

**The Book in America: Economic Aspects of the Material Text  
Week 1 (January 13) -- General Introduction, British background, American  
context**

**“The social, cultural, and physical environment of print and printers in the Early  
Modern period” -- Daniel Traister, University of Pennsylvania:**

To summarize the European background of print in about thirty minutes is an assignment I find fairly amusing. I can only beg a kind audience to be prepared for equal amusement.

Printing does *not*, of course, begin in Europe. It does *not* begin with Gutenberg. And it does *not* begin with letterpress. It's probably necessary, for at least some people in this room who may be coming to this topic for the first time, to be reminded that both paper and print are inventions that originate in Asia, and that printed images precede printed *texts*.

Paper begins to be made in China at some point during the first century of the Common Era. Papermaking technologies move quickly to the south and east, that is, to Japan and Korea -- places they reach long before westward expansion makes paper a medium for textual transmission in Europe. The transmission of papermaking techniques from China to Islam takes place following the battle of Talas (near Samarkand) in 751 C.E. Their move to Europe takes place about a millennium after paper's initial development in China, that is, in the eleventh century, and, not too surprisingly, in Moorish Spain. It is quickly thereafter established in Italy. By the fourteenth century, paper is also made in France and Germany. A very brief, not lasting, papermaking industry comes into existence in England, but by the fifteenth century the Continent is England's main paper supplier. The spread of the craft through other areas of Europe is gradual.

At some point in the seventh or eighth centuries of the Common Era, printing of text becomes established in China. By then, various kinds of inks already exist, of course. These had long been used for calligraphy, ordinary writing, and art. But the kinds of inks from which printed images could be made needed development, and the experiments that led to their production took place over intervals dispersed both geographically and chronologically. The forms of printing that initially developed in China did not use “movable type.” Asian writing systems require far more characters than alphabetically-written European languages -- thousands versus hundreds. Texts were at first printed in China from “types” that were really molds containing at least entire lines or, more likely, entire pages, of text. Sometime in the eleventh century, “types” made from clay begin to be used; wooden types were in use by the early fourteenth century; and, in Korea, bronze types are known to have been cast early in the fifteenth century.

Both in Asia and, much later, in Europe, printing of images that have been raised from (earlier) or incised into (later) flat plates preceded the printing of texts. Perhaps some of you were able to see a recent exhibition at Washington’s National Gallery of Art, on view from early September to late November this past fall. “Origins of European Printmaking: Fifteenth-Century Woodcuts and Their Public” (now at the Germanisches Nationalmuseum in Nuremberg, where it remains on view until March 19th -- for anyone who may happen to be passing through), produced an exceptionally informative catalogue, with essays on the ways in which image printing came to Europe, rather earlier in the fifteenth century than Gutenberg’s invention for the printing of text. This is not

necessarily the place to emphasize the significance of this kind of printing -- that is, of images -- but the obvious point may need to be stated explicitly. Produced for societies that are at best marginally literate even in vernacular let alone in learned languages, images are far likelier to find markets than texts. You don't need to be able to put an **a**, an **n**, a **g**, an **e**, and an **l** together to *spell* "angel" in order to *recognize* an angel when you see its image. The sheer ubiquity of images, relative to text, in late medieval and early modern Europe needs always to be recalled. Not too confusingly, I hope, it needs to be added that their paucity -- relative, this time, to the overwhelming ubiquity of images in modern times -- needs simultaneously to be borne in mind. If there were in the period I am speaking about *more* images to be seen than texts to be read (or, at least, looked at by the unlettered), there were far, far *fewer* images than we take reflexively for granted as one of the conditions of life in the present.

On, then, to text printing. We conventionally credit the person or group of people we call "Gutenberg" with the "invention" of printing in Europe without thinking much about what it was he or they invented. "The printing press"? No. Presses are an old European technology. They go back at least to classical times, used for olives, grapes, oils, wines, and other liquids. The press was not Gutenberg's innovation, although of course he does seem imaginatively to have adapted it to a use for which it had not originally been considered. What he "invented" was a two-part adjustable mold into which a mixture of lead, tin, and antimony could be poured to produce a piece of metal of the slight width needed for an **i** or of the greater width needed for an **m**, but both to the same height, the letterform raised above a flat platform to take ink and pass it to a piece of parchment or

paper pressed upon its surface. Or so we think. It is at least also conceivable, as Paul Needham argued several decades ago, that some form of molds that produced entire lines, or double lines, of type were in use in mid-fifteenth century Germany. In any event, text printing was a development that occurred in Europe early in the decade of the 1450s, following about two decades of experimentation.

Its advantages over manuscript production, for some purposes at least, were clear enough so that, within about fifty years -- that is, by the year 1500 -- most major (and surprisingly many minor) places in Europe had printing presses in situ. Before the middle of the sixteenth century, by 1539 (less than a century after printing had come to Europe), printing reached Spanish North America. It reached South America within a few decades, and it reached English North America a hundred years after it had reached Mexico City, arriving in Cambridge, Massachusetts, in 1639. That is the year that begins the story to be investigated in some detail in this seminar over these coming weeks.

But my task is to look at the European background of those early American printers. I've mentioned briefly the ways in which paper and printing of images and texts came to Europe between the eleventh and the fifteenth centuries. In addition to the development of inks for printing, which (as in Asia) needed some time, binding forms were another issue. It's useless to print texts if you cannot keep them together and in order. European books had been getting themselves put into codex form, and wooden, leather, pasteboard, or more elaborate covers, for centuries, ever since the period between the second and the fifth centuries of the Common Era when Christians (whom contemporary Newspeak now

calls “Common”) distinguished themselves from Jews and pagans by adopting the codex rather than the scroll form for their books. We have already seen, too, that illustrations -- should a book require any -- were being printed in ink on paper before texts themselves.

In other words, all of the elements for a “book culture” seem to have been present by the end of the fifteenth century in Europe.

Or many of those elements. But by no means all of them.

Who, after all -- first things first -- could even *read*?

What was the *market* for books of any kind, let alone printed books?

What *kind* of books -- manuscript or printed -- would find their ways to readers, and *where*?

Who could afford to *finance* a printing office?

Who among the laborers needed to staff a printing office could be found able to *read* well enough to *set type* correctly? (But perhaps that is an illusory criterion. After all, as late as the nineteenth century, Balzac depicts a printer in provincial France who, though completely illiterate, is nonetheless able to follow copy in order to print it, this in a novel called *Illusions perdues* -- *Lost Illusions* in English.)

Gutenberg seems to have emerged from the guild of goldsmiths. *Metalworkers* of various kinds seem an obvious source of laborers for a craft that depended on an ability to handle a variety of different metals and alloys. But *scribes* and the *people who staffed scriptoria* offered different, though complementary and equally necessary, forms of expertise -- skill sets -- for printing offices: viz., literacy, an ability to read, and, perhaps, to read (as well as to write) in learned as well as vernacular languages.

We may also wonder what *sources* would provide food for the printer's office. That is, *who were the writers, the authors*, whose products printers would make available to their eager readers?

What must be one of the funniest books ever written about early printing deals with questions such as these in ways that repay reading. The book is extremely short: twenty-six pages of text, plus some illustrations. Its author, a man known variously as Hans or Giovanni Mardersteig, was himself a printer and a scholar, a German transplant whose Officina Bodoni, located in Verona, produced some of the greatest physical books of the mid-twentieth century. The book to which I refer is called, in its 1967 English translation, *The remarkable story of a book made in Padua in 1477: Gentile da Foligno's Commentary on Avicenna printed by Petrus Maufer (La singolare cronaca della nascita di un incunabolo: Il commento di Gentile da Foligno all'Avicenna stampato a Padova da Pietro Maufer nel 1477, Verona, 1967)*. Unfortunately, the book is almost invariably found -- as here at Penn -- in rare book libraries rather than in general circulation (and so

one is reluctant to photocopy it for use for a situation such as this one). In this book, originally an article, Mardersteig depicts a printer who might most charitably be called clueless. He arrives in Padua, prints a book, goes almost immediately bankrupt, and slips out of town, schlepping as much as he can manage of the equipment he came in with, to try the entire process again somewhere else.

Is there a *market* for Gentile da Foligno on Avicenna? If there is, is that market located in Padua? Who knows? Not our printer. If there is, whether in Padua or elsewhere, how can his version *reach* its market? Who knows? Not our printer. What are the real costs of *producing* the book, and what price will allow the printer who produces and sells it to make, dare one say, a *profit*? Who knows? Not our printer.

His failure, far from unusual, seems in its way all too sadly typical. Flying by the seat of his pants, metaphorically (and by night, literally, on his way out of town), our hero is probably far more typical than those heroes of early print -- Jenson, Aldus Manutius and his heirs, the Giunti, the Crombergers, William Caxton -- whose successes we more happily remember. Whatever else the new technologies may have opened to people of a risk-taking temperament, the prospect of *failure* was high on the list. Those who are here from a background in economic history will find nothing in this comment the slightest bit surprising. Those who come from a background in literature may be somewhat more appalled to think of literature sullied by necessitous commerce with . . . well, with *commerce*.

These new technologies -- printing from types produced from the molds developed by Gutenberg; presses adapted to printing requirements; paper able to take the impression of types and to retain inks; inks able to remain on paper without running, feathering, or fading; covers able to keep books protected for use and re-use -- did not remain frozen in their original fifteenth-century forms. To begin with, there were enough new technologies to require increasing levels of specialization. Type founders did not necessarily also make paper, bind, or print. In fact, as time goes by, they almost certainly did *not* do so. A printing office buys its types from a founder who does not also print and its paper from a jobber who does not also act as a type foundry. The printing office probably retains only a binding operation in-house, in order to vend its product to its potential customers in usable form. Other binders operate as independent contractors either to printers or to individual customers.

As we should also have expected, these new technologies developed slowly in almost all respects. As we might not have expected, many of these developments took a long downward course over time, at least in terms of the quality of the products they yield. Whether that downward trajectory is a “good thing” or a “bad thing,” however, is not a simple question to answer.

The paper, ink, types, and design of the so-called “first book” printed in Europe, the Gutenberg Bible, are all admirable in appearance. Any of you who has ever handled a copy of the thing itself will have noticed that, despite a date in the mid-1450s, now some six hundred and fifty or so years ago, it looks and feels a great deal fresher than you

yourself feel -- and I say this even though I was merely in my thirties when I worked on a daily basis with a copy, and far, far fresher than I feel today. It is organic and it is going to die . . . eventually. But it will take a long time, short of a fire or tossing it into the Hudson, the Thames, the Seine, or the Brazos, to do it in.

However, it takes virtually no time at all, following the Bible's production, for other books to start looking worse than the Gutenberg Bible did (and does). The general quality of paper deteriorates. So does that of the ink used in books. Even by the end of the fifteenth century, almost no books can be located that look as fresh as the Gutenberg Bible still looks -- and these books are infinitely *better*-looking, infinitely *better-made*, than the majority of books made in following centuries. Spanish books of the sixteenth and seventeenth centuries, or English books from the same periods, are often almost unspeakably dreadful, occasionally horrid even to the touch. If we come from an Anglophone background, we have been taught to admire the First Folio of 1623, the book that contains the texts of Shakespeare's plays. But it is, in fact, an extraordinarily ugly piece of printing, its contents to the contrary notwithstanding, and it is also an extraordinarily lousy job of printing -- which is why it serves as virtually a Full Employment Act for scholars of the Shakespearian text. Paper deteriorates because a process that, for Gutenberg, was engaged in largely as hand labor, with some assist from watermills, has, by the seventeenth century, become a mechanical, proto-industrial process, large machines beating the cloth fibers out of which paper is made into ever shorter -- and hence increasingly fragile -- lengths than had earlier been possible. The point of the process is to speed up paper production rates: it is an improvement, not a

flaw, which papermakers are trying to introduce into the process. The same holds for the sizing -- chemicals whose ultimate degrading qualities they will have had no occasion to consider -- with which paper is coated, the better to take inks or illustrations. Inks become thinner. Both paper and ink are victimized by various chemical treatments. Some inks literally eat through the paper on which they have been printed. You can hold a page up to the light and see holes in the shapes of letterforms, although -- since ink eats into paper from both sides -- these shapes are not always as easy to determine as one might have imagined. Paper itself, unlike John Donne's "gold to airy thinness beat," simply becomes increasingly fragile, inclined to brittleness and yellow. It easily becomes what, at a library where I used to work, was called -- this in the newspaper reading room and with respect to nineteenth- and early twentieth-century papers -- "Post Toasties."

But these developments signify *not* failure but *success*. The deterioration of papers and inks, of type forms and book design, even of bindings and illustrations, all indicate a growing market that needs more of everything, and needs it more quickly, than can be produced by slow, hand-based, quality-driven, manufacturing techniques. And why should anyone have seen a problem in any of these kinds of changes? Printing itself is, after all, a proto-industrial craft that takes shape long before anything historians call an "industrial revolution." This aspect of the print world -- its anticipation of industrial forms of production -- is apparent from a variety of perspectives.

First, printers themselves occupy an anomalous social position in late medieval and early modern Europe. They are laborers. But because they may also be lettered -- may even be,

in the old sense, *literate*, that is, able to read Latin and Greek -- they are likely to have less in common with bricklayers or millers than they have with the people to whom they are selling their product. We need to think a bit about what this ambiguous status means in a society far more hierarchically stratified than ours is, in order to understand, say, why printers are so quick to form labor unions. In "A Trade Union in 16th-Century France" [*Economic History Review*, 19 (1966), 48-69], Natalie Zemon Davis finds a proto-labor union among the printers -- the apprentices and journeymen, *not* the masters! -- of sixteenth-century Lyons. Anyone who grew up as I did in the New York of the era of Bert Powers and the ITU might have benefited from a sense, even then, of just how far back -- even if not continuously -- the sense of union solidarity among printers runs. Status issues also help us to understand matters about which Robert Darnton writes when he considers drinking rituals among printers, or -- in his famous essay -- "The Great Cat Massacre." These become ways of promoting a kind of in-group solidarity for people whose relationships with other laborers, on the one hand, and with intellectuals, scholars, or just plain customers, on the other, are both fraught with mutual suspicions and may often be severely attenuated even under the best of circumstances. From the perspectives of their fellow laborers, printers could easily have seemed snot-nosed and pretentious. From the perspectives of the intellectuals, scholars, or customers with whom printers might have wished to converse, however, printers were, at the end of the day, mere laborers. When we read about Erasmus

<<http://www.albertrabil.com/projects2000/craigfarmer/1.jpg>>chumming around with printers, we chirpily see him as typical. But we know as much as we do about Erasmus precisely because he *wasn't* typical.

The working conditions under which books were produced are also relevant to the “industrial” nature of work in the world of print. Europe, we recall, is a centrally air-conditioned place even now, relative to the Sun Belt that Americans live in. But in the period when printing came of age, it was even colder than it is today. Europe was then in the midst of a Little Ice Age that had begun in the early fourteenth century -- the 1300s -- and was to last till roughly the 1850s. Emmanuel Le Roy Ladurie’s *Times of Feast, Times of Famine: A History of Climate since the Year 1000* (1971 in English; *Histoire du climat depuis l’an mil*, 1967) and Brian Fagan’s *The Little Ice Age: How Climate Made History 1300-1850* (2000) are among the histories that deal with these climatic events. They ought to remind us that people who work in cold conditions, with relatively little daylight for half of the year (I am just returned from a place where darkness arrived a bit before four in the afternoon), are working in conditions from which we should by and large run screaming were we ever to encounter them. They are working with few windows, so even if we want to imagine a bright and sunlit European out-of-doors that exists, in my experience, largely in travel guides but not, alas, in Europe, it’s going to be dark for them. Glass is expensive. Windows may be taxed. They are working without central heating, of course. Illumination and heat both come from fireplaces and candles. The workday is long. Natalie Zemon Davis’s Lyons printers worked in printing offices that opened for their workdays at 2 A.M. and closed at 10 P.M. Most individuals did not work all of the hours that the office was running; but they certainly weren’t working eight-hour days with an hour for lunch, either. Because water was unhealthy -- you didn’t drink it; and bathhouses were places to avoid because they were places where you caught the

plague -- you were likely to stink. You might not notice this as much as we would, since your neighbors stunk just as badly as you. Since standing urine was also part of the -- let's call it "technical equipment" -- used in printing offices, another source of unpleasant odor was always on hand in addition to you yourself and your co-workers. Both because water was unhealthy and, in part, also because the ability to drink quantities of wine, ales, or beers became a signifier of status among printers, your workday was likely to involve increased insobriety, if not outright drunkenness, as the day wore on. And outright drunkenness was, in fact, a common complaint of masters about their apprentices and, more often, their journeymen -- and this not in the printing trades only. Edmund S. Morgan makes this same comment about the problems that masters faced with their laborers in a variety of crafts, trades, and industries in early America generally in *American slavery, American freedom: the ordeal of colonial Virginia* (1975).

The work was hard physical work. Cold or warm, a compositor was setting small pieces of metal which he had to read upside down and backwards into a stick, setting three, four, five, maybe six lines before moving them to a galley to line up with other already-set lines of type. The work was demanding on manual dexterity and eyesight. Darkness, smoke from fire and candles, and drink were not likely to ease these demands in any noticeable way, except, perhaps, by anesthetizing you to them. The press, made of wood, was not all that easy to move. In fact, each pass of a sheet through the press required two pulls on each side, four pulls per sheet. If anyone here has done any printing, it will almost certainly have been on presses made of iron in the nineteenth century or later. They do not pose casual physical demands on their user but they are astonishingly easier

to use than the old wooden common press that by and large held sway in printers' offices from the time of Gutenberg through the beginning of the nineteenth century. Sheets of paper were moved in stacks. Before printing, they needed to be dampened, the better to enable them to take the impression of types and retain printers' ink. They then needed to be dried, and the process would need to be repeated for printing on their other side -- and, if a sheet were to receive an engraved illustration, as well as letterpress, this process would need to be done yet again. The amount of work that a shop could do was severely limited by the numbers of people it could conveniently hold, a number limited also by the number of people a master could conveniently pay -- and feed, because his obligations as master included provision of food and drink.

Once all of this stuff were over and done with for a book -- which is what we think of printing offices as in business to produce -- the book itself would still need to have its sheets put together in the proper order, bound, and got to market. But since in fact books were *not* what printing offices were in business to produce, job work -- advertisements, broadsides, governmental, business, or ecclesiastical work, and a host of assorted other ephemeral productions that buttered a helluva lot more parsnips than Shakespeare in folio -- slowed the process still more in order to keep the printing office supplied with a basic economic necessity of life, *cash flow*.

And always the master needed to worry about how much work of any kind -- job work; book work -- he and his journeymen and apprentices could manage to produce. Donald F. McKenzie's *Cambridge University Press, 1696-1712: a bibliographical study* (1966)

shows that no master could plan confidently on the basis of consistency of output. Pressmen and compositors, paid by piecework rates, could speed up if they needed money, slow down if they were hung over, and so do in ways that could not be predicted. Even the production rates of the most experienced laborers could vary dramatically from week to week. Whether workers even showed up might be in doubt. In Roman Catholic Europe, a bevy of Saints' Days alleviated to at least some degree the relentless toil of labor, but in Protestant England Saints' Days were unpopular. Morgan reminds us, in a passage I have already alluded to, that in Protestant America, as in England, Saint Monday became a relatively popular addition to the *non*-liturgical calendar, a day on which workingmen could nurse their weekend hangovers. Or they might just pick up their heels and leave, with or without notice, seeking a better boss, a more cheerful or bountiful table, a better -- or just a different -- working environment.

I have discussed only the conditions under which printing offices worked, and tried to do so briefly and without occasioning too much horror. Binders had it worse. (I am not knowledgeable about what working conditions were like for papermakers in early modern Europe.) What ought to be clear from this forced march through a great deal of condensed history, familiar to some but not all of you, is that the background from which print culture came to America in the 1630s and '40s was characterized by small offices, not large ones -- "light" industry, not heavy. Large printing offices did indeed exist. Anyone who has ever been to the Plantin-Moretus Museum in Antwerp has seen one, well preserved and worth visiting. But most were not large operations -- I could cite for the obvious example the Jaggard shop at which Shakespeare's folio of 1623 was

produced -- and they suffered from their inefficiencies of size. Capital accumulation, stock and equipment accumulation, were all difficult to manage. The 1623 folio was printed in ways that reflect a documentable shortage of type in Jaggard's shop, and the process of getting the book out was delayed by the need for interim cash flow provided by intrusive job work undertaken while the process of getting the big book completed was under way, thus interrupting its progress.

When printers, binders, ink manufacturers, papermakers, and all the rest of the people involved in the book trades crossed the Atlantic, conditions favorable to capital accumulation or to proper equipping of a printer's office were not improved by their removal. But what the people involved in the printing and book trades did to counter the additional inefficiencies to which a western Atlantic location had subjected them to need not be my subject here this afternoon.

### **Some Suggestions for Further Reading**

An extremely short history of the book will be found in Traister, "Book," *International Encyclopedia of Communications*, Erik Barnouw, Editor in Chief (Oxford: Oxford University Press, 1989), I:209-17. Basic studies of early printing include:

Eisenstein, Elizabeth L. *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early Modern Europe*. 2 vols. Cambridge 1979.

The “*Reader’s Digest-Condensed*” version of this book has just appeared in a second edition, with a new preface: *The Printing Revolution in Early Modern Europe* (Cambridge 2005).

Febvre, Lucien, and Henri-Jean Martin. *The Coming of the Book*. Trans. David Gerard. London 1976.

Many editions of the French original, *L’apparition du livre* (Paris 1958), also exist.

Hirsch, Rudolf. *Printing, Selling and Reading 1450-1550*. 2nd edition. Wiesbaden 1974.

Johns, Adrian. *The Nature of the Book: Print and Knowledge in the Making*. Chicago 1998.

This book is available in e-form to Penn users at

<http://ets.umdl.umich.edu/cgi/t/text/text-idx?c=acls;cc=acls;idno=HEB01007.0001.001;view=toc>.