailed. Yet relatively abrupt changes belonging to my original cluster *were* experienced by already literate sectors. More thought might be given to the social composition of these sectors. Although rigorous analysis is impossible on the basis of scribal records, useful guesses could be made. Did printing at first serve an urban patriciate as a “divine art” or more humble folk as a “poor man’s friend”? Since it was described in both ways by contemporaries, possibly it served in both ways. If we think about Roman slaves or later parish priests, lay clerks, and notaries, it seems that literacy was by no means congruent with elite social status. The new presses, therefore, probably did not *gradually* make available to low-born men what had previously been restricted to the high born. Instead, changes in mental habits and attitudes entailed by access to printed materials affected a wide social spectrum from the outset. In fifteenth-century England, for example, mercers and scribes engaged in a manuscript book trade were already catering to the needs of lowly bakers and merchants as well as to those of lawyers, aldermen, and knights.¹⁰ The new mode of book production also left many unlettered nobles and squires untouched for some time.

While postponing until later conjectures about social and psychological transformations, certain points should be noted here. One must distinguish, as Altick suggests, between literacy and habitual book-reading. Even down to the present, by no means all who master the written word become members of a book-reading public.¹¹ Learning *to read* is different, moreover, from learning *by reading*. Reliance on apprenticeship training, oral communication, and special mnemonic

and Gutenberg’s indulgences (the first dated printed products), see McMurtrie, p. 149. The first known piece of printing in England was also an indulgence, issued by Caxton for an abbot in 1476.

¹⁰ E. F. Jacob, *The Fifteenth Century 1399–1485 (Oxford History of England [Oxford, 1961])*, pp. 663–67. See also J. W. Adamson, “The Extent of Literacy in England in the Fifteenth and Sixteenth Centuries: Notes and Conjectures,” *Library*, X (Sept. 1929), 163–93; H. S. Bennett, *English Books and Readers 1475–1557* (Cambridge, 1952), p. 20. Continental developments are noted by Hirsch, pp. 147–53.

¹¹ R. Altick, *The English Common Reader. A Social History of the Mass Reading Public, 1800–1900* (Chicago, 1963), p. 31.

devices had gone together with mastering letters in the age of scribes. After the advent of printing, however, learning by doing became more sharply distinguished from learning by reading, while the role played by hearsay and memory arts diminished. Since they affected the transmission of all forms of knowledge, such changes seem relevant to historical inquiries of every kind. Issues pertaining to shifts in book-reading habits go far beyond the special concerns of literary historians. They have a direct bearing on economic, legal, technological, and political developments as well. Last but not least, the most important members of the new book-reading public in the age of incunabula are most often overlooked. They belonged to the new occupational groups created by the new mode of production. Those who processed texts or presided over the new presses were the first to read the products that came off them. In particular, early scholar-printers themselves registered most forcefully the consequences of access to printed materials. It is possibly because of this kind of "feedback" that the infant industry was so rapidly modernized. As early as the 1480's, "modern" workshops had already displaced "medieval" ones, and several "large capitalist firms" had already been launched.¹²

II. RELATING THE TYPOGRAPHICAL REVOLUTION TO OTHER DEVELOPMENTS

Granted that some sort of revolution did occur during the late fifteenth century. How did this affect other historical developments? Since the consequences of printing have not been thoroughly explored, guidance is hard to come by. Most conventional surveys stop short after a few remarks about the wider dissemination of humanist tomes or Protestant tracts. Several helpful suggestions—about the effects of standardization on scholarship and science, for example—are offered in works devoted to the era of the Renaissance or the history of science. By and large, the effects of the new process are vaguely implied rather than explicitly defined and are also drastically minimized. One example may illustrate this point. During the first centuries of printing, old texts were duplicated more rapidly than new ones. On this basis we are told that "printing did not speed up the adoption of new theories."¹³ But where did these new theories come from? Must we invoke some spirit of the times, or is it possible that an increase in the output of old texts contributed to the formulation of new theories? Maybe other features that distinguished the new mode of book production from the old one also contributed to such theories. We need to take stock of these features before we can relate the advent of printing to other historical developments.

¹² Febvre and Martin, p. 193.

¹³ *Ibid.*, pp. 420–21.

I have found it useful, in any case, to start taking stock by following up clues contained in special studies on printing. After singling out certain features that seemed peculiar to typography, I held them in mind while passing in review various historical developments. Relationships emerged that had not occurred to me before, and some possible solutions to old puzzles were suggested. Conjectures based on this approach may be sampled below under headings that indicate my main lines of inquiry.

A. A Closer Look at Wide Dissemination: Various Effects Produced by Increased Output

Most references to wide dissemination are too fleeting to make clear the specific effects of an increased supply of texts directed at different markets. In particular they fail to make clear how patterns of consumption were affected by increased production. Here the term “dissemination” is sufficiently inappropriate to be distracting. Some mention of cross-fertilization or cross-cultural interchange should be included in surveys or summaries. More copies of one given text, for instance, were “spread, dispersed, or scattered” by the issue of a printed edition.¹⁴ For the individual book-reader, however, different texts, which were previously dispersed and scattered, were also brought closer together. In some regions, printers produced more scholarly texts than they could sell and flooded local markets.¹⁵ In all regions, a given purchaser could buy more books at lower cost and bring them into his study or library. In this way, the printer provided the clerk with a richer, more varied literary diet than had been provided by the scribe. To consult different books it was no longer so essential to be a wandering scholar. Successive generations of sedentary scholars were less apt to be engrossed by a single text and to expend their energies in elaborating on it. The era of the glossator and commentator came to an end, and a new “era of intense cross referencing between one book and another”¹⁶ began. More abundantly stocked bookshelves increased opportunities to consult and compare different texts and, thus, also made more probable the formation of new intellectual combinations and permutations. Viewed in this

¹⁴Since this enabled scattered readers to consult the same book, it may be regarded as an aspect of standardization which is discussed in the next section.

¹⁵Early crises of overproduction of humanist works are noted by Denys Hay, “Literature, the Printed Book,” in G. R. Elton (ed.), *The New Cambridge Modern History* (Cambridge, 1958), II, 365. The failure of printers to assess their markets shrewdly, which accounts for some of these crises, is noted by Bühler, pp. 59–61. Inadequate distribution networks at first were largely responsible. Zainer’s firm, e.g., turned out 36,000 books when the population of Augsburg was half that number (Bühler, p. 56).

¹⁶Hay, p. 366. By the mid-sixteenth century, “even obscure scholars could possess a relatively large collection of books on a single topic,” according to A. R. Hall, “Science,” in Elton (ed.), II, 389.

light, cross-cultural interchanges fostered by printing seem relevant to Sarton's observation: "The Renaissance was a transmutation of values, a 'new deal,' a reshuffling of cards, but most of the cards were old; the scientific Renaissance was a 'new deal,' but many of the cards were new."¹⁷ Combinatory intellectual activity, as Koestler has recently suggested, inspires many creative acts. Once old texts came together within the same study, diverse systems of ideas and special disciplines could be combined. Increased output directed at relatively stable markets, in short, created conditions that favored, first, new combinations of old ideas and, then, the creation of entirely new systems of thought.

Merely by making more scrambled data available, by increasing the output of second-century Ptolemaic maps and twelfth-century *mappae mundi*, for instance, printers encouraged efforts to unscramble these data. Hand-drafted portolans had long been more accurate, but few eyes had seen them.¹⁸ Much as maps from different regions and epochs were brought into contact, so too were diverse textual traditions previously preserved by specially trained groups of schoolmen and scribes. It should be noted that cross-cultural interchange was not solely a consequence of augmented output. For example, texts were provided with new illustrations drawn from artisan workshops instead of scriptoria. Here again, different traditions were brought into contact. In this case, words drawn from one milieu and pictures from another were placed beside each other within the same books.¹⁹ When considering new views of the "book of nature" or the linking of bookish theories with observations and craft skills, it may be useful to look at the ateliers of Renaissance artists. But one must also go on to visit early printers' workshops, for it is there above all that we "can observe the formation of groups . . . conducive to cross-fertilization"²⁰ of all kinds.

¹⁷ George Sarton, "The Quest for Truth: Scientific Progress during the Renaissance," in W. K. Ferguson *et al.*, *The Renaissance: Six Essays* (Metropolitan Museum of Art Symposium, 1953 [New York, 1962]), p. 57.

¹⁸ These maps are compared and the superiority of manuscript charts to early printed maps is noted by Boies Penrose, *Travel and Discovery in the Renaissance 1420-1620* (New York, 1962), chap. xvi. The logical conclusion—that intelligent, literate sixteenth-century printers did not know what cartographers and mariners in coastal regions did—is, however, not drawn.

¹⁹ See R. J. Forbes and E. J. Dijksterhuis, *A History of Science and Technology* (London, 1963), Vol. II, chap. xvi, on how "technology went to press" in the sixteenth century. A. R. Hall, *The Scientific Revolution 1500-1800: The Formation of the Modern Scientific Attitude* (Boston, 1957), p. 43, states: "Vesalius' cuts are sometimes less traditional and more accurate than his text." The cuts were made, however, by a wood-carver, Stephan of Calcar. (See n. 20 below.)

²⁰ Erwin Panofsky, "Artist, Scientist, Genius: Notes on the Renaissance-Dämmerung," in Ferguson *et al.*, p. 160. This whole essay (which passes over

Cross-cultural interchange stimulated mental activities in contradictory ways. The first century of printing was marked above all by intellectual ferment and by a "somewhat wide-angled, unfocused scholarship."²¹ Certain confusing cross-currents may be explained by noting that new links between disciplines were being forged before old ones had been severed. In the age of scribes, for instance, magical arts were closely associated with mechanical crafts. Trade skills were passed down by closed circles of initiates. Unwritten recipes used by the alchemist were not clearly distinguished from those used by the apothecary or surgeon, the goldsmith or engraver. When "technology went to press," so too did a vast backlog of occult lore, and few readers could discriminate between the two.

The divine art or "mystery" of printing unleashed a "churning turbid flood of Hermetic, cabbalistic, Gnostic, theurgic, Sabaeen, Pythagorean, and generally mystic notions."²² Historians are still puzzled by certain strange deposits left by this flood. They might find it helpful to consider how records derived from ancient Near Eastern cultures had been transmitted in the age of scribes. Some of these records had dwindled into tantalizing fragments pertaining to systems of reckoning, medicine, agriculture, mythic cults, and so forth. Others had evaporated into unfathomable glyphs. All were thought to come from one body of pure knowledge originally set down by an Egyptian scribal god and carefully preserved by ancient sages and seers before becoming corrupted and confused. A collection of writings containing ancient lore was received from Macedonia by Cosimo de' Medici, translated by Ficino in 1463, and printed in fifteen editions before 1500. It seemed to come from this body of knowledge—and was accordingly attributed to "Hermes Trismegistus." The hermetic corpus ran through many more editions during the next century before it was shown to have been compiled in the third century A.D. On this basis we are told that Renaissance scholars had made a radical error in dating.²³ But to assign definite dates to scribal compilations, which were probably derived from earlier sources, may be an error as well.

The transformation of occult and esoteric scribal lore after the advent

the role of printing) is relevant to the above discussion. Stephan of Calcar's role in Vesalius' work is noted on p. 162, n. 36.

²¹ E. Harris Harbison, *The Christian Scholar in the Age of the Reformation* (New York, 1956), p. 54.

²² G. de Santillana, review of F. Yates's *Giordano Bruno and the Hermetic Tradition*, *American Historical Review*, LXX (Jan. 1965), 455.

²³ See Frances Yates, *Giordano Bruno and the Hermetic Tradition* (London, 1964), *passim*. That ancient Egyptian ingredients were present in the third-century compilation is suggested on pp. 2–3, n. 4, and p. 431.

of printing also needs more study. Some arcane writings, in Greek, Hebrew or Syriac, for example, became less mysterious. Others became more so. Thus hieroglyphs were set in type more than three centuries before their decipherment. These sacred carved letters were loaded with significant meaning by readers who could not read them.²⁴ They were also used simply as ornamental motifs by architects and engravers. Given baroque decoration on one hand and complicated interpretations by scholars, Rosicrucians, and Freemasons on the other, the duplication of Egyptian picture writing throughout the Age of Reason presents modern scholars with puzzles that can never be solved. In brief, when considering the effects produced by printing on scholarship, it is a mistake to think only about new forms of enlightenment. New forms of mystification were entailed as well.

It is also a mistake to think only about scholarly markets when considering the effects of increased output. Dissemination as defined in the dictionary does seem appropriate to the duplication of primers and *ABC* books, almanacs, and picture Bibles. An increased output of devotional literature was not necessarily conducive to cross-cultural interchange. Catechisms, religious tracts, and Bibles would fill some bookshelves to the exclusion of all other reading matter. A new wide-angled, unfocused scholarship had to compete with a new single-minded, narrowly focused piety. At the same time, guidebooks and manuals also became more abundant, making it easier to lay plans for getting ahead in this world—possibly diverting attention from uncertain futures in the next one. It is doubtful whether “the effect of the new invention on scholarship” was more important than these other effects “at the beginning of the sixteenth century.”²⁵ What does need emphasis is that many dissimilar effects, all of great consequence, came relatively simultaneously. If this could be spelled out more clearly, seemingly contradictory developments might be confronted with more equanimity. The intensifi-

²⁴ On the “Hieroglyphics of Horapollo” (first printed by Aldus in Greek, 1505, in Latin, 1515) and later developments, see Erik Iversen, *The Myth of Egypt and Its Hieroglyphs in European Tradition* (Copenhagen, 1961), *passim*. Additional data is given by E. P. Goldschmidt, *The Printed Book of the Renaissance: Three Lectures on Type, Illustration, Ornament* (Cambridge, 1950), pp. 84–85, and Mario Praz, *Studies in Seventeenth Century Imagery* (Rome, 1964), chap. i. Yates implies that baroque argumentation about *hermetica* ended with Isaac Casaubon’s early seventeenth-century proof that Ficino had translated works dating from the third century A.D. But Greek scholarship alone could not unlock the secrets of the pyramids. Interest in arcana associated with Thoth and “Horapollo” continued until Champollion. By then the cluster of mysteries that had thickened with each successive “unveiling of Isis” was so opaque that even the decipherment of the Rosetta stone could not dispel them.

²⁵ Myron Gilmore, *The World of Humanism 1453–1517 (Rise of Modern Europe* [New York, 1952]), p. 189.

cation of both religiosity and secularism could be better understood. Some debates about periodization also could be bypassed. Medieval world pictures, for example, were duplicated more rapidly during the first century of printing than they had been during the so-called Middle Ages. They did not merely *survive* among the Elizabethans. They became *more available* to poets and playwrights of the sixteenth century than they had been to minstrels and mummers of the thirteenth century.

In view of such considerations, I cannot agree with Sarton's comment: "It is hardly necessary to indicate what the art of printing meant for the diffusion of culture but one should not lay too much stress on diffusion and should speak more of standardization."²⁶ How printing changed patterns of cultural diffusion deserves much more study than it has yet received. Moreover, individual access to diverse texts is a different matter than bringing many minds to bear on a single text. The former issue is apt to be neglected by too exclusive an emphasis on "standardization."

B. *Considering Some Effects Produced by Standardization*

Although it has to be considered in conjunction with many other issues, standardization certainly does deserve closer study. One specialist has argued that it is currently overplayed.²⁷ Yet it may well be still understressed. Perhaps early printing methods made it impossible to issue the kind of "standard" editions with which modern scholars are familiar. Certainly press variants did multiply, and countless errata were issued. The fact remains that Erasmus or Bellarmine could issue errata; Jerome or Alcuin could not. The very act of publishing errata demonstrated a new capacity to locate textual errors with precision and to transmit this information simultaneously to scattered readers. It thus illustrates, rather neatly, some of the effects of standardization. However fourteenth-century copyists were supervised, scribes were incapable of committing the sort of "standardized" error that led printers to be fined for the "wicked Bible" of 1631.²⁸ If a single compositor's error could be circulated in a great many copies, so too could a single scholar's emendation.²⁹ However, when I suggest that we may still underestimate the implications of standardization, I am not thinking primarily about

²⁶ Sarton, p. 66.

²⁷ On what follows, see remarks by M. H. Black, "The Printed Bible," in S. L. Greenslade (ed.), *The Cambridge History of the Bible* (Cambridge, 1963), pp. 408-14.

²⁸ The word "not" had been omitted from the seventh commandment (*ibid.*, p. 412).

²⁹ How important this was is stressed both by Gilmore, p. 189, and Sarton, p. 66.

textual emendations or errors. I am thinking instead about the new output of exactly repeatable pictorial statements, such as maps, charts, diagrams, and other visual aids;³⁰ of more uniform reference guides, such as calendars, thesauruses, dictionaries; of increasingly regular systems of notation, whether musical, mathematical, or grammatical. How different fields of study and aesthetic styles were affected by such developments remains to be explored. It does seem worth suggesting that both our so-called two cultures were affected. Humanist scholarship, belles lettres, and fine arts must be considered along with celestial mechanics, anatomy, and cartography.³¹

Too many important variations were, indeed, played on the theme of standardization for all of them to be listed here. This theme entered into every operation associated with typography, from the replica casting of precisely measured pieces of type³² to the subliminal impact upon scattered readers of repeated encounters with identical type styles, printers' devices, and title-page ornamentation.³³ Calligraphy itself was affected. Sixteenth-century specimen books stripped diverse scribal "hands" of personal idiosyncracies. They did for handwriting what style books did for typography itself; what pattern books did for dressmaking, furniture, architectural motifs, and ground plans. In short the setting of standards—used for innumerable purposes, from cutting cloth to city-planning—accompanied the output of more standardized products.

Here, as elsewhere, we need to recall that early printers were responsible not only for issuing new standard reference guides but also for compiling many of them.³⁴ A subsequent division of labor tends to

³⁰ The historical importance of new standardized images is spelled out most clearly by Ivins. K. Boulding, *The Image* (Ann Arbor, Mich., 1961), pp. 64–68, incorrectly assigns to the invention of writing the capacity to produce uniform spatiotemporal images. His remarks about the "disassociated transcript" do not seem applicable to scribal culture.

³¹ Ernst Curtius, *European Literature and the Latin Middle Ages*, trans. W. Trask (New York, 1963; 1st ed., 1948), exemplifies erudite humanistic scholarship at its best. Yet his remarks on scribal book production are remarkably fanciful, on changes wrought by printing entirely vacuous (p. 238). His failure to consider how all the issues he deals with were affected by the new technology is shared by most literary scholars and historians of ideas.

³² See Steinberg, p. 25.

³³ The probable effect of title-page ornamentation on sixteenth-century fine arts and the necessity of taking printing into account when dealing with new aesthetic styles is noted by André Chastel, "What is Mannerism?" *Art News*, LXIV (Dec. 1965), 53.

³⁴ This applies particularly to the publisher-printer (or printer-bookseller) as described, e.g., by Elizabeth Armstrong, *Robert Estienne Royal Printer: An Historical Study of the Elder Stephanus* (Cambridge, 1954), pp. 18, 68. It is also applicable to many independent master printers, to some merchant-publishers (who, literally defined, were not printers at all and yet closely supervised the processing of texts—even editing and compiling some themselves), and finally to

divert attention from the large repertoire of roles performed by those who presided over the new presses. A scholar-printer himself might serve as indexer-abridger-lexicographer-chronicler. Whatever roles he performed, decisions about standards to be adopted when processing texts for publication could not be avoided. A suitable type style had to be selected or designed and house conventions determined. Textual variants and the desirability of illustration and translation also had to be confronted. Accordingly, the printer's workshop became the most advanced laboratory of erudition of the sixteenth century.

Many early capitalist industries required efficient planning, methodical attention to detail, and rational calculation. The decisions made by early printers, however, directly affected both toolmaking and symbol-making. Their products reshaped powers to manipulate objects, to perceive and think about varied phenomena. Scholars concerned with "modernization" or "rationalization" might profitably think more about the new kind of brainwork fostered by the silent scanning of maps, tables, charts, diagrams, dictionaries, and grammars. They also need to look more closely at the daily routines pursued by those who compiled and produced such reference guides. These routines were conducive to a new *esprit de système*. "It's much easier to find things when they are each disposed in place and not scattered haphazardly," remarked a sixteenth-century publisher.³⁵ He was justifying the way he had reorganized a text he had edited. He might equally well have been complaining to a clerk who had mislaid some account papers pertaining to the large commercial enterprise he ran.

C. Some Effects Produced by Editing and Reorganizing Texts: Codifying, Clarifying, and Cataloguing Data

Editorial decisions made by early printers with regard to layout and presentation probably helped to reorganize the thinking of readers. McLuhan's suggestion that scanning lines of print affected thought processes is at first glance somewhat mystifying. But further reflection suggests that

some skilled journeymen (who served as correctors or were charged with throwing together, from antiquated stock, cheap reprints for mass markets). The divergent social and economic positions occupied by these groups are discussed by Natalie Z. Davis in "Strikes and Salvation at Lyons," *Archiv für Reformationsgeschichte*, LXV (1965), 48, and in "Publisher Guillaume Rouillé, Businessman and Humanist," in R. J. Schoeck (ed.), *Editing Sixteenth Century Texts* (Toronto, 1966), pp. 73–76. Within workshops down through the eighteenth century, divisions of labor varied so widely and were blurred so frequently that they must be left out of account for the purpose of developing my conjectures. Accordingly I use the term "printer" very loosely to cover all these groups throughout this paper.

³⁵ Cited by Davis, "Guillaume Rouillé," p. 100.

the thoughts of readers are guided by the way the contents of books are arranged and presented. Basic changes in book format might well lead to changes in thought patterns. Such changes began to appear in the era of incunabula. They made texts more lucid and intelligible. They involved the use “of graduated types, running heads . . . footnotes . . . tables of contents . . . superior figures, cross references . . . and other devices available to the compositor”—all registering “the victory of the punch cutter over the scribe.”³⁶ Concern with surface appearance necessarily governed the handwork of the scribe. He was fully preoccupied trying to shape evenly spaced uniform letters in a pleasing symmetrical design. An altogether different procedure was required to give directions to compositors. To do this, one had to mark up a manuscript while scrutinizing its contents. Every scribal text that came into the printer’s hands, thus, had to be reviewed in a new way. Within a generation the results of this review were being aimed in a new direction—away from fidelity to scribal conventions and toward serving the convenience of the reader. The competitive and commercial character of the new mode of book production encouraged the relatively rapid adoption of any innovation that commended a given edition to purchasers. In short, providing built-in aids to the reader became for the first time both feasible and desirable.

The introduction and adoption of such built-in aids, from the 1480’s on, has been traced and discussed in special works on printing but has been insufficiently noted in other accounts. We are repeatedly told about “dissemination,” occasionally about standardization, almost never at all about the codification and clarification that were entailed in editing copy.³⁷ Yet changes affecting book format probably contributed much to the so-called rationalization of diverse institutions. After all, they

³⁶ Steinberg, p. 28. A detailed account of the effects of printing on punctuation is given by Hirsch, pp. 136–37.

³⁷ The “diagrammatic tidiness” imparted by print to “the world of ideas” is discussed by Walter J. Ong, S.J., *Ramus: Method and the Decay of Dialogue from the Art of Discourse to the Art of Reason* (Cambridge, Mass., 1958), p. 311. See also his “System, Space and Intellect in Renaissance Symbolism,” *Bibliothèque d’humanisme et Renaissance—travaux et documents*, XVIII, No. 2 (1956), 222–40; and his “From Allegory to Diagram in the Renaissance Mind,” *Journal of Aesthetics and Art Criticism*, XVII (June 1959), 4. Father Ong’s somewhat abstruse discussion has recently been substantiated and supplemented by a straightforward study of changes registered on repeated editions of a popular sixteenth-century reference work, which provides detailed confirmation of the above discussion. See Gerald Straus, “A Sixteenth Century Encyclopedia: Sebastian Münster’s *Cosmography* and Its Editions,” in C. H. Carter (ed.), *From the Renaissance to the Counter Reformation: Essays in Honor of Garret Mattingly* (New York, 1965), pp. 145–63. See also the discussion of Robert Estienne’s pioneering work in lexicography (in Armstrong, chap. iv), and Davis, “Guillaume Rouillé,” pp. 100–101.

affected texts used for the study and practice of law—and consequently had an impact on most organs of the body politic as well.³⁸ This has been demonstrated by a pioneering study of the “englishing and printing” of the “Great Boke of Statutes 1530–1533.”³⁹ I cannot pause here over the many repercussions, ranging from statecraft to literature, that came in the wake of Tudor law-printing according to this study. To suggest why we need to look at new built-in aids, I will simply point to the introductory “Tabula” to the “Great Boke”; “a chronological register by chapters of the statutes 1327–1523.” Here was a table of contents that also served as a “conspectus of parliamentary history”⁴⁰—the first many readers had seen.

This sort of spectacular innovation, while deserving close study, should not divert attention from much less conspicuous but more ubiquitous changes. Increasing familiarity with regularly numbered pages, punctuation marks, section breaks, running heads, indexes, and so forth helped to reorder the thought of *all* readers, whatever their profession or craft. Hence countless activities were subjected to a new *esprit de système*. The use of arabic numbers for pagination suggests how the most inconspicuous innovation could have weighty consequences—in this case, more accurate indexing, annotation, and cross-referencing resulted.⁴¹ Most studies of printing have quite rightly singled out the provision of title pages as the most important of all ubiquitous print-made innovations.⁴² How the title page contributed to the cataloguing of books and the bibliographer’s craft scarcely needs to be spelled out. How it contributed to a new habit of placing and dating in general does, I think, call for further thought.

On the whole, as I have tried to suggest throughout this discussion, topics now allocated to bibliophiles and specialists on printing are of general concern to historians at large—or, at least, to specialists in

³⁸ The interplay between the printing of existing laws and laws pertaining to (or necessitated by) printing is an instance of complex interaction that deserves special study.

³⁹ H. J. Graham, “‘Our Tongue Maternall Marvellously Amendyd and Augmentyd’: The First Englishing and Printing of the Medieval Statutes at Large, 1530–1533,” *U.C.L.A. Law Bulletin*, XIII (Nov. 1965), 58–98.

⁴⁰ *Ibid.*, p. 66.

⁴¹ G. Sarton, “Incunabula Wrongly Dated,” in D. Stimson (ed.), *Sarton on the History of Science* (Cambridge, Mass., 1962), pp. 322–23. Arabic numerals appear for the first time on each page of the Scriptures in Froben’s first edition of Erasmus’ New Testament of 1516, which also “set the style” for the well-differentiated book and chapter headings employed by other Bible-printers (Black, p. 419). See also Francis J. Witty, “Early Indexing Techniques: A Study of Several Book Indexes of the Fourteenth, Fifteenth, and Early Sixteenth Centuries,” *Library Quarterly*, XXXV (July 1965), 141–48.

⁴² Steinberg, pp. 145–53.

many different fields. The way these fields are laid out could be better understood, indeed, if we opened up the one assigned to printing. "Until half a century after Copernicus' death, no potentially revolutionary changes occurred in the data available to astronomers."⁴³ But Copernicus' life (1473–1543) spanned the very decades when a great many changes, now barely visible to modern eyes, were transforming "the data available" to all book-readers. A closer study of these changes could help to explain why systems of charting the planets, mapping the earth, synchronizing chronologies, and compiling bibliographies were all revolutionized before the end of the sixteenth century.⁴⁴ In each instance, one notes, ancient Alexandrian achievements were first reduplicated and then, in a remarkably short time, surpassed. In each instance also, the new schemes once published remained available for correction, development, and refinement. Successive generations of scholars could build on the work of their sixteenth-century predecessors instead of trying to retrieve scattered fragments of it.

The varied intellectual revolutions of early modern times owed much to the features that have already been outlined.⁴⁵ But the great tomes, charts, and maps that are now seen as "milestones" might have proved

⁴³ Thomas Kuhn, *The Copernican Revolution* (Cambridge, Mass., 1957), p. 131.

⁴⁴ Ortelius' "epoch-making" *Theatrum orbis terrarum* was published in Antwerp in 1570. (Although Mercator's "milestone" was published in 1569, his new projection remained little known until 1599, when Edmund Wright published a set of rules for its construction.) See Penrose, pp. 324–27. Febvre and Martin, p. 418, point to the fact that Copernicus' *De revolutionibus orbium caelestium* (1543) was not republished in a second edition until 1566 to support the view that printing did not speed up the acceptance of new ideas. In 1551, however, Erasmus Reinhold issued a "complete new set of astronomical tables," based on the *De revolutionibus*. These so-called Prutenic Tables were widely used. See Kuhn, pp. 125, 187–88. The duplication of Napier's logarithms and their use by Kepler in constructing his Rudolphine Tables also seem to me to argue against Febvre and Martin's thesis. See Arthur Koestler, *The Sleepwalkers* (London, 1959), pp. 410–11. J. J. Scaliger's *De emendatione temporum*, which "revolutionized all received ideas of chronology," was published in 1583; R. C. Christie and J. E. Sandys, "Joseph Justus Scaliger (1540–1609)," *Encyclopædia Britannica* (11th ed.; New York, 1911), XXIV, 284. Theodore Besterman, *The Beginnings of Systematic Bibliography* (Oxford, 1936), pp. 7–8, 15–21, 33, argues that Conrad Gesner's *Bibliotheca universalis* (1545), a 1,300-page tome listing 12,000 Latin, Greek, and Hebrew works, does not warrant calling Gesner the "father of bibliography," since Johannes Trithem's much smaller and restricted *Liber de scriptoribus ecclesiasticis* (1494) preceded it. The "foundations of systematic bibliography were well and truly laid" at any rate before 1600.

⁴⁵ The issues dealt with by studies such as F. Smith Fussner's *The Historical Revolution: English Historical Writing and Thought 1580–1640* (London, 1962) and Wylie Sypher's "Similarities between the Scientific and Historical Revolutions at the End of the Renaissance," *Journal of the History of Ideas*, XXV (July–Sept. 1965), 353–68, need particularly to be reviewed in the light of the above discussion.

insubstantial had not the preservative powers of print also been called into play. Typographical fixity is a basic prerequisite for the rapid advancement of learning. It helps to explain much else that seems to distinguish the history of the past five centuries from that of all prior eras—as I hope the following remarks will suggest.

*D. Considering the Preservative Powers of Print: How Fixity and Accumulation Altered Patterns of Cultural and Institutional Change*⁴⁶

Of all the new features introduced by the duplicative powers of print, preservation is possibly the most important. To appreciate its importance, we need to recall the conditions that prevailed before texts could be set in type. No manuscript, however useful as a reference guide, could be preserved for long without undergoing corruption by copyists, and even this sort of “preservation” rested precariously on the shifting demands of local elites and a fluctuating incidence of trained scribal labor. Insofar as records were seen and used, they were vulnerable to wear and tear. Stored documents were vulnerable to moisture and vermin, theft and fire. However they might be collected or guarded within some great message center, their ultimate dispersal and loss was inevitable. To be transmitted by writing from one generation to the next, information had to be conveyed by drifting texts and vanishing manuscripts.

When considering developments in astronomy (or geography or chronology) during the age of scribes, it is not the slow rate of cognitive advance that calls for explanation. Rather, one might wonder about how the customary process of erosion, corruption, and loss was temporarily arrested. When viewed in this light, the “1,800 years” that elapsed between Hipparchus and Copernicus⁴⁷ seem less remarkable than the advances that were made in planetary astronomy during the 600 years that elapsed between Aristotle and Ptolemy. With regard to all computations based on large-scale data collection, whatever had once been clearly seen and carefully articulated grew dimmed and blurred with the passage of time. More than a millennium also elapsed between Eratosthenes and Scaliger, Ptolemy and Mercator. The progress made over the course of centuries within the confines of the Alexandrian

⁴⁶ For the most part I have omitted from this section issues relating to historical consciousness and historiography, since I have discussed them elsewhere; Elizabeth L. Eisenstein, “Clio and Chronos: An Essay on the Making and Breaking of History-Book Time,” *History and the Concept of Time (History and Theory, Suppl. 6 [1966])*, pp. 42–64. Certain portions of this essay seemed too pertinent to be excluded, however. They have, therefore, been repeated in a slightly altered form and reworked along with fresh material into a different context here.

⁴⁷ Kuhn, p. 73, remarks on this “incredibly long time.”

Museum seems, in short, to have been most exceptional.⁴⁸ To be sure, there were intermittent localized “revivals of learning” thereafter, as well as a prolonged accumulation of records within certain message centers. Ground lost by corruption could never be regained, but migrating manuscripts could lead to abrupt recovery as well as to sudden loss. Yet a marked increase in the output of certain kinds of texts resulted generally in a decreased output of other kinds. Similarly, a “revival” in one region often signified a dearth of texts in another.

The incapacity of scribal culture to sustain a simultaneous advance on many fronts in different regions may be relevant to the “problem of the Renaissance.” Italian humanist book-hunters, patrons, and dealers tried to replenish a diminished supply of those ancient texts that were being neglected by scribes serving medieval university faculties. Their efforts have been heralded as bringing about a “permanent recovery” of ancient learning and letters.⁴⁹ If one accepts the criteria of “totality and permanence” to distinguish prior “revivals” from the Renaissance,⁵⁰ then probably the advent of the scholar-printer should be heralded instead. He arrived to cast his Greek types and turn out grammars, translations, and standard editions in the nick of time—almost on the eve of the Valois invasions.⁵¹

⁴⁸ The strategic position occupied by this unique ancient message center (which apparently swallowed up the contents of its only rival in Pergamum in the first century B.C. to make up for losses suffered in the famous fire) has only recently become apparent to me. Possibly it is well known to specialists in ancient history, but it still needs to be spelled out in more general accounts. According to Edward A. Parsons, *The Alexandrian Library* (Amsterdam, 1952), p. xi, the actual use of the museum by scholars over the course of seven (maybe nine) centuries “is still a virgin field of inquiry.”

⁴⁹ Like almost all other Renaissance scholars, Kristeller, p. 17, while noting that a selection of the “classics” circulated in medieval times, singles out as the special contribution of Renaissance humanism that “it extended its knowledge almost to the entire range of . . . extant remains.” This boils down to the fact that most of what was recovered in the trecento and early quattrocento was not again lost. But it came very close to being lost. The manuscript of *De rerum natura* found by Poggio Bracciolini in 1417 has disappeared. The future of the copy that was made remained uncertain until 1473, when a printed edition was issued. Thirty more followed before 1600. A school of pagan philosophy intermittently revived and repeatedly snuffed out was thus permanently secured. See Danton B. Sailor, “Moses and Atomism,” *Journal of the History of Ideas*, XXV (Jan.–Mar. 1964), 3–16. Other findings from palimpsests and papyri would come later, as Kristeller notes. They came too late to be inserted into a curriculum of classical studies that was “fixed” (by typography) in the sixteenth century. Hence they are regarded as being somewhat peripheral to the central corpus of classical works.

⁵⁰ These same criteria, employed implicitly by Kristeller, are more explicitly and forcefully set forth by Erwin Panofsky, *Renaissance and Renascences in Western Art* (Stockholm, 1960), pp. 108, 113. The capacity to view antiquity from a “fixed distance” is, in my view, placed much too early in this study.

⁵¹ Burckhardt notes as a “singular piece of good fortune” that “Northerners

Once Greek type fonts had been cut, neither the disruption of civil order in Italy, the conquest of Greek lands by Islam, nor even the translation into Latin of all major Greek texts saw knowledge of Greek wither again in the West. Instead it was the familiar scribal phrase *Graeca sunt ergo non legenda* that disappeared from Western texts. Constantinople fell, Rome was sacked. Yet a cumulative process of textual purification and continuous recovery had been launched. The implications of typographical fixity are scarcely exhausted by thinking about early landmarks in classical scholarship and its auxiliary sciences: paleography, philology, archeology, numismatics, etc. Nor are they exhausted by reckoning the number of languages that have been retrieved after being lost to all men for thousands of years. They involve the whole modern “knowledge industry” itself, with its mushrooming bibliographies and overflowing card files.

They also involve issues that are less academic and more geopolitical. The linguistic map of Europe was “fixed” by the same process and at the same time as Greek letters were. The importance of the fixing of literary vernaculars is often stressed. The strategic role played by printing is, however, often overlooked.⁵² How strategic it was is suggested by the following paraphrased summary of Steinberg’s account:

Printing “preserved and codified, sometimes even created” certain vernaculars. Its absence during the sixteenth century among small linguistic groups “demonstrably led” to the disappearance or exclusion of their vernaculars from the realm of literature. Its presence among similar groups in the same century ensured the possibility of intermittent revivals or continued expansion. Having fortified language walls between one group and another, printers homogenized what was within them, breaking down minor differences, standardizing idioms for millions of writers and readers, assigning a new peripheral role to provincial dialects. The preservation of a given literary language often depended on whether or not a few vernacular primers,

like Agricola, Reuchlin, Erasmus, the Stephani and Budaeus” had mastered Greek when it was dying out—with the “last colony” of Byzantine exiles—in the 1520’s in Italy; Jacob Burckhardt, *The Civilization of the Renaissance in Italy*, trans. S. G. C. Middlemore (New York, 1958), I, 205. The Aldine Press (among others) had already insured its perpetuation, however. All these “northerners,” one notes, were close allies of scholar-printers or (as with the “Stephani,” i.e., Estiennes) famous printers themselves.

⁵² Compare abundance of relevant data in Febvre and Martin, chap. viii, with what is missing in H. Stuart Hughes, *History as Art and as Science* (New York, 1964), pp. 38–40, where the relation between linguistic fixity and nationalism, individualism, capitalism, and the nation-state is discussed. Hughes urges historians to make use of linguistic studies, but linguists, while careful to discriminate between “spoken” and “written” languages, say little about scribal versus printed ones. Judging by my own experience, books on linguistics are most difficult to master and seem to lead far afield. I found the reverse to be true when consulting literature on printing.

catechisms or Bibles happened to get printed (under foreign as well as domestic auspices) in the sixteenth century. When this was the case, the subsequent expansion of a separate "national" literary culture ensued. When this did not happen, a prerequisite for budding "national" consciousness disappeared; a spoken provincial dialect was left instead.⁵³

Studies of dynastic consolidation and/or of nationalism might well devote more space to the advent of printing. Typography arrested linguistic drift, enriched as well as standardized vernaculars, and paved the way for the more deliberate purification and codification of all major European languages. Randomly patterned sixteenth-century typecasting largely determined the subsequent elaboration of national mythologies on the part of certain separate groups within multilingual dynastic states. The duplication of vernacular primers and translations contributed in other ways to nationalism. A "mother's tongue" learned "naturally" at home would be reinforced by inculcation of a homogenized print-made language mastered while still young, when learning to read. During the most impressionable years of childhood, the eye would first see a more standardized version of what the ear had first heard. Particularly after grammar schools gave primary instruction in reading by using vernacular instead of Latin readers, linguistic "roots" and root-ness in one's homeland would be entangled.

Printing helped in other ways to permanently atomize Western Christendom. Erastian policies long pursued by diverse rulers could, for example, be more fully implemented. Thus, the duplication of documents pertaining to ritual, liturgy, or canon law, handled under clerical auspices in the age of the scribe, was undertaken by enterprising laymen, subject to dynastic authority, in the age of the printer. Local firms, lying outside the control of the papal curia, were granted lucrative privileges by Habsburg, Valois, or Tudor kings to service the needs of national clergies.⁵⁴ The varied ways in which printers contributed to loosening or severing links with Rome, or to nationalist sentiment, or to dynastic

⁵³ Steinberg, pp. 120–26. Cases pertaining to Cornish, Cymric, Gaelic, Latvian, Estonian, Lithuanian, Finnish, Pomeranian, Courlander, Czech, Basque, etc., are cited. Of course, other factors may have been at work in other instances than those cited, but the number of instances where sixteenth-century typecasting seems to have been critical is noteworthy.

⁵⁴ R. M. Kingdon, "Patronage, Piety, and Printing in Sixteenth-Century Europe," in D. H. Pinkney and T. Ropp (eds.), *A Festschrift for Frederick B. Artz* (Durham, N.C., 1964), pp. 32–33, offers a detailed view of how Plantin's Antwerp firm implemented the Erastian policy of Philip II in order to evade payments to a rival firm (none other than Manutius) that had been granted the concession to print Catholic breviaries by Rome. Graham, pp. 71–72, also shows how closely allied Thomas Cromwell was with a circle of law-printers led by Thomas More's brother-in-law, John Rastell—an independent crusader for "Englissing" all law, French or Latin, canon or civil.

consolidation cannot be explored here. But they surely do call for further study.⁵⁵

Other consequences of typographical fixity also need to be explored. Religious divisions and legal precedents were affected. In fact, all the lines that were drawn in the sixteenth century (or thereafter), the condemnation of a heresy, the excommunication of a schismatic king, the settling of disputes between warring dynasts, schisms within the body politic—lines that prior generations had repeatedly traced, erased, re-traced—would now leave a more indelible imprint. It was no longer possible to take for granted that one was following “immemorial custom” when granting an immunity or signing a decree. Edicts became more visible and irrevocable. The Magna Carta, for example, was ostensibly “published” (i.e., proclaimed) twice a year in every shire. By 1237 there was already confusion as to which “charter” was involved.⁵⁶ In 1533, however, Englishmen glancing over the “Tabula” of the “Great Boke” could see how often it had been repeatedly confirmed in successive royal statutes.⁵⁷ In France also the “mechanism by which the will of the sovereign” was incorporated into the “published” body of law by “registration” was probably altered by typographical fixity.⁵⁸ Much as M. Jourdain learned that he was speaking prose, monarchs learned from political theorists that they were “making” laws. But members of parliaments and assemblies also learned from jurists and printers about ancient rights wrongfully usurped. Struggles over the right to establish precedents probably became more intense as each precedent became more permanent and hence more difficult to break.

On the other hand, in many fields of activity, fixity led to new departures from precedent marked by more explicit recognition of individual innovation and by the staking of claims to inventions, discoveries, and creations. By 1500, legal fictions were already being devised to accommodate the patenting of inventions and the assignment of literary properties.⁵⁹ Upon these foundations, a burgeoning bureaucracy would

⁵⁵ By pursuing this line of inquiry, one could usefully supplement the theoretical views developed by Karl Deutsch (*Nationalism and Social Communication: An Inquiry into the Foundations of Nationality* [Cambridge, Mass., 1953] with a more empirical, historically grounded approach.

⁵⁶ J. C. Holt, *Magna Carta* (Cambridge, 1965), pp. 288–90.

⁵⁷ Graham, p. 93.

⁵⁸ Franklin Ford, *Robe and Sword* (*Harvard Historical Studies*, Vol. LXIV), (Cambridge, Mass., 1953), p. 80, describes this mechanism—not, however, how it was altered. See also his remarks about the “great advance in publicity techniques” and how major parlement remonstrances were being “published” by 1732 in printed form (p. 101).

⁵⁹ A landmark in the history of literary property rights came in 1469, when a Venetian printer obtained a privilege to print and sell a given book for a given interval of time. See C. Blagden, *The Stationers Company, A History 1403–1959*

build a vast and complex legal structure. Laws pertaining to licensing and privileges have been extensively studied. But they have yet to be examined as by-products of typographical fixity. Both the dissolution of guild controls and conflicts over mercantilist policies might be clarified if this were done. Once the rights of an inventor could be legally fixed and the problem of preserving unwritten recipes intact was no longer posed, profits could be achieved by open publicity, provided new restraints were not imposed. Individual initiative was released from reliance on guild protection, but at the same time new powers were lodged in the hands of a bureaucratic officialdom. Competition over the right to publish a given text also introduced controversy over new issues involving monopoly and piracy. Printing forced legal definition of what belonged in the public domain and clear articulation of how one sort of literary product differed from another.⁶⁰ When discussing the emergence of a new kind of individualism, it might be useful to recall that the eponymous inventor and personal authorship appeared at the same time and as a consequence of the same process.

The emergence of uniquely distinguished, personally famous artists and authors out of the ranks of more anonymous artisans and minstrels was also related to typographical fixity. Cheaper writing materials encouraged the separate recording of private lives and correspondence. Not paper mills but printing presses, however, made it possible to preserve personal ephemera intact. As an expanding manuscript culture found its way into print, formal compositions were accompanied by intimate anecdotes about the lives and loves of their flesh-and-blood authors. Was it the "inclination" to "publish gossip" that was new in the Renaissance,⁶¹ or was it, rather, the possibility of doing so? The characteristic individuality of Renaissance masterpieces surely owes much to the new possibility of preserving the life-histories of those who produced them. As art historians have shown, the hands of medieval illuminators or stone-carvers were, in fact, no less distinctive. Their

(London, 1960), p. 32. According to Forbes and Dijksterhuis, I, 147, although occasional privileges had been granted previously, the state of Venice was also the first to provide legal protection for inventors in 1474.

⁶⁰ Raymond Birn, "Journal des savants sous l'Ancien Regime," *Journal des savants* (1965), pp. 29, 33, shows how diverse fields of learning (and a division between "serious" and "frivolous" literature) were clearly defined by the terms of the official privilege granted this journal to cover a wide variety of different topics of serious concern. Both this article and Fredrick S. Siebert's *Freedom of the Press in England 1476-1776, The Rise and Decline of Government Control* (Urbana, Ill., 1952), *passim*, suggest how laws regulating printing raised new issues pertaining to privilege and monopoly, which became an acute source of conflict down through the eighteenth century.

⁶¹ P. O. Kristeller, *Renaissance Thought*, Vol. II: *Papers on Humanism and the Arts* (New York, 1965), p. 11.

personalities remain unknown. Vestiges of their local celebrity have vanished. They must therefore be portrayed as faceless master guildsmen in terms of the garb they wore or the life-style they shared with colleagues. What applies to personality may also apply to versatility. Alberti probably was not the first architect who was also an athlete, orator, scholar, and artist. But he *was* the first whose after-dinner speeches, boasts about boyhood feats, and “serious and witty sayings” were collected and transmitted to posterity along with the buildings he designed and formal treatises he composed. He may be displayed at home and in public, as an athletic youth and elderly sage, moving through all the ages of man, personifying earlier archetypes and collective roles. Possibly this is why he appears to Burckhardt in the guise of a new ideal type, *homo universalis*.⁶²

Similar considerations are also worth applying to authors. The personal hand and signature of the scribe was replaced by the more impersonal type style and colophon of the printer. Yet, by the same token, the personal, private, idiosyncratic views of the author could be extended through time and space. Articulating new concepts of selfhood, wrestling with the problem of speaking privately for publication, new authors (beginning, perhaps, with Montaigne) would redefine individualism in terms of deviation from the norm and divergence from the type. The “drive for fame” itself may have been affected by print-made immortality. The urge to scribble was manifested in Juvenal’s day as it was in Petrarch’s. But the *insanabile scribendi cacoethes* may have been re-oriented once it became an “itch to publish.”⁶³ The wish to see one’s work in print (fixed forever with one’s name, in card files and anthologies) is different from the urge to pen lines that could never get fixed in a permanent form, might be lost forever, altered by copying, or—if truly memorable—carried by oral transmission and assigned ultimately to “anon.” When dealing with priority disputes among scientists or debates about plagiarism among scholars, the advent of print-made immortality has to be taken into account. Until it became possible to distinguish between composing a poem and reciting one or between writing a book and copying one, until books could be classified by something other than incipits, how could modern games of books and authors be played?

Many problems about assigning proper credit to scribal “authors” may result from misguided efforts to apply print-made concepts where they do not pertain. The so-called forged book of Hermes is a good case

⁶² Burckhardt, I, 149–50.

⁶³ See a witty discussion of these terms by Robert K. Merton, *On The Shoulders of Giants: A Shandean Postscript* (New York, 1965), pp. 83–85.

in point. But countless other scribal works are too. Who *wrote* Socrates' lines, Aristotle's works, Sappho's poems, any portion of the Scriptures? Troublesome questions about biblical composition, in particular, suggest how new forms of personal authorship helped to subvert old concepts of collective authority.⁶⁴ Veneration for the wisdom of the ages was probably modified as ancient sages were retrospectively cast in the role of individual authors—prone to human error and possibly plagiarists as well.⁶⁵ Treatment of battles of books between “ancients and moderns” might profit from more discussion of such issues. Since early printers were primarily responsible for forcing definition of literary property rights, for shaping new concepts of authorship, for exploiting best sellers and trying to tap new markets, their role in this celebrated quarrel should not be overlooked. By the early sixteenth century, for example, staffs of translators were employed to turn out vernacular versions of the more popular works by ancient Romans and contemporary Latin-writing humanists.⁶⁶ This might be taken into account when discussing debates between Latinists and the advocates of new vulgar tongues.⁶⁷

It is also worth considering that different meanings may have been assigned terms such as “ancient” and “modern,” “discovery” and “recovery,” “invention” and “imitation” before important departures from precedent could be permanently recorded. “Throughout the patristic and medieval periods, the quest for truth is thought of as the *recovery* of what is embedded in tradition . . . rather than the *discovery* of what is new.”⁶⁸ Most scholars concur with this view. It must have been difficult to distinguish discovering something new from recovering it in the age of scribes. To “find a new art” was easily confused with retrieving a lost one, for superior techniques and systems of knowledge were frequently discovered by being recovered.⁶⁹ Probably Moses,

⁶⁴ The issue of authorship versus authority is discussed by McLuhan, pp. 130–37. The nature of medieval scribal authorship is brilliantly illuminated by Goldschmidt, *Medieval Texts*, Part III.

⁶⁵ See the citation from Glanvill's *Essays* of 1676 cited by Merton, p. 68 n. Ramus, in the 1530's, had already stated: “All that Aristotle has said is forged,” according to H. Baker, *The Wars of Truth* (Cambridge, Mass., 1952), p. 93.

⁶⁶ Febvre and Martin, p. 410. Additional data on the production of vernacular as opposed to Latin works during the first century of printing is supplied by Hirsch, pp. 132–34.

⁶⁷ Hans Baron's “The Querelle of the Ancients and Moderns as a Problem for Renaissance Scholarship,” *Journal of the History of Ideas*, XX (Jan. 1959), 3–22, like many other treatments of this battle of books, passes over the possible role played by printers. Curtius, pp. 251–56, covers the scribal use of terms such as “ancients” and “moderns” but fails to note how they were altered after printing. All of Merton's (tongue in cheek) treatment of the giant and dwarf aphorism is also relevant and points to a vast literature on the topic.

⁶⁸ Harbison, p. 5.

⁶⁹ E. Rosen, “The Invention of Eyeglasses,” *Journal of the History of Medicine and Allied Sciences*, XI (1956), 34, n. 99, regards an early fourteenth-

Zoroaster, or Thoth had not "invented" all the arts that were to be found.⁷⁰ But many were retrieved from ancient giants whose works reentered the West by circuitous routes. The origins of such works were shrouded in mystery. Their contents revealed a remarkable technical expertise. Some pagan seers were believed to have been granted foreknowledge of the Incarnation. Possibly they had also been granted a special secret key to all knowledge by the same divine dispensation. Veneration for the wisdom of the ancients was not incompatible with the advancement of learning, nor was imitation incompatible with inspiration. Efforts to think and do as the ancients did might well reflect the hope of experiencing a sudden illumination or of coming closer to the original source of a pure, clear, and certain knowledge that a long Gothic night had obscured.

When unprecedented innovations did occur, moreover, there was no sure way of recognizing them before the advent of printing. Who could ascertain precisely what was known—either to prior generations within a given region or to contemporary inhabitants of far-off lands? "Steady advance," as Sarton says, "implies exact determination of every previous step." In his view, printing made this determination "incomparably easier."⁷¹ He may have understated the case. *Exact* determination must have been impossible before printing. Given drifting texts, migrating manuscripts, localized chronologies, multiform maps, there could be no systematic forward movement, no accumulation of stepping stones enabling a new generation to begin where the prior one had left off. Progressive refinement of certain arts and skills could and did occur. But no sophisticated technique could be securely established, permanently recorded, and stored for subsequent retrieval. Before trying to account for an "idea" of progress, we might look more closely at the duplicating process that made possible a continuous accumulation of fixed records. For it seems to have been permanence that introduced progressive change. The preservation of the old, in brief, launched a tradition of the new.

century preacher as inconsistent when he is recorded as saying in one sermon, "Nothing remains to be said . . . today a new book could not be made nor a new art" and in a preceding one as referring to "all the arts that have been found by man and new ones yet to be found." *Finding* a new art was not, however, necessarily equivalent to *making* one.

⁷⁰ The Italian word for "invention" has been located only once in fourteenth-century literature—a reference by Petrarch to Zoroaster as the *inventore* of the magic arts (*ibid.*, p. 192). Thoth (or "Hermes Trismegistus") was responsible for inventing writing and numbering or measurement. Adam had, of course, named all things and (in a prelapsarian state) may have also known all things. A full inventory would include countless other (often overlapping) ancient claimants to the role of originators.

⁷¹ Sarton, "The Quest for Truth," p. 66.

The advancement of learning had taken the form of a search for lost wisdom in the age of scribes. This search was rapidly propelled after printing. Ancient maps, charts, and texts once arranged and dated, however, turned out to be dated in more ways than one. Ordinary craftsmen and mariners appeared to know more things about the heavens and earth than were dreamt of by ancient sages. More schools of ancient philosophy than had previously been known were also uncovered. Scattered attacks on one authority by those who favored another provided ammunition for a wholesale assault on all received opinion. Incompatible portions of inherited traditions were sloughed off, partly because the task of preservation had become less urgent. Copying, memorizing, and transmitting absorbed fewer energies. Some were released to explore what still might be learned. Studying variant versions of God's words gave way to contemplating the uniformity of His works. Investigation of the "book of nature" was no longer undertaken by studying old glyphs and ciphers. Magic and science were divorced. So too were poetry and history. Useful reference books were no longer blotted out or blurred with the passage of time. Cadence and rhyme, images and symbols ceased to fulfil their traditional function of preserving the collective memory. The aesthetic experience became increasingly autonomous, and the function of works of art had to be redefined. Technical information could be conveyed more directly by plain expository prose and accurate illustration. Although books on the memory arts multiplied after printing, practical reliance on these arts decreased. Scribal schemes eventually petrified, to be ultimately reassembled, like fossil remains, by modern research. The special formulas that had preserved recipes and techniques among closed circles of initiates also disappeared. Residues of mnemonic devices were transmuted into mysterious images, rites and incantations.⁷²

Nevertheless, scribal veneration for ancient learning lingered on, long after the conditions that had fostered it had gone. Among Rosicrucians and Freemasons, for example, the belief persisted that the "new philosophy" was in fact very old. Descartes and Newton had merely retrieved the same magical key to nature's secrets that had once been known to ancient pyramid-builders but was later withheld from the laity or deliberately obscured by a deceitful priesthood. In fact, the

⁷² The most recent study is Frances Yates' *The Art of Memory* (London, 1966), which centers on use made of "memory theaters." According to J. Finegan, *Handbook of Biblical Chronology* (Princeton, N.J., 1964), p. 57, the term "Amen" encapsulated in the three Hebrew letters aleph, mem, and nun (to which different numbers were assigned) a scheme for remembering four ninety-one-day seasons of the solar year. When consulting works on this topic, I find it difficult to decide whether the ingenuity of modern scholars or that of ancient ones is being displayed.

Index came only after printing and the preservation of pagan learning owed much to monks and friars. Enlightened freethinkers, however, assigned Counter-Reformation institutions to the Gothic Dark Ages and turned Zoroaster into a Copernican. Similarly, once imitation was detached from inspiration and copying from composing, the classical revival became increasingly arid and academic. The search for primary sources was assigned to dry-as-dust pedants. But the reputation of ancient seers, bards, and prophets was not, by the same token, diminished. Claims to have inherited their magic mantle were put forth by new romanticists who reoriented the meaning of the term "original" and tried to resurrect scribal arts in the age of print. Even the "decay of nature" theme, once intimately associated with the erosion and corruption of scribal writings, would be reworked and reoriented by gloomy modern prophets who felt that regress, not progress, characterized their age.

E. Amplification and Reinforcement: Accounting for Persistent Stereotypes and Increasing Cultural Differentiation

Many other themes imbedded in scribal writings, detached from the living cultures that had shaped them, were propelled as "typologies" on printed pages. Over the course of time, archetypes were converted into stereotypes, the language of giants, as Merton puts it, into the clichés of dwarfs. Both "stereotype" and "cliché" are terms deriving from a typographical process developed three and a half centuries after Gutenberg. They point, however, to certain other features of typographical culture in general that deserve closer consideration. During the past five centuries, broadcasting new messages has also entailed amplifying and reinforcing old ones. I hope my use of the terms "amplify" and "reinforce" will not distract attention from the effects they are meant to designate. I am using them simply because I have found no others that serve as well. Some such terms are needed to cover the effects produced by an ever-more-frequent repetition of identical chapters and verses, anecdotes and aphorisms drawn from very limited scribal sources. This repetition is not produced by the constant republication of classical, biblical, or early vernacular works, although it undoubtedly sustains markets for such works. It is produced by an unwitting collaboration between countless authors of new books or articles. For five hundred years, authors have jointly transmitted certain old messages with augmented frequency even while separately reporting on new events or spinning out new ideas. Thus, if they happen to contain only one passing reference to the heroic stand at Thermopylae, a hundred reports on different military campaigns will impress with a hundredfold-impact Herodotus' description on the mind of the reader who scans

such reports. Every dissimilar report of other campaigns will be received only once. As printed materials proliferate, this effect becomes more pronounced. (I have encountered several references to Thermopylae in the daily newspaper during the past year.) The same is true of numerous other messages previously inscribed on scarce and scattered manuscripts. The more wide ranging the reader at present, the more frequent will be the encounter with the identical version and the deeper the impression it will leave. Since book-writing authors are particularly prone to wide-ranging reading, a multiplying “feedback” effect results. When it comes to coining familiar quotations, describing familiar episodes, originating symbols or stereotypes, the ancients will generally outstrip the moderns. How many times has Tacitus’ description of freedom-loving Teutons been repeated since a single manuscript of *Germania* was discovered in a fifteenth-century monastery? And in how many varying contexts—Anglo-Saxon, Frankish, as well as German—has this particular description appeared?

The frequency with which all messages were transmitted was primarily channeled by the fixing of literary linguistic frontiers. A particular kind of reinforcement was involved in relearning mother tongues when learning to read. It went together with the progressive amplification of diversely oriented national “memories.” Not all the same portions of an inherited Latin culture were translated into different vernaculars at the same time.⁷³ More important, entirely dissimilar dynastic, municipal, and ecclesiastical chronicles, along with other local lore, both oral and scribal, were also set in type and more permanently fixed. The meshing of provincial medieval *res gestae* with diverse classical and scriptural sources had, by the early seventeenth century, imbedded distinctively different stereotypes within each separate vernacular literature.⁷⁴ At the same time, to be sure, a more cosmopolitan *Respublica litterarum* was also expanding, and messages were broadcast across linguistic frontiers, first via Latin, then French, to an international audience. But messages received from abroad were not amplified over the course of several centuries in the same way. They only occasionally reinforced what was learned in familiar tongues at home.⁷⁵

⁷³ Bennett, p. 158, notes a “striking difference” between the large number of pagan classics translated into French in the sixteenth century and the greater number of “edifying” devotional works translated into English.

⁷⁴ How this was done in sixteenth-century England is traced with remarkable clarity by William Haller, *The Elect Nation: The Meaning and Relevance of Foxe’s Book of Martyrs* (New York, 1963), *passim*—an exceptional work that integrates printing with other historical developments. Children’s books about Elizabeth I are still being written from bits and pieces drawn from Foxe’s massive *apologia*.

⁷⁵ The most important exceptions are France and Geneva, where by the

On the other hand, the fixing of religious frontiers that cut across linguistic ones in the sixteenth century had a powerful effect on the frequency with which certain messages were transmitted. Passages drawn from vernacular translations of the Bible, for example, would be much more thinly and weakly distributed throughout the literary cultures of Catholic regions than of Protestant ones.⁷⁶ The abandonment of church Latin in Protestant regions made it possible to mesh ecclesiastical and dynastic traditions more closely within Protestant realms than in Catholic ones—a point worth noting when considering how church-state conflicts were resolved in different lands. Finally, the unevenly phased social penetration of literacy, the somewhat more random patterning of book-reading habits, and the uneven distribution of costly new books and cheap reprints of old ones among different social sectors also affected the frequency with which diverse messages were received within each linguistic group.

III. CONSIDERING THE RISE OF THE READING PUBLIC: UNEVENLY PHASED SOCIAL AND PSYCHOLOGICAL TRANSFORMATIONS DURING EARLY MODERN TIMES

These last remarks are relevant to most of the issues that have been

mid-seventeenth century two differently oriented native literary cultures coincided with a single cosmopolitan one. A sounding board was thus provided for Rousseau, Mme de Staël, Sismondi, and other Genevans who might otherwise have been as obscure as their German, Swiss, or Dutch counterparts. The reasons for the conquest of the Gallic tongue (which paradoxically linked the most populous and powerful consolidated dynastic Catholic state with the tiny canton that had served as the protestant Rome and with the cosmopolitan culture of civilized Europe) deserve further study. Louis Réau, *L'Europe française au Siècle des Lumières (L'Evolution de l'humanité, Vol. LXX [Paris, 1938])*, although devoted to this important topic, slides over issues that need more rigorous analysis. David Pottinger, *The French Book Trade in the Ancien Regime 1500–1791* (Cambridge, Mass., 1958), offers some useful statistics, pp. 19–23, as does Steinberg, p. 118. Some further consequences of the spread of French are touched on below. See pp. 51–52. One might note that the reaction to French armies and the rejection of French influence, among Germans and eastern Europeans in the early nineteenth century, necessarily involved disowning the cosmopolitan culture of the Enlightenment as well.

⁷⁶ R. A. Sayce, “French Continental Versions to c. 1600,” in Greenslade (ed.), p. 114, contrasts the deep penetration of vernacular scriptural versions into the literary culture of German and English-speaking peoples with the shallow effect of French Bible translations. From Pascal to Gide, he notes, Latin citations from the Vulgate appear most frequently when biblical references are evoked. The immense repercussions of the decision taken by the Council of Trent to proscribe vernacular translations and uphold the “authenticity” of the Vulgate are difficult to locate throughout this massive collaborative volume. A clear view of how, when, and where the decision itself was taken is not offered. F. J. Crehan, S.J., “The Bible in the Roman Catholic Church from Trent to the Present Day,” pp. 199–237, ostensibly covers this issue but actually obfuscates it.

raised by McLuhan in connection with the “making of typographical man.” By making us more aware that both mind and society were affected by printing, McLuhan has performed, in my view at least, a most valuable service. But he has also glossed over multiple interactions that occurred under widely varying circumstances in a way that may discourage rather than encourage further study. “The print-made split between heart and head is the trauma that affects Europe from Machiavelli to the present.”⁷⁷ Since this sort of statement cannot be tested, it provides little incentive for further research. Granted that the replacement of discourse by silent scanning, of face-to-face contacts by more impersonal interactions probably did have important consequences. It follows that we need to think less metaphorically and abstractly and more historically and concretely about the sort of effects that were entailed and how different groups were affected. Even at first glance both issues appear to be very complex.

In many cases, for example, spoken words would be conveyed by printed messages without being replaced by them. While often transposed into print, sermons and public orations thus continued to be delivered orally. These traditional forms of discourse were nonetheless altered by the new possibility of silent publication. The printing of parliamentary debates probably affected exchanges between members of parliament. The printing of poems, plays, and songs altered the way “lines” were recited, sung, and composed. Academic dialogues were conducted along different lines after the advent of closet philosophers. On one hand, some “dying speeches” were fabricated for printing and never did get delivered; on the other, printed publicity enabled evangelists and demagogues to practice traditional arts outdoors before large hearing publics. A literary culture created by typography was conveyed to the ear, not the eye, by classroom lectures, repertory companies, and poetry-readings. No simple formula will cover the changes these new activities reflect.

The same is true of how different groups were affected. Most rural villagers, for example, probably belonged to an exclusively hearing public down to the nineteenth century. Yet what they heard had, in many instances, been transformed by printing two centuries earlier.

⁷⁷ McLuhan, p. 170. This formulation owes much to Lewis Mumford, *Technics and Civilization* (New York, 1934), pp. 136–37. An excellent introduction to problems associated with the shift from a hearing public to a reading one is H. J. Chaytor’s *From Script to Print* (Cambridge, 1945). This study of medieval literature, which has already been exploited by McLuhan, needs to be exploited by historians as well. It should be noted, however, that a very limited area of scribal culture is covered by Chaytor. Near the bookshops of Augustan Rome or in the libraries of Alexandria, for example, the conditions he describes may not be pertinent at all.

In the seventeenth century the storyteller was being replaced by the exceptional literate villager who read out loud from a stack of cheap books and ballad sheets turned out anonymously for distribution by peddlers.⁷⁸ A fairly sleazy “popular” culture, based on the mass production of antiquated vernacular medieval romances, was thus produced well before the steam press and mass literacy movements of the nineteenth century. Yet the bulk of this output was consumed by a medieval hearing public, separated by a vast psychological gulf from their contemporaries who belonged to an early modern reading one.⁷⁹

The disjunction between the new mode of production and older modes of consumption is only one of many complications that need further study. Members of the same reading public, who confronted the same innovation in the same region at the same time, were nonetheless affected by it in markedly different ways. One cannot, for example, talk about the effect of Bible-printing on “typographical man” in general or even on sixteenth-century Protestants in particular. Instead, one must consider a disjunction between producers and consumers, that is, between printers and purchasers.⁸⁰ To be enabled to read the holy words of God in one’s own tongue was probably an awesome experience for a devout sixteenth-century reader. It seems quite likely that new forms of sect-type Christianity and literal fundamentalism resulted from an increased consumption of vernacular Bibles. A great many Protestant printers were also devout, and some were even martyred for their faith. They were persuaded, however, that God’s words could be spread further by printing than by preaching.⁸¹ For this purpose, markets had to be gauged, financing secured, privileges sought, Catholic officials evaded, compositors supervised, distribution organized. What appeared to the devout consumer in a quasi-miraculous guise involved an exercise

⁷⁸ Robert Mandrou, *De la culture populaire aux 17^e et 18^e siècles: La Bibliothèque bleue de Troyes* (Paris, 1964), *passim*, illustrates this topic in detail for France. Altick, *passim*, touches on it, in scattered passages, for England.

⁷⁹ This gulf may be found even within some printers’ workshops during the sixteenth century and separates some journeymen typographers from master printers. See Natalie Z. Davis, “The Protestant Printing Workshops of Lyons in 1551,” in Henri Moylan (ed.), *Aspects de la propagande religieuse (Travaux d’humanisme et Renaissance, Vol. XXVIII, [Geneva, 1957])*, pp. 252–57. The illiterate journeymen, however, sang songs composed by Marot and Beza which were circulated in printed form.

⁸⁰ On my use of the term “printer,” see n. 34.

⁸¹ Pottinger, p. 81, describes French martyrs to the faith who were hanged, burned, or broken on the wheel during the wars of religion. Various essays in *Aspects de la propagande religieuse* cover the activities of Protestant printers in Lyons, Paris, and Geneva. The group of zealous Puritans associated with John Day who turned to printing as the most formidable weapon in their campaign against the papal Antichrist is studied in detail by Haller, *passim* (see Foxe’s remark about every press as a “block house,” cited on p. 110).

in processing texts, shrewd politicking, and practical problem-solving for the equally devout producer.⁸² Mammon as well as Caesar necessarily entered into the latter's calculations. So, too, did variant readings of the same sacred words.

Moreover, printers themselves did not share a "common mind" and hence were diversely affected by involvement in a new mode of production. Some were fiery apostles wholly committed to serving one true church and one "elect nation." But others were not and tried to serve many. Genevan printers surreptitiously turned out books for populous Catholic markets in France. The same Antwerp firm won a privileged position from Catholic Spain under Philip II but served Calvinist Holland and Jewish communities as well.⁸³ Paradoxically enough, the printing press helped fan the flames of religious controversy even while creating a new vested interest in ecumenical concord and toleration. Similarly, religious, dynastic, and linguistic frontiers were fixed more permanently by the same wholesale industry that operated most profitably by tapping cosmopolitan markets. Even as Henri IV felt that Paris was worth a mass or Cardinal Richelieu that *raison d'état* dictated alliance with infidel Turks, so too did a Manutius, an Estienne, or a Plantin keep family firms solvent and presses in operation by alliances with Protestants, Catholics, Jews, Spaniards, Dutchmen, and all shades of Frenchmen alike. The formation of syndicates of heterodox businessmen and printers, linked to far-flung distribution networks, indicates how the new industry encouraged informal social groupings that cut across dynastic or religious and linguistic frontiers. Circles associated with Aldus Manutius' "Academy" and Plantin's "House of Love" suggest how a syncretist faith was in some ways more compatible than a Protestant one with the new wholesale book trade.⁸⁴ Such syndicates and networks

⁸² The vocational shift from cleric, preacher, or teacher to printer, journalist, or author during the sixteenth and seventeenth centuries (noted by Haller, p. 112) might, incidentally, make an interesting study. Birn mentions a few instances of French Jesuits who became professional lay journalists and publicists in seventeenth-century France. R. Colie, *Light and Enlightenment: A Study of the Cambridge Platonists and the Dutch Arminians* (Cambridge, 1957), pp. 29–33, 75, offers some Dutch examples during the same era. Here, as elsewhere, the gradual displacement of the pulpit by the periodical press also deserves more attention.

⁸³ Febvre and Martin, pp. 293, 405; Kingdon, p. 29. A seventeenth-century English printer, Henry Hill, served all comers: army, Anabaptists, Cromwell, James II, etc. See Steinberg, p. 109.

⁸⁴ On Plantin's "House of Love" and suggestion *re* the "Banque Protestante" myth, see R. M. Kingdon, "Christopher Plantin and His Backers 1575–1590, A Study in the Problems of Financing Business during War," *Mélanges d'histoire économique et sociale* (Geneva, 1963), pp. 303–16. Additional information on the sect (customarily called the "Family of Love" and founded by Hendric Niclaes) to which Plantin belonged—along with other printers—is given by J. A. Van Dorsten, *Thomas Basson 1555–1613: English Printer at Leiden* (Leiden, 1961). The "Famillists" overlapped with Arminian and Remonstrant circles in England

should be closely studied as a possible source of later conspiratorial legends pertaining to the Banque Protestante or Freemasons. (Protestants and foreigners did subsidize the output of French men of letters in the eighteenth century. Behind debates about Masonic involvement in the *Grande encyclopédie* lies the somewhat shadowy figure of the printer who initiated, financed, and pushed through its publication.⁸⁵)

A more cosmopolitan and ecumenical outlook on the part of many printers should not, however, be regarded as a mere "rationalization" of their financial interests. Sacred and devotional works *did* look different to those who saw copy through all the stages of publication than they did to those who procured the finished product. Belief in the Sacred Scriptures as an ultimate source of truth has been correctly singled out, by Kingdon, as a most important element in the rise of early printing industries. (Overnight, Wittenberg was transformed into an important printing center.) Unlike other sacred books, however, that of Western Christendom happened to be composed in many tongues. It thus fed a demand for Greek, Aramaic, Syriac, and Hebrew grammars and dictionaries, bringing arcane letters into printers' workshops⁸⁶ and sometimes even heterodox foreigners into printers' households.⁸⁷

and the Netherlands and were centered first in Antwerp, then in Leiden. Possibly they also included members of the Elzevir firm who were linked with Plantin. See David W. Davies, *The World of the Elseviers 1580–1712* (The Hague, 1954), pp. 2–3. Much as Plantin rode out the "Spanish fury," Aldus Manutius had earlier kept his firm going during the Italian time of troubles that hit Venice in 1504. Not only as the greatest scholar-printer of his day, but also as Pico della Mirandola's protégé, who later numbered Erasmus and Linacre among members of his "Academy," both Aldus and his circle also deserve a modern book-length appraisal.

⁸⁵ See below, pp. 51–52, on the collaboration between French authors and foreign printers. For the debate on the role of Freemasons in the publication of the *Encyclopédie*, see A. Wilson, *Diderot: The Testing Years* (New York, 1957), pp. 74–81 and references cited pp. 358–59. Wilson's interpretation seems to underrate the role played by the printer André-François Le Breton and to overrate that of Diderot, a salaried editor brought in after the project was under way. Evidence of Le Breton's close supervision of a costly project for which he employed fifty workers and of how he rewrote several articles to protect his investment is given by Frank Kafker, "The Effect of Censorship on Diderot's *Encyclopédie*," *Library Chronicle* (University of Pennsylvania), XXX (Winter 1964), 42. To assess the printer's role correctly is more feasible and important, in my view, than to decide whether he was or was not the Le Breton who is listed as a master mason.

⁸⁶ Plantin, linked via Hebrew type and Jewish financing to Jewish communities, produced a polyglot Bible under Philip II's patronage (Kingdon, "Patronage, Piety, and Printing," p. 23). Aldus had planned one in 1497–98 and cut types for a specimen page before abandoning it. (Steinberg, p. 76). Robert Estienne's stock of type fonts included Hebrew letters (Armstrong, pp. 54–55). For data pertaining to struggles to get Aramaic and Syriac as well as Hebrew studies launched, see Basil Hall, "Biblical Scholarship: Editions and Commentaries," in Greenslade (ed.), pp. 44–45, 74–75.

⁸⁷ Thus Robert Estienne had "correctors" representing ten disparate national-

Such considerations may help to explain how new semisecret brotherhoods espousing syncretic and irenic creeds came to be formed during the era when religious zeal was at its height and the claims of orthodox faith seemed most compelling. For printers like the Estiennes and Plantin, solvency required a steady output of devotional literature during the first century of printing.⁸⁸ But processing and marketing texts also engendered attitudes that were more conducive to modernism than to fundamentalism, to practicality than to otherworldliness. And this in turn might be registered on other staple products that were compiled by printers themselves.⁸⁹ By looking more closely at their daily routines and then looking again at the incidental information contained in seventeenth-century English almanacs, for example, a few elusive spirits might be trapped. “No book in the English language had as large a circulation as the annual *Almanack*.”⁹⁰ Like many other practical manuals and household guides, such almanacs registered the views of men who knew, well before Ben Franklin and *Poor Richard*, that time was money, that profits went with piety, and that bookkeeping went with book-reading.

The Protestant ethic and the spirit of capitalism may indeed be linked in ways most discussions have bypassed. “Printing,” said Luther, “was God’s highest act of grace.” He also castigated printers who garbled passages of the Gospel and marketed hasty reprints for quick profit.⁹¹ His insistence on scriptural revelation nonetheless entangled spiritual illumination with a commercial enterprise. Moreover, even before Luther had appeared with his “apple of discord,” the printer’s devil had already been at work, turning out playing cards and holy images, vernacular Bibles and indulgences—all on a scale hitherto unknown. Because the fifteenth-century revolution is still invisible, most

ities in his household at one time, according to his son’s account, cited by Armstrong, p. 15. The necessity of housing foreign translators and proofreaders may have contributed even more than financial exigencies did to the notion of families or houses of love.

⁸⁸ How profits derived from religious works subsidized humanist publications is noted by Kingdon, “Patronage, Piety, and Printing,” pp. 35–36. The case of the publisher who relied on legal and scientific texts instead of devotional works to supply a steady source of income is discussed by Davis, “Guillaume Rouillé,” pp. 88–89. She shows, however, how Rouillé also hedged his bets by diversifying his products.

⁸⁹ Thus a practical handbook compiled by Charles Estienne, *Guide des chemins de France* (1553), guided merchants along routes followed by those who were engaged in the book trade and reflected the experience of the compiler’s own family (Armstrong, p. 34).

⁹⁰ Eustace F. Bosanquet, “English 17th Century Almanacs,” *Library*, 4th ser., X (Mar. 1930), 361. (These almanacs contained tables for computing costs of goods or payment of wages, distances between main towns, lists of weights and measures, even dentifrice ads.)

⁹¹ Relevant citations are in Black, p. 432.

studies of the Reformation place first things last. Only after various socioeconomic and political developments, theological issues, ecclesiastical abuses, and charismatic leaders have been discussed and only after controversies over causation have been explored does the printing press appear in conventional accounts—in conjunction with a wide dissemination of Luther's sermons and other Protestant broadsides. A more fruitful debate about causes and consequences might result if first things were placed first. After all, Gutenberg had preceded Luther. Similarly, dissension among churchmen over new issues posed by printing preceded the division of Western Christendom.

The necessity of making new decisions helped to polarize opinions about "one true church." These decisions involved justifying producing indulgences on a mass scale, advertising relics, and commercializing iconography. They involved determining how glad tidings should be spread, who should be allowed to perform the apostolic function of the clergy, whether grammarians, philologists, and lay scholars should pass judgment on God's words. Earlier heretics, such as Wycliffe or Huss, might aspire to place the vernacular Scriptures in the hands of every layman;⁹² and new semi-lay orders such as the "Brethren of the Common Life" might try to bring literacy and prayer books to the "people."⁹³ Only after Gutenberg, however, could such programs be fully implemented. Thereafter, collaboration with existing teaching or preaching orders and the winning of papal approval for the creation of new ones was no longer required by Christian reformers. Programs could be implemented, instead, by winning the favor of Erastian princes and by close collaboration with the book-trade network in that "golden age" between printing "and its antidote, the Index."⁹⁴ Collaboration with printers, however, meant contact with men who, by the very nature of their trade, shared a common contempt for monkish learning and ungrammatical theologians. Pacific Christian humanists and zealous Protestant reformers did, one should note, both collaborate with printers and share this contempt.

It was not only the learning of monks and friars that came under

⁹² Medieval heresies based on efforts to get the Bible into the vernacular and to the people are well described by Margaret Deansley, *The Lollard Bible* (Cambridge, 1920). The Waldensians used oral transmission and instructed initiates in how to learn the Scriptures by heart (p. 28).

⁹³ The chief purpose of the new orders founded by Gerhard Groote are often blurred by the catchall term "pietist." The Windesheim Congregation was set up to provide centers of scholarly studies and supervised scriptoria; the Brethren of the Common Life, to teach reading and circulate devotional books among the "people" (McMurtrie, p. 126). They *did* implement their program with the new presses (Bühler, p. 28).

⁹⁴ H. Trevor Roper, "Desiderius Erasmus," *Men and Events* (New York, 1957), p. 39.

attack when new laboratories of erudition had been established. The regular orders of the clergy also were more vulnerable to the charge of being social parasites. The socially useful functions they had performed—such as preserving and copying old texts (for which village tithes had been collected by abbeys)⁹⁵ or providing books for university faculties (which the mendicant orders had supplied)⁹⁶—were transferred to urban entrepreneurs. With this transfer the balance between organs within the body politic was subtly altered in a way that subverted traditional hierarchies. For many functions traditionally assigned to churchmen belonging to the first estate were silently assumed by lay commoners belonging to the third. Although the full consequences of this shift took centuries to spin out, divergent responses to its initial effects shaped the course of later developments. In Protestant regions, these effects were swiftly implemented. Regular orders were dissolved, and the printer was assigned the apostolic mission of spreading glad tidings in different tongues. Within frontiers held by the Counter-Reformation church, measures were taken to curtail and counteract these effects. New orders, such as the Jesuits or the congregation of the Propaganda, were created; teaching and preaching from other quarters were checked by Index and imprimatur. That the fortunes of printers waned in regions where prospects had previously seemed bright and waxed in smaller, less populous states where the reformed religion took root may be connected with these divergent responses.

Before lines were drawn in the sixteenth century, men in Catholic regions appear to have been just as eager to read the Bible in their own tongues as were men in what subsequently became Protestant regions. Similarly, Catholic printers combined humanist scholarship with piety and profit-seeking. They were just as enterprising and industrious as Protestant printers. They also served the most populous, powerful, and culturally influential realms of sixteenth-century Europe: Portugal and Spain (with their far-flung empires), Austria, France, southern German principalities, and Italian city-states. But they do appear to

⁹⁵ See the reference to the allotment to the priory of Evesham in 1206 of village tithes for parchment and copyists' wages and of other funds for ink and illuminating and binding materials in C. H. Haskins, *The Renaissance of the Twelfth Century* (Cambridge, Mass., 1939), p. 75. Bühler, pp. 25–27, notes that monastic scriptoria flourished after Gutenberg—down to 1500. However, the missals and choir books they turned out became lucrative privileges granted to printers by monarchs and popes thereafter.

⁹⁶ K. W. Humphreys, *The Book Provisions of the Medieval Friars 1215–1400* (Amsterdam, 1964), *passim*, suggests how organizational energies were channeled by this task. I have not found a study of scribal book provisions for lay faculties of law and medicine or how the scriptoria serving them were supervised. What happened to clerical control of university book production after the advent of printing in various Catholic and Protestant regions also needs to be explored.

have been less successful in expanding their markets and in extending and diversifying their operations during the sixteenth and seventeenth centuries.⁹⁷ Needless to say, like those of other early capitalist enterprises, the fortunes of printing industries hinged on an exceedingly complex network of multiple interactions. Venetian printers, for example, were affected by a commercial decline that can scarcely be explained by singling out Protestant-Catholic divisions. If we want to understand how these divisions *did* affect an important early capitalist enterprise, however, this can be done better by looking at printing than at metallurgy, mining, textiles, ship-building, or other such enterprises.

Here the contrast registered on the title-page illustration of Foxe's *Actes and Monuments*—showing devout Protestants with books on their laps and Catholics with prayer beads in their hands⁹⁸—seems to me highly significant. After the Council of Trent, vernacular Bibles that had been turned out previously in all regions were forbidden to Catholics and made almost compulsory for Protestants. An incentive to learn to read was, thus, eliminated among the former and reinforced among the latter. Book markets were apt to expand at different rates thereafter. Since Bible-printing was a special privilege, its extinction in Catholic centers directly affected only a small group of printers.⁹⁹ The entire industry, however, suffered a glancing blow from the suppression of the large potential market represented by a Catholic lay Bible-reading public. Furthermore, vernacular Bibles were by no means the only best sellers that were barred to Catholic readers after the Council of Trent. Erasmus had made a fortune for his printers before Luther outstripped him. Both, along with many other popular authors, were placed on the

⁹⁷ See Steinberg's remarks (p. 194) about the movement of printing industries from southern to northern Germany after the mid-sixteenth century. "Type-founding, printing, publishing, book-selling" became "almost Protestant preserves," in his words. That this oversimplifies and exaggerates a more subtle shift is suggested by Hirsch, pp. 109–10, and by Febvre and Martin's most useful chapter on the "geography of the book," chap. vi.

⁹⁸ Haller, p. 118, and see illustration facing p. 25.

⁹⁹ The relocation of continental Bible printing centers following its extinction in Venice is described by Black, pp. 440–51. H. S. Bennett. *English Books and Readers, 1558 to 1603* (Cambridge, 1965), p. 141, notes how the pace of Bible-printing accelerated under Edward VI and came "almost to a standstill" under Mary Tudor. Thomas Cromwell's order to place a Bible in every parish church was, incidentally, granted at the bequest of the privileged printer who stood to profit from the order (Plant, p. 50). That certain Catholic privileged printers could and did profit from Tridentine decrees by supplying new breviaries and missals to priests is noted by Kingdon, "Patronage, Piety, and Printing," pp. 31–35. The promising French market for vernacular psalters that was closed by Catholic victories at the end of the sixteenth century, is, however, also evident in same article (pp. 28–30). The crippling effect of French censorship on printers, who could not afford long delays entailed by Sorbonnist debates, is described by Pottinger, chap. iv.

Index. Being listed as forbidden served as a form of publicity and may have spurred sales. It was, however, more hazardous for Catholic printers than for Protestant ones to profit thereby.¹⁰⁰ To be sure, pastors and printers were often at odds in regions governed by new consistories.¹⁰¹ But the “Protestant Rome,” despite the spread of Calvinism, was not served by an international clergy controlled from one center, could not block a free trade in ideas outside its narrow confines, and above all could not “fix” church policy in a permanent mold in the mid-sixteenth century. Nor did it discourage (quite to the contrary!) the expansion of a vernacular book-reading laity. Cautious Anglicans might temporarily (in 1543) forbid Bible-reading among “women, apprentices, husbandmen.”¹⁰² Fiery Puritans would never thus abandon the most vital principle of their creed. “The essential, imperative exercise of religious life, the one thing not to be omitted was for everyone the reading of the Bible. This was what the reformers put in place of the Mass as the decisive high point of spiritual experience—instead of participation in the sacrament of the real presence on one’s knees in church, they put encounter with the Holy Spirit in the familiar language of men on the printed page of the sacred text.”¹⁰³

That Protestantism was above all a “book religion” has certainly been noted repeatedly.¹⁰⁴ But this could be more fully exploited in comparative studies if it were related to other unevenly phased changes set in motion by printing. Given a clearly defined incentive to learn to read that was present among Protestants *qua* Protestants and not among Catholics *qua* Catholics, for example, one might expect to find a deeper social penetration of literacy among the former than among the latter during the second century of printing. Earlier lines dividing literate from unlettered social strata—magistrates, merchants, and masters from journeymen artisans and yeomen—might grow fainter in Protestant regions and more indelible in Catholic ones between the 1550’s and 1650’s. This, in turn, would affect the timing of “revolutions of rising expectations” and help to account for different patterns of social agitation and mobility, political cleavage and cohesion. We know that the mechanization of

¹⁰⁰ Being listed as forbidden *on the Index*, that is. After the advent of printing, censorship and book-banning were practiced in most principalities. Different lists were drawn up by magistrates and princes in accordance with varying policies. Only in Catholic areas, however, was guidance provided by the Index surimposed on these policies.

¹⁰¹ Examples of conflict are given by Davis, “Strikes and Salvation at Lyons,” pp. 58–64, and by Kingdon, “The Business Activities of Printers, Henri and François Estienne,” in Meylan (ed.), p. 265.

¹⁰² Cited by Bennett, *English Books and Readers 1475–1557*, p. 27.

¹⁰³ Haller, p. 52.

¹⁰⁴ Altick, pp. 24–25.

most modes of production came much more gradually in France than in England. The effects of the steam press, however, probably came more explosively. Certainly religion had not acted on Bible-reading German Anabaptists or English regicides as an opiate. Many low-born Londoners were already steeped in book-learning, were turning out tracts and proclaiming themselves “free born,” well before Parisian journeymen had mastered letters.¹⁰⁵ One might compare the silent war of words in seventeenth-century England with the efflorescence of chansons and festivals in eighteenth-century France. With regard to morals, the Jacobins were “puritan”; with regard to oral and visual propaganda, they were not. In brief, literacy rates among revolutionary crowds on both sides of the Channel are worth further thought.

Possibly the most fundamental divergence between Catholic and Protestant cultures may be found closest to home. The absence or presence of family prayers and family Bibles is a matter of some consequence to all social historians. Where functions previously assigned only to priests in the church were also entrusted to parents at home, a patriarchal ethic was probably reinforced. Concepts of the family were probably also transformed where the Holy Spirit was domesticated. Of course, family life was sanctified among Protestants by clerical marriage. But boundaries between priesthood and laity, altar and hearthside, were most effectively blurred, I think, by bringing Bibles and prayer books within reach of every God-fearing householder. It might be noted that where Bibles did displace confessors in upper-class Catholic homes, in French Jansenist circles, for example,¹⁰⁶ domestic codes set by Counter-Reformation moralists were also rigorously followed and a so-called bourgeois life-style was manifested, even among nobles of the robe.

Going by the book seems to be somehow related to the formation of a distinctive “middle class” or “secularized Puritan” ethos. To understand this relationship it may be useful to look more closely at what some kinds of early book-learning involved. In particular, we need to think about domestic manuals and household guides while recalling, once again, new features introduced by typography. Like cookbooks and herbals, domestic books were written in the age of scribes. But they

¹⁰⁵ Much useful data on the shaping of an indigenous working-class tradition in seventeenth-century England is given by E. P. Thompson, *The Making of the English Working Class* (New York, 1966), Part I. In her biography of John Lilburne, Pauline Gregg, *Free-born John* (London, 1961), brings out clearly how much Lilburne’s career owed to the printing press. Is there any seventeenth-century French equivalent of “free-born John”?

¹⁰⁶ Crehan, p. 222, notes Jansenist insistence on Bible-reading as a layman’s duty.

were not duplicated uniformly in repeated editions. Reliance on unwritten recipes, here as elsewhere, prevailed. Elizabethans who purchased domestic guides and marriage manuals learned in a new way how family life should be conducted in a well-regulated household.¹⁰⁷ A more limited and standardized repertoire of roles was extended to them than had been extended to householders before. Instead of a cross-fire of gossip conveying random impressions about what was expected or haphazard interpretations of what a sermon meant, books came that set forth (with all the *i*'s dotted and all the *t*'s crossed) precise codes for behavior that godly householders should observe. These codes were known to others—to relatives and neighbors—as well as to oneself. Insofar as they were internalized by silent and solitary readers, the voice of individual conscience was strengthened. But insofar as they were duplicated in a standardized format, conveyed by an impersonal medium to a “lonely crowd” of many readers, a collective morality was also simultaneously created. Typesetting in printers’ workshops thus contributed to role-playing at home.

In dealing with altered concepts of the family and the roles performed within it, we need then to consider the sort of cultural differentiation that came in the wake of the printing press. Early book-learning among Protestants was more homely, perhaps, and less courtly than among Catholics. But we also might note that primers and grammars, arithmetic books and writing manuals became more abundant at the same time in all regions. Both domestic and educational institutions were transformed in a manner that affected well-nurtured youths of all faiths. The sort of changes that affected family life between the fifteenth and eighteenth century have been brilliantly illuminated by Ariès’ pioneering study of French society.¹⁰⁸ Studies based on other regions are needed to supplement his findings. But new theories are also needed if we wish to understand how and why the changes he describes occurred when they did. “The family ceased to be simply an institution for the transmission of a name and an estate,” it assumed moral and spiritual functions, it “moulded bodies and souls.” How and why this happened remains to be explored. In setting out to do this, a revival “of an interest in education” seems to me the wrong place to begin. Why not consider, first of all, how child-rearing and schooling were affected by the printed book?

¹⁰⁷ Louis B. Wright, *Middle Class Culture in Elizabethan England* (Chapel Hill, N.C., 1935), pp. 106–10, 206, 211, contains many relevant titles and references. See also p. 203 for the contrast between English domestic books and more aristocratic foreign imports.

¹⁰⁸ Philippe Ariès, *Centuries of Childhood, A Social History of Family Life*, trans. R. Baldick (New York, 1962).

Possibly no social revolution in European history is as fundamental as that which saw book-learning (previously assigned to old men and monks) gradually become the focus of daily life during childhood, adolescence, and early manhood. Ariès has described the early phases of this vast transformation: "The solicitude of family, Church, moralists and administrators deprived the child of the freedom he had hitherto enjoyed among adults." The school "was utterly transformed" into "an instrument of strict discipline."¹⁰⁹ I would argue that such changes are probably related to the shift from "learning by doing" to "learning by reading." Surely some sort of new discipline was required to keep healthy youngsters at their desks during daylight hours. Some sort of new profession—that of tutor, schoolmaster, or governess—was required to keep them there. And some sort of new attitude on the part of parents was probably also apt to result. A new "concept of childhood" indeed might owe much to the widened gap between literate and oral cultures. The more adult activities were governed by conscious deliberation and going by the book, the more striking the contrast offered by the spontaneous and impulsive behavior of young offspring¹¹⁰ and the more strenuous the effort required to remould young "bodies and souls."

The appearance of a stricter domestic discipline, together with new forms of child-rearing, schooling, and worship, was probably linked to the inculcation of book-reading habits. But new forms of scurrilous gossip, erotic fantasy, idle pleasure-seeking, and freethinking were also linked to such habits. Like piety, pornography assumed new forms. Book-reading did not stop short with guides to godly living or practical manuals and texts any more than printers stopped short with producing them. The same silence, solitude, and contemplative attitudes associated formerly with pure spiritual devotion also accompanied the perusal of scandal sheets, "lewd Ballads," "merry bookes of Italie," and other "corrupted tales in Inke and Paper."¹¹¹ Not a desire to withdraw from a worldly society or the city of man but a gregarious curiosity about them could by the eighteenth century be satisfied by silent perusal of journals, gazettes, or newsletters. Increasingly the well-informed man of affairs had to spend part of each day in temporary isolation from his fellowmen.

As communion with the Sunday paper has replaced churchgoing, there is a tendency to forget that sermons had at one time been coupled with news about local and foreign affairs, real estate transactions, and

¹⁰⁹ *Ibid.*, pp. 412–13.

¹¹⁰ This sort of analysis seems relevant also to the problems considered by Michael Foucault, *Madness and Civilization: A History of Insanity in the Age of Reason*, trans. R. Howard (New York, 1965). A redefinition of *la folie* went together with that of *Penfant*.

¹¹¹ Cited by Wright, pp. 232–33.

other mundane matters. After printing, however, news-gathering and circulation were more efficiently handled under exclusively lay auspices. Such considerations might be noted when thinking about the "secularization" or "desacralization" of Western Christendom. For in all regions (to go beyond the eighteenth century for a moment) the pulpit was ultimately displaced by the periodical press and the dictum "nothing sacred" came to characterize a new career. Pitted against "the furious itch of novelty" and the "general thirst after news,"¹¹² efforts by Catholic moralists and Protestant evangelicals, even Sunday schools and other Sabbatarian measures,¹¹³ proved of little avail. The monthly gazette was succeeded by the weekly and finally by the daily paper. Provincial newspapers were founded. By the last century, gossiping churchgoers could often learn more about local affairs by scanning columns of news-print in silence at home.

In the meantime, however, communal solidarity among parishioners had been dissolved and vicarious participation in more distant events had been enhanced. Indeed, a sharper division between private and public zones of life accompanied the advent of printed publicity. The family, itself, "advanced in proportion as sociability . . . retreated. . . . It was a movement which was sometimes retarded by geographical or social isolation. It would be quicker in Paris than in other towns, quicker in the middle classes than in the lower classes. Everywhere it reinforced private life at the expense of neighborly relationships, friendships and traditional contacts."¹¹⁴

But even while social bonds linking parishioners were loosened, the claims of larger collective units also became more compelling. Printed materials encouraged silent adherence to causes whose advocates could not be located in any one parish and who addressed an invisible public from afar. As Ariès himself notes, the "concept of class and perhaps . . . the concept of race"¹¹⁵ appeared alongside a new privacy assigned to family life within the home. Like national consciousness, class consciousness reflected a new form of group identity that displaced an older, more localized nexus of loyalties. Similarly, the amorphous overlapping categories that were assigned different "ages of man" would later give way to chronologically numbered and segmented age grades. Newly

¹¹² Citations from the *British Mercury* of 1712 and Addison in Preserved Smith, *The Enlightenment 1687-1776* (New York, 1934), p. 284.

¹¹³ See Altick, p. 128.

¹¹⁴ Ariès, p. 406.

¹¹⁵ *Ibid.*, p. 415. The increasing remoteness and impersonality of political theorizing in the seventeenth century, discussed by Lionel Rothkrug, *Opposition to Louis XIV. The Political and Social Origins of the French Enlightenment* (Princeton, N.J., 1965), pp. 458-59, seems relevant to the above analysis.

segregated at schools and receiving special printed materials geared to distinct stages of learning, separate “peer groups” ultimately emerged; a distinctive “youth culture” that was somewhat incongruous with the “family” came into being. Such developments, however, did not really crystallize until the last century, after both typography and schooling underwent new transformations.

Public life was nonetheless profoundly transformed from the sixteenth to the eighteenth centuries, as many historical studies suggest. They say little about the advent of printing. It must have affected traditional governing groups in many ways. The printing of emblems of heraldry and orders of chivalry, for example, probably encouraged class consciousness among hereditary nobles and helped to codify notions about rank, priority, and degree.¹¹⁶ One may learn from Curtis how “drastic changes introduced by printing” affected undergraduate studies at Oxford and Cambridge and how “well-born successors to medieval clerks” profited from these changes.¹¹⁷ Unfortunately, Curtis’ approach seems to be exceptional. The effects produced by printing on higher education and academic institutions usually have to be inferred from occasional casual remarks. The same is true of treatments of other pertinent topics. How access to printed materials affected attitudes toward estates of the realm, the cultivation of landed estates, the collection of seigneurial dues, the conduct of courtiers, the strategies of councilors, military and fiscal policies, even the aspirations of would-be gentlemen—all could be usefully explored. Recently some historians have begun to abandon, as fruitless, older debates about the “rise” of a new class to political power in early modern times. They seek to focus attention instead on the re-education and regroupment of older governing elites—and have, thereby, precipitated new debates. Both lines of inquiry might be reconciled and fruitfully pursued if the consequences of printing received more attention.

According to Hexter, for example, “a revaluation of our whole conception of social ideas, social structure and social function in Europe in the Age of the Renaissance is long overdue.” We must start “by thinking in terms not of the decline of the aristocracy but of its reconstruction.” This reconstruction, moreover, was marked by a “new and radical”

¹¹⁶ See the reference to Caxton’s *Ordeyne de chevalrie* and other early books on heraldry in Jacob, p. 665. On the very different form taken by the art of heraldry before printing, see N. Denholm-Young, *History and Heraldry 1254–1310* (Oxford, 1965). The hardening of the concept of “degree” is treated by Altick, p. 31. The printing of the *Almanach de Gotha* from the eighteenth century on has helped to perpetuate the existence of a hereditary aristocracy despite its political abolition in some regions.

¹¹⁷ Mark Curtis, *Oxford and Cambridge in Transition 1558–1642* (Oxford, 1959), pp. 89–111.

suggestion that “bookish learning” was not “supererogatory” but indispensable to ruling a commonwealth and by “a stampede to bookish education” which “edged the clergy” out of some schools.¹¹⁸ If Hexter is right, it is also time to start thinking about changes that affected the nature of bookish learning itself. Hereditary nobles were probably forced by these changes to choose between old ways and new ways of training their sons. “In my day, gentlemen studied only to go into the Church and even then were content with Latin and their prayer book. Those who were trained for court or army service went, as was fitting, to the academy. They learned to ride, to dance, to handle weapons, to play the lute . . . a bit of mathematics and that was all. . . . Montmorency, the late Constable, knew how to hold his own in the provinces and his place at court without knowing how to read.”¹¹⁹

Once military command required mastering a “copious flow of books” on weaponry and strategy¹²⁰ and royal councilors were called upon “to think clearly, analyze a situation, draft a minute, know law’s technicalities, speak a foreign language,”¹²¹ it must have become more difficult to hold one’s place in court without knowing how to read. Failure to adopt new ways in some instances probably paved the way for the ascension of new men. Whether we describe it as a “rise” or “re-grouping” the increasing pre-eminence assigned robe nobles in France, for example, might be examined with this in mind.¹²² Officials and magistrates who acquired landed estates and adopted a noble life-style from the sixteenth century on apparently abandoned many of “their bourgeois ways.”¹²³ Yet they did not relinquish them all. From the early sixteenth century on, robe nobles were acquiring private libraries that outstripped those of the clergy by the end of the sixteenth century and left those of the *noblesse d’épée* far behind.¹²⁴ Was it not largely because

¹¹⁸ J. T. Hexter, *Reappraisals in History* (Evanston, Ill., 1961), chap. iv. See also Lawrence Stone, “The Educational Revolution in England, 1560–1640,” *Past and Present*, No. 28 (July 1964), pp. 41–80.

¹¹⁹ Remarks of a seventeenth-century French nobleman, reported by Saint-Evremond and cited by John Lough, *An Introduction to Seventeenth Century France* (London, 1960; 1st ed., 1954), p. 203. See also the exchange between Richard Pace and a Tudor gentleman in 1514 relating to the same issue, cited by Curtis, p. 58.

¹²⁰ John Hale, “War and Public Opinion in the 15th and 16th Centuries,” *Past and Present*, No. 22 (July 1962), pp. 20–22. This whole article contains much relevant material on the effect of printing on military affairs.

¹²¹ Lawrence Stone, *The Crisis of the Aristocracy 1558–1641* (Oxford, 1965), p. 673. See also W. T. MacCaffrey, “Elizabethan Politics: The First Decade,” *Past and Present*, No. 24 (April 1963), pp. 32–33.

¹²² See Ford, pp. 246–52.

¹²³ J. Russel Major, “Crown and Aristocracy in Renaissance France,” *American Historical Review*, LXIX (Apr. 1964), 631–45.

¹²⁴ Febvre and Martin, pp. 398–99.

learning by reading was becoming as important as learning by doing that the robe took its place alongside the sword? New powers were lodged in the hands of a legal bureaucracy which defined and interpreted rules pertaining to privileges, patents and office-holding while seeking privileges, profits, and places itself. Some of these new powers redounded to the benefit of the crown and to the royal officials who served it. But the provincial parliament commanding its own press also became the focal point of resistance to the extension of royal prerogatives; it often played a leading role in the formation of new learned societies and turned out propaganda that mobilized regional loyalties. The issue of literacy is already beginning to appear in discussions of the modernization of privileged status groups, which went hand in hand with the modernization of the royal court.¹²⁵ To discuss this issue, however, one must also take cognizance of the activities of printers and booksellers and of how their markets and sources of supply were diversely patterned in different regions. A comparative study of the effects of law-printing in England and in France, for example, might illuminate many issues.

Similarly, when discussing the “quiet” rise of modern science amid the “noisy” clash of rival Christian faiths, one must also consider the unevenly phased changes that came in the wake of the printing press. In this regard, it seems unwarranted to single out science from all “other European movements of the sixteenth and seventeenth centuries.” In comparison with the worldwide revolution introduced by Western science, the Reformation may be viewed as “a domestic affair of the European races.”¹²⁶ Nonetheless, the noisy domestic affair profoundly affected the more silent worldwide process. The appearance of a Protestant ethic, a spirit of capitalism, a middle-class ethos, new concepts of the family and the child, educational reforms, and a bureaucratic officialdom all owed much to multiple, complex interactions introduced by typography. That this applies most particularly to the “rise of modern science” is suggested by previous comments. On this basis, I would argue that medieval schoolmen should not be chided for relying too much on oral disputation.¹²⁷ Renaissance artisans did not turn “*from books to nature*” for instruction.¹²⁸ Aphorisms about the “book of na-

¹²⁵ See the contrast between education of robe nobles vis-à-vis those of the sword (Ford, pp. 217–21).

¹²⁶ A. N. Whitehead, *Science and the Modern World* (London, 1933), pp. 11–12.

¹²⁷ E. J. Dijksterhuis, *The Mechanization of the World Picture*, trans. C. Dikshoorn (Oxford, 1961), pp. 167–68.

¹²⁸ L. M. Marsak, “Introduction,” in L. M. Marsak (ed.), *The Rise of Science in Relation to Society (Main Themes in European History*, ed. B. Mazlish [New York, 1964]), p. 1; italics mine.

ture” may be traced to scribal writings, but their meaning was probably altered when the nature of the book was changed.¹²⁹ If Leonardo’s notebooks “contributed nothing” to the “organization of anatomy as a discipline,” this was probably not because he lacked “talent for classification and arrangement”¹³⁰ but because his notebooks were not processed by sixteenth-century printers. His curious position as a scientific genius who contributed almost nothing to sixteenth-century science serves to underline connections between a “scientific contribution” and the act of publication. Debates over contributions made by medieval schoolmen and Renaissance humanists,¹³¹ Aristotelians and neo-Platonists, later Catholics and Protestants, or Puritans and Anglicans¹³² all might become more fruitful if printing occasionally entered into the discussion.

To illustrate this last remark, let us look at a recent summary of efforts to explain “why the acceleration of scientific advance took place between 1540 and 1700.” A seemingly interminable argument is in progress. Should one stress the role played by individual genius, the internal evolution of a speculative tradition, a new alliance between intellectuals and artisans, or a host of concurrent socioeconomic or religious changes affecting the “environment against which these discoveries took place”?¹³³ To say that this sort of argument is pointless because *all* these “factors” were at work still leaves open the question of how and why they became operative when they did. Unless some new strategy is devised to handle this question, the old argument will break out once again. Since it perpetually revolves about the same issues, diminishing returns soon set in. One advantage of bringing printing into the discussion is that it enables us to tackle the open question directly without prolonging the same controversy ad infinitum. As previous remarks suggest, the effects produced by printing do seem relevant to

¹²⁹ Curtius, pp. 316–26.

¹³⁰ Hall, *The Scientific Revolution 1500–1800*, p. 42.

¹³¹ See, e.g., J. H. Randall, *The Making of the Modern Mind* (Cambridge, Mass., 1926), p. 212; Dana B. Durand, “Tradition and Innovation in Fifteenth Century Italy,” *Journal of the History of Ideas*, IV (Jan. 1943), 1–20; Edward Rosen, “Renaissance Science as Seen by Burckhardt and His Successors,” in T. Helton (ed.), *The Renaissance: A Reconsideration of the Theories and Interpretations of the Age* (Madison, Wis., 1964), pp. 77–105.

¹³² To sample this controversy, see references cited by S. F. Mason, “Science and Religion in 17th Century England,” *Past and Present*, No. 3 (Feb. 1953), pp. 28–43; H. F. Kearney, “Puritanism, Capitalism, and the Scientific Revolution,” *Past and Present*, No. 28 (July 1964), pp. 81–101; contributions by C. Hill *et al.* to debates on “Science, Religion, and Society in the Sixteenth and Seventeenth Centuries,” *Past and Present*, No. 31 (July 1965), pp. 97–126; and Leo F. Solt, “Puritanism, Capitalism, Democracy, and Science,” *American Historical Review*, LXXIII (Oct. 1967), 18–29.

¹³³ Kearney, p. 81.

cognitive advance, creative acts, and indeed to each of the contested factors in the dispute. Problems pertaining to the "environment against which these discoveries took place" might also be more squarely confronted if we took into account studies pertaining to the "geography of the book."

Clearly the outcome of dynastic and religious wars affected the conditions under which printers and booksellers operated. Forms of piety and patronage, licensing and censorship, literacy and book-reading habits varied from region to region in accordance with this outcome. Since the distribution of printing industries can be determined with a fair degree of accuracy, the "geography of the book" can be mapped out. The movement of printing centers can be correlated with the fixing of new frontiers.

The printer can be readily identified before the scientist began to emerge. The distribution of talents contributing to "scientific" advances in the early modern era is, therefore, much more difficult to ascertain. A wide variety of activities (mathematical descriptions, instrument-making, data collection, and so forth) and occupational groups have to be considered. The question of where and how to apply the term "scientist" to men who did not regard themselves as such is open to dispute. Furthermore, from the 1540's to the 1640's, investigations now regarded as scientific were still largely unco-ordinated. Scattered "centers" containing very small clusters of talents—an observatory on a Danish island, a university in Padua, a group of lens-grinders in Amsterdam, a court in Prague—dot the map somewhat randomly. Given two Italian academies and Abbé Mersenne's letter box to go by (and they do not appear till the end of the interval), the location of the most energetic centers of activity is also a matter for dispute. Those who argue that the rise of modern science was a cosmopolitan movement, unaffected by political and religious divisions, or that Catholic Italy, with its universities and academies, played a preponderant role during its formative phases base their views on an interval where activities can only be co-ordinated in retrospect. They take for granted that co-ordination would be forthcoming and hence overlook the conditions that made it possible. They also assume that a free flow of information was secured during an interval when it was, instead, most vulnerable to every turn of fortune's wheel.¹³⁴

It is not until the second half of the seventeenth century that a clearly localized center of fruitful collaboration can be found. To reach

¹³⁴ "By 1640, with the work of Galileo, Harvey, and Descartes virtually complete, one can safely say that science had risen"; T. Rabb, "Religion and the Rise of Modern Science," *Past and Present*, No. 3 (July 1965), p. 112.

it one must travel north toward the English Channel. The formation of this center has been noted by many authorities. They try to account for it in various ways. The prior relocation of printing industries is left out of their accounts. Thus Butterfield aptly describes a cross-channel "humming activity" entailing "the publication in Holland of journals written in French, communicating English ideas."¹³⁵ Following Hazard, he glides over the role played by Dutch presses in order to point instead to the Huguenot printers who manned some of these presses. The Huguenots, however, were latecomers to the world of the Elzevirs. The wars of Dutch independence had ushered in a golden age of printing in Holland (and had established at Leiden a great Protestant university) before the Edict of Nantes had even been proclaimed. The works of Descartes and Galileo (and of Bacon, Comenius, Hobbes, Grotius, Gassendi, *et al.*) were being turned off Dutch presses before this edict had been revoked. The humming activity that propelled scientific advances toward the end of the seventeenth century hinged on defeats suffered by the Spaniards a century earlier—minor scuffles on a corner of the globe, to be sure, but with worldwide repercussions nonetheless.

"In the story of the rise of modern science, religion is of peripheral concern."¹³⁶ I think this statement can be made only because the full story has not been told. The makers of early popular almanacs in England "generally adopted the Copernican system of the world."¹³⁷ In French popular almanacs down through the eighteenth century one will find "not the slightest trace . . . of the Copernican astronomy."¹³⁸ This particular contrast, based on two secondary accounts, may not stand up on closer examination. I offer it merely to suggest that the divergent routes taken by science in Catholic and Protestant lands have not all been traveled. What Jesuit presses turned out in Peking is, I think, really "of peripheral concern."¹³⁹ In Europe, propagation of the new philosophy, from the time of Newton's birth on, did not come from

¹³⁵ Herbert Butterfield, *The Origins of Modern Science 1300–1800* (New York, 1951), p. 140.

¹³⁶ Rabb, p. 126.

¹³⁷ Cited from Marjorie Nicolson, by Mason, p. 41. Nicolson's article, which shows how the Copernican system triumphed first over the Ptolemaic and then the Tychonic in the course of the seventeenth century, is worth consulting in full. See "English Almanachs and the 'New Astronomy,'" *Annals of Science*, IV (Jan. 15, 1939), 1–33.

¹³⁸ Mandrou, p. 157.

¹³⁹ Rabb, p. 117, and Koestler, p. 495 n., both suggest that Jesuit propagation of the Copernican theory in China in the late seventeenth century is somehow applicable to the question of how religious divisions affected scientific developments on the Continent. Yet we know, on other issues, that what the Jesuits taught in China brought them into disrepute at home. See Paul Hazard, *La crise de la conscience européenne (1680–1715)* (Paris, 1935), I, 29.

Rome, Madrid, Vienna, or Paris. The completion of the Copernican revolution drew on books that seldom received an imprimatur and often turned up on the Index. I have already suggested that conditions which favored the expansion of book markets and a literate artisanate were linked to scientific advance. The fact that unauthorized vernacular versions of the book of nature could be duplicated and circulated more freely among Protestants than among Catholics also must be taken into account.

Seventeenth-century Protestant printers ran afoul of authorities with political or theological tracts. But they could serve virtuosos in relative peace. In noting this fact, it has been suggested that Protestant convictions had simply lost their force and should not be dragged into the discussion. Early Protestant divines had after all condemned the new astronomy. The point is, however, that their faith did not entail preserving the old astronomy. There was nothing in the Bible about crystalline spheres or epicycles. Insofar as pagans, scholastics, and papists had contributed to the old astronomy, it was also viewed with some suspicion by Protestant divines. The Bible was of no use at all to the professional astronomer. Yet no society could dispense with his services. Reliance on the Scriptures and not a watered down faith probably forced a divorce between Protestant theology and mathematical astronomy. The professional astronomer was left alone to get on with his reckonings. Given a free hand and the new flow of information, he did get on, moving ahead by astonishing leaps and bounds. "In the year 1500 Europe knew less than Archimedes . . . in the year 1700 Newton's *Principia* had been written"¹⁴⁰—not merely written, published as well.

If the connection between the act of publication and a scientific contribution could be drawn more firmly, reasons for the turmoil over Galileo's "crime" might be better understood. What has been uncovered by recent historians was scarcely perceptible to printers and virtuosos two centuries ago. Nor were they aware that Bruno had been burned because of his theological rather than his astronomical views. The consequences of the "mild reproof" of Galileo were, at all events, not nearly as trifling as some accounts suggest.¹⁴¹ Copernican views were

¹⁴⁰ Whitehead, p. 16.

¹⁴¹ On this point, Koestler leads his readers astray by diverting attention from the effect of Galileo's trial to that of the condemnation of Copernicus' *De revolutionibus*. Koestler argues (p. 458) that the book remained on the Index only four years while "trifling" corrections were made, that any Catholic publisher could reprint it thereafter but that no one (Catholic or Protestant) bothered to, since it was outdated already, and that hence the "temporary suspension had no ill effects on the progress of science." Even here, his interpretation seems to me wide of the mark. As Kuhn notes (p. 199), "Not until 1822 did the Church permit the printing of books that treated the earth's motion as physically real." Freedom

thereafter linked to the antipapist cause. On patriotic and religious grounds, their adoption was sanctioned among Protestants. The contrary occurred among Catholics, for whom they were tainted with sedition. Proselytizing had to be conducted cautiously and often surreptitiously. It is notable that Anglicans and Puritans, bitterly divided over God's words in the seventeenth century, were brought together by the study of His "works." According to Bishop Sprat, the Royal Society served as a refuge from political and religious controversy. Across the Channel, as Voltaire noted, things were ordered differently. There, programs associated with the advancement of learning, the spread of book-reading, data collection, and the popularization of the new cosmology were not peaceful at all. To appreciate the difference, one need only compare the quiet reception of Chambers' *Cyclopædia* in England with what happened to the project to translate it in France.

Possibly because all transformations introduced by printing are "quiet," increasing tensions that accompanied the subterranean expansion of the Republic of Letters in Catholic lands are often overlooked. Since these tensions were explosive and of major historical consequence, the contours of this invisible republic need to be brought into clearer focus. This is difficult because one must deal with a realm that had no tangible existence as an institutional organization—not even a shadowy existence as a legal fiction.

It is clear enough that Bayle's *Nouvelles de la République des Lettres* came from Rotterdam. It is also evident that the language of its inhabitants had shifted in the course of the seventeenth century from Latin to French. Its central city in the eighteenth century was, according to one authority, Amsterdam.¹⁴² But a margin for uncertainty has to be left when trying to pinpoint its headquarters or designate its frontiers on real maps. It remained, from the beginning a fanciful domain, issuing products from "Cosmopolis" or "Utopia,"¹⁴³ conveying by the same

to print speculations about what is physically real is not, in my view, a "trifling" matter and does have a bearing on the progress of science. Galileo's *Dialogue* remained on the Index for 192 years. As for his later *Discourses*, Koestler suggests he might have had them printed in Vienna rather than Leiden. On why this must have seemed inadvisable, see G. de Santillana, *The Crime of Galileo* (Chicago, 1955), p. 326.

¹⁴² Febvre and Martin, p. 298.

¹⁴³ See invented accommodation addresses mentioned by Steinberg, pp. 264–65. Bennett, *English Books and Readers 1475–1557*, p. 210, provides an amusing early English example: "Printed in Jerico in the land of Promes by Thome Truth" (London, 1542). During the first centuries after Gutenberg, a considerable amount of illicit literature, both pornographic and political) was circulated in manuscript form (Bühler, pp. 30–31). This tradition persisted in eighteenth-century France. See Ira O. Wade, *The Clandestine Organization and Diffusion of Philosophic Ideas in France from 1700 to 1750* (Princeton, N.J., 1938), *passim*.

clandestine channels strangely assorted forbidden works by austere philosophers, libertines, pornographers, political-party hacks, visionary fanatics, scientists, and romancers. Yet those who took advantage of the new career opened to the talents of skilful writers were not disembodied spirits who must be materialized to be believed. They were, rather, real men. Those who provided the foundries, workshops, and officials scattered throughout this imaginary realm made real profits by tapping the talents that gravitated to it. By the eighteenth century, most of these printers were located in northern Protestant regions—Holland, Switzerland, England, Denmark,¹⁴⁴ and smaller buffer states on the fringes of France¹⁴⁵—and were seeking populous markets for an expanding industry. Most of the authors were Frenchmen whose way had been paved by the conquests of the French language. Their command of their native tongue made them indispensable when translation was required and still sought after when it could be bypassed. “For a century, from 1690 to 1790, the works of the most famous French writers were read throughout Europe in editions published outside France.”¹⁴⁶

New career opportunities were thus opened for ambitious and industrious young men of obscure parentage who happened to be born in French-speaking regions and who were gifted with their pens. The lure of international celebrity channeled aspirations toward achievement in a new direction. To older dreams of purchasing land or titles and offices was added another, possibly more glamorous pursuit—one that has proved particularly attractive to able young Frenchmen down to the present. Young men from varied backgrounds who set out on a “perilous voyage to prosperous distinction”¹⁴⁷ in the seventeenth century won their way to acceptance at Parisian salons and foreign courts (as well as to prison and penury) in the next century by wielding their pens for

But the circulation of hand-copied political lampoons or scatological verse seems to me socially inconsequential compared to the organized underground trade in printed books.

¹⁴⁴ Pottinger, p. 76, notes the large proportion of French works that came from these regions.

¹⁴⁵ A most useful, detailed case study of a French playwright turned foreign publisher and propagandist for the Encyclopedists is given by Raymond Birn, *Pierre Rousseau and the Philosophes of Bouillon (Studies on Voltaire and the Eighteenth Century, ed. T. Besterman, Vol. XXIX [Geneva, 1964])*. Birn offers much relevant data on the role played by buffer states and also on the clandestine book trade between 1760–1789. A. Bachman, *Censorship in France from 1715 to 1750* (New York, 1934), *passim*, describes difficulties with parliaments, bureaucrats, and censors experienced by French publishers. Members of the *librairie* were hit harder than authors, who could and did turn to foreign printers in neighboring regions.

¹⁴⁶ Febvre and Martin, p. 278.

¹⁴⁷ Pottinger, p. 11.

printers everywhere. Some were treated as lackeys by unenlightened aristocrats, some served other nobles as hired hands, while a number of the most celebrated Enlightenment authors—Condorcet, Condillac, Mably, Helvétius, *et al.*—were of noble birth themselves. Still, in no other eighteenth-century region would the hope of obtaining an independent eminence and international prestige be similarly encouraged by aid forthcoming from foreign workshops.

Drawn from diverse strata and detached from local loyalties, the new careerists would appear to posterity either as ghost-writers for others or as free-floating intellectuals. No group, however, had a stronger vested interest in the inculcation of book-reading habits or as close a connection with the book-trade network than did the French philosophes. Their cosmopolitan outlook, their values and attitudes reflected conditions that were peculiar to their new occupation. Particular pecuniary interests and personal vanity (often a most important element in the outlook of authors) have to be considered when accounting for their views. But book-writing authors were also wide-ranging readers. Even as an ecumenical faith came naturally to continental printers, so too did the notion of a timeless consensus among all reasonable men from all eras and places come naturally to men who were more at home in the world of books than in their own home towns.

It was, I think, as spokesmen for their own particular pressure group—as a new class of men of letters rather than as spokesmen for the robe nobility, the *tiers état*, or the royal power—that the philosophes urged men to trust their own understanding, assailed the church, attacked privileges and monopolies, fought for a free trade in ideas, and hoped to wean enlightened monarchs away from collaboration with the Index and the presses of the Propaganda. Their political attitudes and the pressures they exerted were distinctive and need to be considered as such. They should not be classed among traditional parvenus seeking offices closed by the so-called feudal reaction. Did not the fall of the Bastille in 1789 signify something of particular importance to men of letters in comparison with all other social groups? Over eight hundred authors, printers, booksellers, and print-dealers had been incarcerated there between 1600 and 1756.¹⁴⁸ The crowds who stormed the fortress seeking gunpowder may have seen cannon trained on crowded *quartiers* or thought about toll barriers and bread prices. To the journalists who hailed its fall, it probably appeared as a symbol of the fate of a somewhat different sort of tyranny. Certainly printers, authors, and “publicists” began at once (and have continued to the present) to amplify the meaning of its capture.

¹⁴⁸ *Ibid.*, p. 79.

The sort of influence that was exerted by this new class of men of letters has been the topic of an unending argument.¹⁴⁹ General theories about the relationship between ideas and social action are frequently invoked. Seldom, if ever, do the specific effects of the advent of printing enter into the discussion. Yet both the thrust of Enlightenment propaganda and the invisible meeting of minds that came with its diffusion can scarcely be understood without taking these effects into account. It was after all printing that made possible vicarious encounters with famous philosophers who turned out to be kindred spirits. They boldly spelled out the repressed content of interior dialogues. They argued at length with persuasive power about matters one could not discuss in front of one's servants, parents, or neighbors. Few visible traces, save thumbprints on well-worn volumes or a chance remark about a youthful enthusiasm for a favorite author, would be left by such encounters. Yet fear of disapproval, a sense of isolation, the force of local community sanctions, the habit of respectful submission to traditional authority—all might be weakened among many obscure provincial book-readers by recognition that their innermost convictions were shared by fashionable and famous men of letters. Moreover, print is a singularly impersonal medium. Lay preachers and teachers who addressed congregations from afar often seemed to speak with a more authoritative voice than those who could be heard and seen within a given community. The publication in numerous editions of thoughts hitherto unthinkable involved a new form of social action that was indirect and at a distance. "The revolutionary spirit was surely not formed in silence and solitude. One might write revolutionary works, but they would remain pure and inoffensive speculations if their ideas had not fermented in the heat of conversation, discussion, and battles of words. In order for such ideas to become *idées forces*, they required a public."¹⁵⁰ A most important consequence of the printing press, however, was that it did create a new kind of public for *idées forces*.¹⁵¹ The reading public was not necessarily vocal, nor

¹⁴⁹ For a brief review, see Henri Peyre, "The Influence of Eighteenth Century Ideas on the French Revolution," in Franklin L. Baumer (ed.), *Intellectual Movements in Modern European History (Main Themes in European History)*, ed. B. Mazlish [New York, 1965], pp. 63–85.

¹⁵⁰ Daniel Mornet, *Les origines intellectuelles de la Révolution française (1715–1787)* (Paris, 1947; 1st ed., 1933), p. 281.

¹⁵¹ This view conflicts not only with Mornet's work but also with more recent French studies of the eighteenth-century bookish world—currently the topic of intensive investigation. Much as Febvre and Martin hold that printing retarded the adoption of new ideas by duplicating old ones in the sixteenth century, so Dupront argues that, far from contributing to revolutionary dynamics, eighteenth-century book production reinforced tradition and acted as a brake: "le livre retarde"; Alphonse Dupront, "Livres et culture dans la société française au XVIII^e siècle (Réflexions sur une Enquête)," *Annales économiques—soiétés—civilisations*

did its members necessarily frequent cafés, clubs, and salons of known political complexion. It was instead composed of silent and solitary individuals who were often unknown to each other and who were linked only by access to bookshops, lending libraries, or *chambres de lecture* and, here and there, also by membership in “corresponding societies.”¹⁵²

There is no way of knowing, with certainty, what really went on in the minds of silent, solitary readers who have long since gone to their graves. Authors are often surprised by what gets read into their works. A wide margin for uncertainty must be left whenever one tries to read the minds of other readers. It is precisely because it shows where this margin lies and why it cannot be eliminated that speculation on this matter may be useful. Interactions that cannot be determined with certainty in retrospect could not be foreseen or controlled in prospect. Failure to speculate about the indirect effects exerted by the philosophes on their public prolongs the search for some alien invisible hand that set Frenchmen in motion by 1789. The law-abiding subjects of Bourbon France did behave in a manner that astounded contemporaries. If we sidestep the problem in social psychology their unexpected behavior poses, the myth-makers are apt to step in, and debates will center on thickly documented solutions that leave no margin for uncertainty at all.

The conspiratorial myths that have been woven around Masonic lodges, reading societies, and the French Revolution could themselves be better understood if various effects produced by printing were taken into account. New forms of secrecy, publicity, duplicity, and censorship underlie all modern myths of this genre. Examination of these issues cannot be undertaken here. Let me just note in passing that conspiratorial hypotheses in general are more often propelled than dispelled by efforts that stop short with disproving them. Bibliographies grow thicker, the atmosphere more charged, as skeptics and true believers fail alike to convince each other.¹⁵³ The possibility that multiple invisible interactions

(1965), pp. 895–97. This article was recently republished in an important collaborative volume sponsored by the Sixième Section of the Ecole Pratique des Hautes Etudes: *Livre et société dans la France du XVIII^e* (*Civilisations et sociétés*, Vol. I [The Hague, 1967]).

¹⁵² On *chambres de lecture*, see Augustin Cochin, *Les sociétés de pensée et la révolution en Bretagne 1788–1789* (Paris, 1925), I, 20. On corresponding societies that circulated hundreds of thousands of copies of Paine’s *Age of Reason* between 1791 and 1793 in the British Isles, see Altick, p. 70, and Thompson, chap. v.

¹⁵³ A cogent example is Norman Cohn’s *Warrant for Genocide: The Myth of the Jewish World Conspiracy and the Protocols of the Elders of Zion* (New York, 1966). The author concludes with useful insights. But by reproducing lurid tales and vicious cartoons, the bulk of his work helps to keep the same virus in circulation and even revives some old strains. It was, incidentally, a satire on Napoleon III’s regime as “journalism incarnate” that provided a model for the

were introduced by a silent communications system is a point that both parties tend to ignore and that the skeptics, at least, should be persuaded to explore. Most of them agree that pens can poison the atmosphere when they are used to accuse Protestants or papists, Masons or Jacobins, Jesuits, Jews, or Bolsheviks of sinister plots. If this is true, then climates of opinion can be affected by pens, including those wielded by enlightened philosophes. A clearer understanding of social "action at a distance" might at least help to explain how earlier views of conspiracy—pertaining to assassination plots or rabble-rousers hired by seditious factions—gave way to the more awesome image of a vast network, controlled from secret headquarters, that set men to do its bidding from afar.¹⁵⁴

Many other developments could be clarified by exploring the new complex interplay between different groups of writers and readers. Vicarious experiences with newly created fictional worlds, for example, affected human hearts as well as heads. Empathy induced by novel-reading probably helped to sustain humanitarian movements of various kinds. Powers of calculation and abstraction were sharpened by access to printed materials. New imaginative and sympathetic faculties were also brought into play. Were all the senses save sight partly atrophied? McLuhan's suggestion that a heightened visual stress served to dull other senses is debatable. Since authors became more skilled in simulating the noisy, colorful, odorous, rich-textured stuff of life, it seems likely that readers also became more keenly sensitive to varied tactile and sensory stimuli. It should be noted that printers served not only pedants and scientists but composers and painters, gourmets and gardeners, connoisseurs and aesthetes as well.

Unfortunately, space does not permit setting down further conjectures here. Although I have tried to touch on varied fields of study, the full range of problems that might be reviewed by those who are concerned with early modern Europe has by no means been displayed. As for the more recent past, I have had to stop well short of the interval when the power of the press was harnessed to steam and hence have said nothing about issues that seem to be particularly relevant to present concerns. The arbitrary nature of this stopping point should be underlined. When

protocols. See David Kulstein, "Government Propaganda and the Press during the Second Empire," *Gazette: International Journal for Mass Communication Studies*, X (1964), 125–44.

¹⁵⁴ The effect of printing on collective psychopathology urgently needs further study. Recent analyses by Richard Hofstadter on "the paranoid style in politics" and by Hugh Trevor Roper on the "witch craze" and a spate of studies on differences between medieval and modern anti-Semitism might be reconsidered in this light.

dealing with the effects of printing, it is a mistake, in my view, to think in terms of periods that open and close. These effects were exerted always unevenly, always continuously and cumulatively from the late fifteenth century on. I can find no point at which they ceased to be exerted or even began to diminish. I find much to suggest that they have persisted, with ever augmented force, right down to the present. Scribal culture did come to an end. Despite the advent of new audiovisual media, one cannot say the same about typographical culture. At least I do not think one can say this. Recent obituaries on the Age of Gutenberg show that others disagree.¹⁵⁵ As yet, however, so few historians have been heard from that final verdicts seem unacceptable and, in more ways than one, premature.

The deliberately inconclusive nature of this stopping point also must be underlined. These conjectures have been based on very uneven acquaintance with relevant data, much of it drawn from unreliable general accounts, all of it pertinent to very few regions. Numerous gaps have been filled in by logical inference—at best a poor substitute for empirical findings. No conclusions are in order at this point. Let me simply recapitulate: A new method for duplicating handwriting—an *ars artificialiter scribendi*—was developed and first utilized five centuries ago. Recent historians still concur with Bacon's opinion that this changed "the appearance and state of the whole world." "It brought about the most radical transformation in the conditions of intellectual life in the history of western civilization . . . its effects were sooner or later felt in every department of human life."¹⁵⁶ At present we must reckon with effects "felt in every department of human life" without knowing which came sooner, which later, and, indeed, without any clear notions as to what these effects were. Explicit theories, in short, are now overdue. To make a start at providing them, I have cut across fields properly cultivated by specialists and made sweeping assertions that have not been substantiated. This rash course has been pursued with a more prudent goal in mind. Collaboration is required to achieve it. If my conjectures have alerted some readers to how much remains to be done and aroused some concern about doing it, then they have fulfilled their purpose.

¹⁵⁵ The obsolescence of print technology and its supercession by electric media is repeatedly asserted by McLuhan, not only in *The Gutenberg Galaxy* but also in *Understanding Media, The Extensions of Man* (New York, 1965). See also George Steiner, "The Retreat from the Word," *Kenyon Review* (Spring 1961), pp. 187–216, and Kenneth Winetrou, "The New Age of the Visible. A Call to Study," *A. V. Communication Review*, XII (Spring 1964), 46–52.

¹⁵⁶ Gilmore, p. 186.