

The coming of print to Europe

The introduction of printing into western Europe has counted as the signature event of the history of the book ever since Lucien Febvre and Henri-Jean Martin's *l'Apparition du Livre* launched the modern discipline in 1958. The purpose of *l'Apparition* was to demonstrate that Johann Gutenberg's innovation was the most important turning point in human history, separating modernity from everything that had gone before.¹ That conviction is still broadly held today. By its lights, Herbert Butterfield's famous line about the scientific revolution – that it 'outshines everything since the rise of Christianity and reduces the Renaissance and Reformation to the rank of mere episodes' – might be more aptly applied to what we have become used to calling the *printing* revolution.²

There are really two aspects to this idea of a printing revolution. One has to do with the development of the book itself. Clearly, the adoption of printing made possible major changes in the manufacture, character and commerce of books. The quantitative potential alone was stark, and seems to have been evident in the 1450s, even before printing itself had a stable existence. With a press, a printer could produce far more books than scribes and other copyists could ever hope to manage, and those books could be sold at much lower prices to more people. The second aspect concerns the cultural consequences – and also, although this has been more rarely noticed, the cultural *constituents* – of this transformation in the book. Printed books emerged from a new and complex place, the printing house, and their forms reflected its elaborate internal customs. Produced in quantity, books became familiar to many more people, and many more kinds of people, than ever before. Those people put them to new and unpredictable uses. Not all were immediately or intentionally transformative. But in the early modern period the most radical changes generally came from ambitions to restore the past. So readers devised new knowledge even as they revived ancient learning; they transformed the practices of everyday life by stabilizing them; and they advanced new kinds of faith in seeking to confirm

the traditions of Christendom. To call this a revolution is legitimate, as long as we remember that it was a paradoxical one.

However, identifying a revolution need not, and in this case should not, involve stipulating a transformation into modernity. This is critically important if the concept of a printing revolution is to pass muster, not least because modern experiences of print reflect changes that happened long after the fifteenth century. (The development of mechanized printing and systems of copyright are two examples.) More fundamentally, it ought to be possible to conceive of a revolution as a radical change without preconceptions about the direction of that change.³ It is a simple point, to be sure, but its implications have been neglected. They include resisting the temptation to assign significance disproportionately to phenomena that happen to look significant in retrospect while neglecting phenomena more representative of the period and place in question. This is all the more important if we *do* want to appeal to the printing revolution to help explain the modern world, because otherwise the risk of circularity is very real.

The other thing to remember is the practical character of this transformation. The efforts of Gutenberg's contemporaries and successors to adopt and adapt to the new device were all-important in shaping not only how fast the printing revolution proceeded, but what the revolution itself would be. Dealing with print required the forging of new places and habits of work, and the development of new kinds of governance. Our subject needs to be these processes that bound together machine, object and culture. Novel as they were, they were not created out of nothing. To use the language of 'impact' that is common in this field, we must ask about the impact *on* print as well as the impact *of* print – and about how the one shaped the other.

For the most part, modern attempts to survey the introduction of print in western Europe have fallen short in both these respects. This was partly a result of the conventional separation of bibliographical research – history of the book proper, as it were – from the discipline of History itself. The one has focused on particularity, at the cost of antiquarianism; the other has focused on a large-scale 'shift', at the cost of teleology.⁴ For the latter, especially, aspects of Renaissance printing that seemed to align with progress toward modernity – modernity, that is, as viewed from the late twentieth century – were singled out for attention, and treated as caused by the press itself: they manifested the 'impact of print'. Those that did not were relegated from view as accidental, unrepresentative or insignificant. A simple but poignant example is the spread of printing houses from the German town of Mainz across western Europe. Until recently this was represented as a rapid and triumphal expansion, such that by 1500 many European cities possessed printing houses and the impact of print could be said to have definitively registered itself. But

as Andrew Pettegree has noted in what is by far the best account of the whole subject, the impression was artificial. In reality, printing houses often proved extremely transient. Collapse followed rapidly on founding. If printers' failures had been mapped alongside their beginnings, then the expansion of the craft would have appeared both more fragile and less inevitable. Moreover, even where it did take hold, far from imposing its own 'logic', print rested upon much older trade routes and credit practices. And, finally, choosing the date of 1500 skewed perspectives too, because that proved a peak year. A sharp and prolonged crash hit the book trade at that time. Many even of the more substantial operations folded, in a crisis that not only stemmed expansion but also caused a major change in the geography of European printing. Venice – the primary centre of the late fifteenth century – was supplanted by Lyon, Paris, Basel and Antwerp. As Pettegree insists, an adequate history of the advent of printing in western Europe must integrate, and account for, these setbacks and these dependencies. We cannot understand how the successful printers survived to shape the identity and effects of print unless we appreciate the real contemporary possibility – more, the *probability* – that they would not.⁵

Printing was not a modern practice, in short, but an early-modern one. It emerged through experiments both mechanical and social, took on a role defined in terms of Renaissance concepts of mixed sciences and mechanic arts, and had to be accommodated to the political and providential perceptions of that Machiavellian era. And it was precisely *because* print was a creature of its time that it could give rise to far-reaching changes.

Experimenting with print

If the origins of European printing are obscure, that is just as its originator wished. In this respect, as in others, Johannes Gutenberg was typical of the ambitious artisans of the time. Trained, apparently, as a goldsmith, Gutenberg's first innovative venture was a plan to make and sell metal brooches to pilgrims, the idea being to profit from a forthcoming religious festival at the old Carolingian capital of Aachen. He intended to make tens of thousands – a number large enough to imply some kind of stamping technique. But he mistook the date of the pilgrimage, and found himself stuck with a warehouseful of unsellable brooches. Faced with disaster, Gutenberg resorted to making tantalizing promises to his anxious partners about another, newer, 'art and adventure' that might make good their losses. He insisted upon secrecy about this project, to the extent of sending agents to dismantle the equipment when the partnership foundered. But it involved a press, 'forms' and other tools. It is tempting to assume that these words had something like

the meanings that they would acquire over the next decades – that they referred to experiments in printing.⁶

The importance of printing is obvious in retrospect, and was recognized quickly by contemporaries. So it is striking to realize that Gutenberg's early experimental efforts were in fact typical of what was a period of artisanal ambition. From the late fourteenth century, ambitious master-craftsmen in several European centres sought with considerable success to lay claim to the status of artists and knowledge-makers, as displayed in a proliferating genre of books they produced about their crafts. Goldsmiths are generally recognized to have been the exemplary case of these ambitious master-craftsmen. They not only produced elaborate, intricate models of natural and artificial processes in their workshops, but also masterminded collaborations between different crafts. Pamela Smith points out that goldsmiths experimented with cannon-making, dyeing, locksmithing, horology and engraving as well as printing. They also pioneered the Vitruvian rhetoric that printers would later use to argue for their elevated status with respect to the mechanic arts.⁷ Gutenberg's brooches, the mirrored surfaces of which supposedly captured virtues emanating from relics, were typical products of this 'artisanal epistemology'. And their role as machines of natural magic – also typical – casts an intriguing light on the more famous machine that followed. Moreover, many of the artisanal experiments of the age involved casting or impressing: coiners produced currency and medals, binders used presses to stamp designs on the panels encasing manuscript books and carvers created woodblocks to make repeated copies of playing-cards and books like the *Ars Moriendi*. All were being pursued at the same time, giving rise to objects that were often amalgams of different tools and techniques. Blockbooks, for example, incorporated manuscript writing and illumination. The first generation of 'true' printed books would likewise be amalgams, and Gutenberg himself should be regarded as exemplary rather than unique.

The experiments of goldsmiths and other artisans often involved long periods away from prying eyes. Gutenberg was again typical. With the end of his Strasbourg venture he disappeared for a few years, until in the late 1440s he turned up again in Mainz with a project to print books. In 1455, a cleric and diplomat named Aeneas Sylvius Piccolomini wrote to tell a Cardinal friend just how ambitious his scheme was. 'All that has been written to me about that marvelous man seen at Frankfurt is true', he reported. He had seen pages filled with characters so clear that 'your grace would be able to read it without effort, and indeed without glasses'. Somehow Gutenberg had almost finished printing not only *a* book, but *the* book: the Bible. Piccolomini promised to try to buy a copy. But he was not optimistic – 'buyers were said to be lined up even before the books were finished'.⁸

By this time Gutenberg had seemingly solved the technical problems of printing. The success had not been immediate or easy. It turns out that in his earlier labours Gutenberg did not use punches and matrices to generate many identical copies of a single character – the kind of technique that many would regard as definitive of printing itself. He instead made many versions of each letter substantially by hand, using moulds of sand in a technique similar to that employed by metalworkers to model fragile objects. The practice resembled a translation of late-medieval handwriting into metal. Only a little later would type-founders move to more uniform punch-and-matrix production, and with it the adoption of the coherent styles – fonts – that would set printed books apart from the products of scriptoria.⁹ For decades, what we conventionally call ‘printed’ books would be better thought of as amalgams of print and manuscript. Printed letters originated as metallic extensions of handwriting, and printed sheets would often be sent on to an illuminator’s workshop for finishing by hand.

It is significant that Piccolomini believed that the whole impression (roughly 180 copies) was already spoken for. If he was correct, this implies that Gutenberg, perhaps remembering the debacle over brooches, had taken care to minimize what would become the bugbear of printers in the future: the locking-up of capital during printing itself. At the very origin of European printing lies a cautionary tale about the fragility of the whole enterprise. With a printed book, the entire impression must be produced before any one copy could be sold, and that might mean a delay of months (or years, for very large projects). This was a major problem, as printing houses typically did not have large financial reserves, and credit was at best hard to secure. Gutenberg was experimenting not only with novel techniques, but also with novel means of funding those techniques. And his experiment failed. At this very moment his backer, Johann Fust, sued Gutenberg for unpaid debt. It seems that he won and seized the entire printing operation. Fust then put it to use himself, in partnership with his adopted son, the cleric and scribe Peter Schöffer. The most spectacular result was their 1457 Mainz Psalter – the first book ever to contain a statement identifying its printer.

Gutenberg largely vanishes from the record after this. But it does seem that, his initial secrecy notwithstanding, he was involved in the initial spread of printing beyond Mainz. A different bible was soon being printed in Bamberg, with type modelled on his earlier characters and presumably with his consent. When presses began to be set up in other cities, moreover, it was generally at the instigation of erstwhile workers in Gutenberg’s original house or its successors. Heinrich Keffer went to Bamberg; Johann Sensenschmidt became the first printer in Nuremberg; Ulrich Han went to Rome; and Heinrich Eggestein went to Strasbourg, where he started printing in partnership with

Johann Mentelin, one of the several men who would later be credited with inventing printing itself. From Bamberg, Johann Nicolai and Georg Herolt ended up in Perugia and Rome respectively.¹⁰ The art that provided for communication at a distance was dispersed, not through the circulation of texts, but by the movements of skilled, experienced craftsmen.

The printing house at work

The printing houses that these early craftsmen established soon became complex operations. Printing required the labours of many different kinds of people: the master-printer himself, pressmen – two per press, compositors, correctors, apprentices and the general dogsbodies known as ‘devils’. The movements of all these people and things had to be coordinated over long periods – a tricky task for a small house, with only two presses, but much more complex for the largest, with nine or ten. Sustained collaboration was thus all-important. It had to depend on customs and rules. Yet no single model for this new kind of place had existed in 1450. So early printers had to decide for themselves what arrangements would govern the workers in their relationships to each other, their masters and the outside world. The first half-century of print was a time of experiment not only in machinery but also in these social systems.

Conventionally, in early modern crafts the virtues and vices of a master-craftsman extended to the reputation of his workshop and its products. Perceptions of the character of the printer and of the books he produced were thus inseparable. So who were these men? It is not always easy to tell. The first generation, connected directly with Gutenberg, Fust and Schöffer, often have obscure backgrounds. But Nicholas Jenson may have worked in a mint, Anton Koberger was a goldsmith and Mentelin had been a scribe – all trades from which print borrowed customs and techniques. Succeeding generations saw practitioners marry into the craft or move into it from cognate enterprises like binding (as both Louis Elsevier and Plantin did) or bookselling (as did Henri Estienne).

The model of the master-printer that such figures pioneered was partly shaped by the conjunction of the invention of printing with the climax of humanism. A generation of renowned scholar-printers – Johann Amerbach, Johannes Frobenius and Johannes Oporinus in Basel, Sweynheym and Pannartz in Rome, Manutius in Venice, Henri and Robert Estienne in Paris, Koberger in Nuremberg – established the ideals to which a master should aspire. These balanced the figure at a kind of Lagrangian point, as it were, between the attractions offered by the roles of craftsman, artist and scholar. The prime exemplar in the German lands was perhaps Amerbach, who

started out as a Parisian student of humanism before becoming the master of a printing house in Basel and devoting it largely to the production of patristic works. His counterpart in the south was surely Manutius, who had been a scholar before launching his printing house, and remained one while a master-printer. Each of these figures also became something of a patron in his own right, forming a household in which humanist scholars (Erasmus, for example) would live and work on the production of editions alongside the family of the paterfamilias.

Scholars venturing into the printer's domain found themselves in an alien and intricate cultural space. By the second or third generation, major houses had annual, seasonal and daily time disciplines, expressed in a panoply of customs and ceremonies. The best documented was the *officina plantiniana* which Christophe Plantin established in the 1570s, and its records give us a good sense of what it was like to work in the trade. Journeymen were expected to be present by 5am, in order to start working at 6am (late enough to allow them to attend mass); they would work until 8pm, by candlelight if necessary during the winter months. They were paid by how much they produced, which meant that they tended to agitate to be allowed to work even longer. But for pressmen in particular it was a long, arduous day, and journeymen could take drinks, including beer, to sustain themselves, either singly or, at set times, in groups. Because coordination was crucial, the house imposed penalties if one worker should fail to keep up with the others. During the 1560s Plantin also banned disputes over religion for the disruption they were liable to cause, on pain of almost a day's wage – double the fine for brawling.

The workers in printing houses organized themselves into what they called *chapels*. In Plantin's house the chapel started early and became remarkably sophisticated, with a finely graduated structure of ordinances upheld by fines and other punishments (including a spanking with the official chapel slipper). Such penalties could be levied on the master, or even on visitors. A formal procedure existed for making and addressing accusations, which ordained that they be entered into a 'complaints book' and brought before an internal court for adjudication. The court had an elaborate hierarchy of offices, numerous enough that every member of the house served in some capacity at frequent intervals. The results seem to have been harmonious enough, by and large, although there were moments of internal conflict. In 1572 Plantin even told a Spanish contact that he had threatened to shut down altogether out of frustration at one such clash, but it seems that this was exaggerated for effect.¹¹

One became a member of this chapel, ideally, by graduating (being 'freed') from an apprenticeship. Master-printers liked to use apprentices as cheap

labour, however, and at first few seem to have acknowledged any obligation to teach them the craft beyond what was needed for the task at hand. Moreover, because printing was not initially integrated into guilds, it was possible for a worker to leave an apprenticeship in one town after a brief period and take up work as a journeyman in another region – hence the itinerant lives of many self-proclaimed journeymen. By the early sixteenth century, printing communities in various towns were starting to form rules similar to those long operative in other crafts, limiting apprentices' numbers, mandating their training and requiring that they live with their masters.¹² From about this point the end of an apprenticeship began to be an occasion for elaborate ceremony. A German ritual known as the *Depositio Cornuti Typographici* survives to indicate what this involved. The festivities formed a sequence in which the apprentice, dressed up as a smelly, red-nosed, horned beast, was roundly abused in knockabout fashion before confessing his sins, figuratively dying and being reborn and baptized into his new identity.¹³ This kind of thing seems to have been quite common, and it underlined the conjunction of skill, rationality and morality that defined the printers as a well-ordered community.

The rules of the book

Most of what these workers printed were not books at all, but proclamations, administrative documents and the millions of indulgences that enterprising churchmen commissioned. Not only did these not require the locking-up of capital in an impression, but they could also be paid for in advance, effectively removing all risk.¹⁴ But to the extent that it was a book industry, printing depended on existing networks of communication, credit and commerce. The houses that lasted were in places linked to long-established city fairs (Frankfurt, Leipzig), those with sophisticated trade and financial systems (Venice, Antwerp) or, to a lesser extent, those with secure cultures of patronage and political power (Rome, Paris). A good counterexample is the thriving town of Albi. In 1475 Albi became the third French town with a printing house. But the place was simply too remote from trade routes. The printer responsible – another veteran of Mainz – soon departed for the mercantile centre of Lyon, leaving Albi without a printing house for the next 200 years.¹⁵ Spain, then the most powerful nation in Europe, was Albi writ large: because it was not a nodal point for trade, most printers there remained small-scale, itinerant artisans.¹⁶ Even a university, it is worth noting, was not necessarily sufficient to provide enough of a book market to sustain a publishing printer. Academic publishing is a more recent and fragile creation than it is comforting to remember.¹⁷

Even so, before the end of the fifteenth century several major cities hosted a dozen or more printing houses working simultaneously. And a number of the larger houses addressed a continent-wide marketplace. The question therefore arose of how houses should interact with each other when they targeted the same readers. Consider, in particular, what should happen if one printer tried to issue an impression of the same work as another for the same market – a problem that had never previously existed in any consistent way. Hans Amerbach in Basel and Anton Koberger in Nuremberg faced it in 1499, and the result was a complex, intricate correspondence making explicit the ways in which such issues were seen in terms of Renaissance conceptions of honour, virtue and obligation.¹⁸ Civility might not dictate a particular outcome, but it certainly defined the range of positions open to a responsible printer or bookseller. Still, in general it was unclear where the moral right lay, what conventions should govern the conduct of the clash, and who had the authority to decide an equitable outcome.

As the trade and its markets expanded, the question thus became that of developing protocols for managing these kinds of disputes in general. How to shape a responsible craft of the printed book, in harmony with itself and the commonwealth? The urgency of this question was accentuated by anxieties about the power of an ill-ordered book trade to destroy the peace of the realm itself – as, in the view of many contemporaries, happened during the more violent episodes of the Reformation. Over the course of the sixteenth and early seventeenth centuries, a number of cities created legal, institutional and customary structures to address this problem of order. Four characteristic institutions emerged: the privilege, the register, the guild and the licence.

The earliest city to develop a complex, interlaced kind of administration seems to have been Venice. It is worth pausing there, as many other cities would tread a similar path. In the fifteenth century, the principal way in which the Republic's authorities engaged with the new craft was by the issuing of privileges. A privilege granted its beneficiary the exclusive power to print and sell a certain work for a defined period, ranging from one to about twenty years. Although privileges were instruments of long standing and wide application in every European jurisdiction, their use with respect to printed books was new and it took decades to be standardized. It is important to realize that a privilege was not a *right*: one could not expect one simply by virtue of having a new book to print. Privileges were entirely in the gift of the authorities, and they had to be requested, giving reasons. In Venice, early requesters often specified a need to secure the *quality* of books – which meant bemoaning the intrinsic disorder of the trade, 'by which', as one applicant put it, 'the texts of editions become every day more corrupt, which thing is a dishonour and a public injury to this glorious city'. Soon they would add unscrupulous

reprinting, as detailed in a bid by Bernardino Rasma in 1496. Rasma complained of reprinting as a ‘pernicious and hurtful corruption’ that had apparently become endemic: anyone undertaking a substantial book should expect other printers to ‘steal the proofs of the new work from the hands of the pressmen, and set to, with many men and many presses, to print the book before the original designer can finish his edition, which, when it is ready for issue, finds the market spoiled’.¹⁹

Privileges were awarded in large numbers. But it seems that evasion or avoidance – or, given that no archive existed to show what privileges had already been awarded, sheer ignorance – was fairly routine. By the early sixteenth century the situation was becoming unworkable. Printers would apply for them willy-nilly, blocking rivals while not actually publishing the works themselves. In 1517 Venice responded by passing the city’s first law to standardize privileges. It abruptly cancelled every existing patent, at a stroke rendering all books common. From then on, privileges could only be granted for unprinted works, and they would require a two-thirds vote of the Senate. At almost the same time, *imprimaturs* (licences) were standardized too, again in a bid to protect the value of the trade from a reputation for textual corruption. Later measures added that a privileged, licensed book must be printed in Venice itself, published in good time and sold at a price the state deemed reasonable.

In 1549 a guild (or ‘University’) was established for Venice’s book trade, centred on the grand church of SS Giovanni e Paolo. The idea seems to have been to provide a focal point for the Republic to oversee the trade by these measures, and at the same time to make printers and booksellers police themselves. The new body was responsible for upholding the general quality of printed work produced in the Republic, and specifically for tracking down clandestine books. It had a ‘prior’, two ‘councillors’ and six ‘assessors’, elected annually, along with a secretary and a beadle. A register was also created, to record all books published in the city. Evasion remained commonplace, of course, but by the mid-seventeenth century the combination of guild, register, licence and privilege seems to have become a stable, moderately well-functioning system.

Many cities where printing and bookselling endured seem to have developed similar systems to that of Venice. Not all cities adopted every element – Spanish towns, for example, often left printing unincorporated – and in those that did the details varied. But the general trend was clear. So, for example, in Antwerp the Guild of St Luke, previously devoted to artists, became the corporate home of bookmen in 1557. The same year, the Stationers’ Company was chartered in London to oversee the English trade. The Paris guild dates from 1608. Each country also adopted privilege and licence

regimes. One of the most notable outcomes of this increasingly baroque regulatory culture was the emergence of rules favouring authors. In 1545 Venice, again ahead of the pack, decreed that in order to get an *imprimatur* a book's printer must possess a written statement by its author consenting to the publication. This seems to have been the first regulation expressly recognizing something akin to an authorial right, and it is significant that its origins lie in the convergence of systems dedicated to producing an orderly trade in a well-ordered commonwealth.

It is important to recognize, however, that the four ordering institutions of print generated conflict as well as consensus. One cause was the emergent distinction between printer and publisher. For much of the early modern period, 'publisher' was not a consistent trade role. But the printed book increasingly became an object of speculative financing. Wealth gravitated away from the 'mechanick' practitioners of the press and towards those who dealt in 'copies', as these speculative entities were called. Copies were constituted as property by the register and privilege systems. Eventually copyright laws would entrench them, although at the time copyright seemed the very antithesis of property. The shift was acutely felt by printers, who regularly complained that the virtues of the master-craftsman were being subordinated to an unprincipled rapacity. Such complaints of course were widespread in the economy of the late seventeenth and eighteenth centuries, as the commercial and industrial transformations of the age gathered steam. The book trade was as riven by them as any other economic community.

More fundamentally, the protocols of order were fundamentally incompatible with each other. Whereas privileges expressed the authority of the prince, guilds and registers recorded the authority of a craft, based not in royal legitimacy but in trade customs. In many jurisdictions, for example, it was possible to practise as a printer outside guild control by royal privilege.²⁰ In England the King's Printer and the University Presses of Oxford and Cambridge operated under privileges, and thus under different legal and political principles from the Stationers. The Stationers' Company saw them as interlopers, and by its own lights it was right to do so; but by the same token they could represent its resentments as *lèse-majesté*. The longest-running sequence of such clashes was probably that in France, which extended from the early seventeenth century right through to the Revolution, and drew in prominent *philosophes* on both sides of what was eventually reconstrued as a clash over the concept of authorial property.²¹ Here, as elsewhere, this intractable conflict inspired the first sustained reflections on the nature and implications of print itself.

But of course, privilege or guild regimes were specific to particular jurisdictions (with the somewhat theoretical exception that the Papacy and the

Empire issued privileges for much wider areas), and printed books circulated far beyond any such realm. International book merchants needed rules too, or at least shared customs that could be relied upon. Continental distribution came to centre on a few major hubs that long predated print: the merchant fairs of Germany, with Frankfurt and later Leipzig to the fore. The Frankfurt fairs in particular were lavish mercantile events held twice annually. While the fair lasted, free and fair trade reigned, with well-developed credit conventions extending from one fair to the next. For a new craft, short of ready cash and needing to reach a dispersed population, the opportunity was obvious. So book dealers from south and east of the city took the opportunity of the second of the annual fairs to rendezvous. Dealers soon started coming from further away: the Netherlands and Italy (especially Venice), then France, England, Austria and beyond. They began printing catalogues of the books they were bringing to sell and exchange, and by the later sixteenth century the city itself had taken on the task of publishing a collective list. It became the closest thing early modern Europe had to a catalogue of 'books in print'.

By this time, the Frankfurt fair had become Europe's biggest venue for the commerce of books. The town outlawed the unauthorized reprinting of titles offered there, and a custom of bartering sheets permitted dealers to distribute books across the continent without lugging around large amounts of cash. Moreover, Frankfurt was also the venue for conversations out of which books emerged. Scholars and other authors flocked there to make contacts and to discover the latest intellectual currents. As the bookseller Henri Estienne put it in his 1574 encomium to the fair, which he termed a great university (*academia*), such encounters made the event unique. 'Right in the shops of the booksellers', he reported, one could hear scholars from across Europe 'discussing philosophy no less seriously than once the Socrateses and the Platos discussed it in the Lyceum'. The Frankfurt fair realized the ancient ideal of the *encyclopedia*: it encompassed 'the whole circle of knowledge'.²² This civic-mercantile-scholarly confluence had become *the* central node of European intellectual culture.

So print did allow for influence to extend across large distances, but mainly by exploiting long-standing trade prerogatives that were peculiar to specific towns. It could not simply transcend locale altogether. Nor did its practitioners necessarily want to, because boundaries could be put to use. By the mid-sixteenth century several Swiss towns, Calvinist Geneva in the van, were taking advantage of them to export Protestant books to Catholic France and Spain with impunity. By the eighteenth, as Robert Darnton has famously shown, the 'Typographical Society of Neuchâtel' would be making a fine trade of reprinting French works and sending them surreptitiously back into Louis XV's realm.²³ The Scots and Irish did the same to the English, while

complex webs of exchange and competition obtained across the hundreds of German states and statelets, imperial privileges notwithstanding. Print's apparent power to overcome space and time depended partly on these ventures – ventures that only existed because of bounded jurisdictions.

The powers of print

Wherever the distinctiveness of print ultimately lay – in the ability to multiply copies, the potential to act at a distance or the power to stabilize texts – the key to understanding it lies in these measures and the anxieties that provoked them. The nature of the printed book emerged from social machinery as much as from technological. But what did it then *do*?

In the first place, there are several qualities that Gutenberg's contemporaries and successors identified in printed books, and which they believed to be significantly different from the qualities of earlier, hand-copied volumes. There were a lot more of them. They could be acquired at cheaper prices. They circulated more widely and became familiar to poorer and more distant parts of society. Copies from a given impression existed in large numbers and were functionally identical. And they were generally products of speculative commerce: printing an impression meant venturing capital on the uncertain prospect of future profit. All of these perceptions took hold early, and all attained the status of truisms.

But contemporary writers, readers and printers found that in each of these cases the simple formula had to be substantially qualified when it came to using real printed books. There were many books that were *not* popular, widely distributed, identical within an impression and so on. Indeed, a rational fifteenth- or sixteenth-century reader might well doubt that any one book combined all these traits. Printing-house practice made this reasonable, because, as modern investigations of authors like Shakespeare have made clear, impressions would often be corrected 'on the fly', producing variations across superficially identical copies. Nor was this necessarily a mark of failure – of mistakes, incompetence, corruption and the like. Amalgams of print, woodcut and manuscript might be regarded as *exceeding* the standards of print alone. This was certainly the case, for example, with a humanist book like Florentine poet Francesco Berlinghieri's *Seven Days of Geography*, printed by Niccolò Tedesco in Florence in the 1480s. Berlinghieri's volume combined letterpress with engravings; and it merged print and manuscript too, with presentation copies being illuminated and hand-coloured, rendering each an individuated object. It also combined commercial production and distribution with circulation through diplomatic channels, including to the Sultan in Constantinople. The book could be counted as exemplary of the

powers of print, but largely because it departed from simple models of print in every way.²⁴

Sometimes print implied the familiar truisms, then, but not always. When it did not, it was nonetheless print for all that. Being a good reader of printed books might well involve maintaining a delicate balance between faith in the virtues of print in general and caution about the extent to which any given book would display those virtues – and being a good historian of print requires a similar balance. This is really the obverse of the point made above, that the powers of print emerged from the careful management of complex artisanal and scholarly interactions. The first point to be made about the advent of print is therefore simply this: that it multiplied these interactions, and thereby the amalgams – books – that they generated. The defining character of the printing revolution was initially not order or regularity, but disruptive proliferation.

From the outset, a few scholars experimented with making the new craft into a tool for learning. It was not necessarily predestined to play such a role, and accommodating the worlds of art and scholarship proved a difficult and lengthy enterprise. For example, Johannes Müller of Königsberg, better known as Regiomontanus, hoped to print the entire corpus of ancient mathematical sciences at his own press in Nuremberg. Conrad Sweynheym and Arnold Pannartz projected Pliny's *Natural History* in Rome, the philosopher Marsilio Ficino oversaw Plato's works at a press in a Dominican convent, and Aldus Manutius took on Thucydides, Herodotus, Virgil and Cicero in Venice. These are the high-profile ventures that have often been taken to define the printed Renaissance, and they were probably the most important instance of the much-celebrated alignment of 'scholar' and 'craftsman'. But many were not commercially successful (where they were commercial at all), and even Manutius flirted with disaster. Still, these early projects defined roles for both the scholar-printer, to which publishers would later lay claim, and the learned editor. They led to the formation of new genres (the scientific journal, the portable classics pioneered by Manutius, and more), and the adoption of protocols and customs of reading in institutions old (schools and universities) and new (Jesuit colleges, experimental academies). And they encouraged a critical engagement with antiquity that had implications across learned culture.

This proliferation had wider implications because the domain of the printed book – the domain that both scholars and printers complained was falling under the sway of unprincipled speculators – had by this time become a persistent arena for political and other debate. This happened at different rates and in different ways, depending on local conditions. But in many places – Venice being one early example – political crises repeatedly generated moments when restricted, inner-circle political machinations broached a broader print

realm of discussion. At first these moments were distinct from one another. They were opportunistic and, in Filippo de Vivo's word, 'engineered'. But over time – and it took perhaps a century or more – these repeated moves coalesced into an ongoing public political realm. Protagonists noted what was happening and were ambivalent about it. 'Things have changed shape', noted the Spanish ambassador during Venice's dispute with Rome in the 1600s, as the exchange of diplomatic letters gave way to pamphleteering: what had once been comprehensible was now liable to flare uncontrollably (the problem lying in the lack of control, not the flaring).²⁵ By the late seventeenth century print was associated with a permanent realm of this kind, extending across legal boundaries and appealing to readers for allegiance to its ostensibly cosmopolitan values. Its claim to authority encouraged the emergence of consistent opposition to licensing and privileges.

An especially important element here was the development and entrenchment of communities around shared protocols for reading, and for ways of recording and transmitting their readings. Often, but not always, these centred on particular titles, the Bible being the best known. There was nothing new about this in itself: one could point to the readers of Virgil in antiquity or to groups such as the Lollards before printing. But the relationship of reader to page now changed. So, because of its engagement with the international circulation of print, did a group's 'reach'. As readers annotated printed pages, recording their interpretations and reactions, they accentuated the already hybrid character of books. So normal and essential was this practice that in Venice it became illegal for any book to be printed on paper unsuitable for readers' notes; offending volumes were burned and their privileges withdrawn.²⁶

There were conventions governing such annotation, and the notes themselves could be transferred from reader to reader, taking with them accepted modes of use and interpretation. Owen Gingerich's exhaustive census of Copernicus's *De Revolutionibus* shows the importance of this practice. Successive readers incorporated previous astronomers' annotations into their own copies of the book, so that when a mathematical reader of around 1620 encountered a copy, that volume could include the accumulated record of decades of readings. 'Families' of annotations can be identified, making manifest intellectual and practical traditions that we would otherwise miss. Through these families of notes (and sometimes more than notes: a few readers added their own cut-out paper models to the book), we can discern Copernicanism itself taking shape.²⁷

Finally, starting in the sixteenth century authors tried to come to terms expressly with the extent and nature of print itself. They did so in two ways: by attempting to produce a taxonomy and typology of all printed works, and

by writing histories of the adoption of printing. In both ways they contributed to the development of the first systematic institutions of bibliography and the history of the book.

Where printed books ended up – the lucky few, at least – was in libraries. Collections both expanded and proliferated, and their organization became a recognized problem. By extension, writers like Konrad Gesner sought to define the contours of a new *bibliotheca universalis* formed by the entire output of the press. Through such ventures the world of knowledge itself became conceivable in novel ways. It could be atomized, sifted, sorted and mapped, producing new systems of knowledge. The readers who were true adepts at these tasks came to be highly valued. The best of all were those who could master both the literary microcosm and macrocosm, as it were, using simple practices such as the stringing of notecards onto cords (*fila*, the root of today's 'files') to index collections, and employing such devices as tools to advance abstract conceptual visions about the universal library. Probably the greatest of them all was Gottfried Wilhelm Leibniz, who pursued extraordinarily elaborate reflections on the implications of an endless amassing of print. Leibniz would yield nothing to Borges in his fantasies of a universal library.²⁸

Conceptualizations of print's relation, not just to particular cultures, but to human civilization *tout court*, originated partly in such ventures. But they also derived from a new genre of histories of print that emerged in earnest in the seventeenth century. At first, this genre appropriated a Vitruvian rhetoric that had been used to elevate the status of the mathematical sciences. The implied consilience was interesting: in Aristotelian terms the mathematical sciences had been regarded as deficient because 'mixed', treating physical reality by mathematical techniques. Printing too was mixed, combining as it did mechanics with the liberal arts.²⁹ Beginning in the early- to mid-seventeenth century, however, more detailed accounts appeared of printing's origin and consequences. Many of them focused in the first instance on the identity of the press's inventor, or on its introducer into a particular country. Several realms promoted their own candidates in competition with the already mysterious Gutenberg: Laurens Coster in the Netherlands, Mentelin in Strasbourg and so on. Scholars and practitioners competed to identify and appraise what might be construed as evidence – and they found that that evidence pointed in different directions. In trying to divine a single origin out of what had been a period of diversity and mixing (Coster's Haarlem, for example, had in fact been a centre for the production of blockbooks), they extended beyond crediting individuals to defining print itself. And they involved characterizing the moral nature of printers and printing houses too.³⁰ Beginning with Joseph Moxon's *Mechanick Exercises* in 1683–4, manuals about printing fleshed out these claims. Polemics on the proper regulation and public role of print also

appeared, with Milton and Locke being succeeded by Condorcet and Diderot and, later still, by Immanuel Kant.

Such works were the relatively formal tip of a broad and popular tradition, which saw print celebrated not only on pages, but also through processions, dinners, images and statuary. By the time of Leibniz's death in 1716, to deny that the advent of print constituted a new historical epoch would have meant challenging common sense. The Enlightenment's vision of itself as a manifestation of the powers of print was rooted here, in both scholarly understandings and popular commemorations. Ultimately, it would coalesce into the conviction so widely shared today that modern rationality resulted from a communications revolution. It was fitting, then, for the leaders of the French Revolution to consider moving Gutenberg's ashes to the Panthéon in Paris, as they did in 1792. By this time they could have no doubt that he was the first modern revolutionary of all.³¹

NOTES

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