Gatekeepers of Knowledge

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Gatekeepers of Knowledge: A consideration of the library, the book and the scholar in the Western world

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About the authors

Margaret Zeegers and **Deirdre Barron** have spent years working with their research students, drawing on historical dimensions of scholarly texts and the basis of what is taken as truth in scholarly fields. They have published scholarly papers on such subjects in relation to domestic and international students in the tertiary sector, and ways in which academics may approach such matters. In this book they have written about a number of issues that inform Western scholarship, particularly as they relate to books and scholarly journals. They have canvassed ways in which books and journal contents are accepted, published and received in scholarly communities, and ways in which they are stored, retrieved and used. In doing so, they have looked at the history of the book from earliest times to its most recent forms.

Margaret Zeegers is an academic whose research interests include postgraduate pedagogies and English education.

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List of acronyms

ARL	Association of Research Libraries
BCE	Before Common Era
CE	Common Era
ICTs	information and communication technologies
IIA	International Information Administration
ISI	Institute for Scientific Information
OECD	Organisation for Economic Co-operation and Development
OPAC	Online Public Access Catalog
PiY	publish it yourself
PoD	print on demand
RAE	research assessment exercise

Dedication

To our mothers, Agnes Timmers and Mary Edmonds, who understood the importance of being knowledgeable, and Duncan Dewar, who gave us the title.

And to Elizabeth – mz.

Introduction

Throughout its history, the Western library has played a significant role in bringing the book into the hands of Western scholars. That history includes constructs of librarianship, publishing and scholarship as gatekeeping access to knowledge. Exploring significant events in the field from the time of the Lyceum to the present day in the development of repositories of books and their access by scholars allows an engagement with those events from a perspective that makes visible ways in which the production, storage and access of and to books, and scholarship itself, have been brought to the fore, while others have been largely ignored. An examination of current practice has implications for what this may mean for knowledge production in relation to the library, the book and Western scholarship in the twenty-first century. Such an approach to this history provides a resource for academics and students interested in understanding ways in which they themselves are connected with the traditions of their professions and the history of the book and its place in gatekeeping knowledge. The examination involves the various authorities' attempts to establish and maintain control of the production and dissemination of knowledge as manifested in books, and ranges from early Athens through mediaeval scriptoria to the printing press and electronic forms of book production.

The argument is premised on the concept of a nexus between Western liberal education systems, libraries and scholarship, and that the very concept of a Western liberal education has only been possible with the loosening of clerical strangleholds on education itself. That stranglehold privileged Christian scholarship, as it marginalised competing forms of knowledge transfer and production until the development of technology that allowed mass production of multiple texts to wider reading publics. This had a number of implications for competing perspectives on scholarship. One of these was the singular activities of copyists and

copying becoming redundant. Individual copies, carefully scrutinised as they had been by scriptoria authorities, could be monitored for heresies, inconsistencies and possible incursions of influences from competing forms of knowledge. Mass production of books could not be so easily monitored. Not only did ecclesiastical authorities lose control of the books being produced, they also lost control of who published and what they published. Heretics' works could be out there, across whole principalities and nation-states, surviving the people who had written and published them even if they had been victims of authorities' moves to silence them. Once ecclesiastical strangleholds had thus been broken, it was possible to think beyond the boundaries set by the need to produce a literate clergy capable of expounding dogma to a largely illiterate congregation.

The usual preamble to an extended discussion regarding the development of scholarly library systems takes up the earliest forms, usually the Lyceum associated with Aristotle's school, which was eventually taken to Rome after his death, and the Library of Alexandria of the third century BCE. A teleological view of history would date the continuous development of scholarly libraries from these, predating the advent of Christianity and even lasting into the third and fourth centuries after its emergence. That same view links the libraries with the development, eventually, of universities in the Western world. Irwin (1966: 566) presents such a view, and goes further, linking not only the libraries across the eras as part of a single continuum, but also linking these with scholarship itself as part of a unitary history. Such perspectives present Western library traditions as stemming from the libraries of Greece and Alexandria, or Rhodes, Cos, Pergamus, Antioch, Macedonia and Constantinople; of the villas of captured Romans and the universities of Southern Gaul; and of the libraries of Baghdad, Cordova, Caesarea, Patmas, Mount Athos, Monte Cassino, Bangor, Wearmoth, York, Bobbio and Fulda. Subsequent transpositions to England came by way of St Columba, Alcuin and St Boniface.

The sort of continuity implied by such a representation tends to ignore political events, economic practices and communication technologies in use at the various times that these things occurred. Foucault (1973: 49) says that we ought 'not to regard the point in time where we are now standing as the outcome of a teleological progression which it would be one's business to reconstruct historically'. Foucault's (1976) argument that discourses are 'a body of anonymous historical rules, always determined by the time and space that have defined a given period, and for a given social, economic, geographical, or linguistic area, the

conditions of operation for the enunciative function' suggests that the framing of the events of the past and present will inform the ways in which future possibilities will be constructed. A particular construction, then, of the positioning of scholarship throughout history frames ways in which the modern book-based scholarship within universities may be read, while providing a lens through which the future may be viewed.

If the scholar is produced through an education system, then understanding the education system provides insight to scholarship. Rothblatt (1993) points to two major strands of thought on the academic ideal that the concept of a liberal education posits, and which educational institutions are expected to produce in the course of their activities. One strand constitutes the ideal of the wholeness of the individual in relation to a person to be developed to the full capacity of his (*sic*) human potential, where to be truly human is to live in a productive relatedness to the world outside of himself, and thus to engage that world with socio-political endeavour befitting one so developed, with full engagement with the world at large being possible for all graduates of such a system. Given the focus on men as scholars in the literature, and indeed in the history of scholarship and book production, the male pronoun is the one consistently used. At the same time, traditional grammar practice has specified the male pronoun to encompass all humanity. Rather than constantly identify such use with '(*sic*)', we acknowledge that gender exclusivity here.

The other strand sees the educated person as constituted by intellectual development achieved through a withdrawal from the world at large, lest it interfere too much with the pursuit of the highest form of knowledge – one that is unsullied by practical considerations of in-the-world exigencies and achieved in the isolated company of like-minded men contemplating philosophical understanding of the world outside of themselves and developing a personal sense of the purest and highest forms of truth. No one actually graduates from this system, as it is based on lifelong pursuit of that higher form of truth, and it certainly eschews all ties with civic, social and/or commercial domains.

Both are ideals, and neither forms part of a continuum, for each has its own peculiar characteristics. Both ideals, moreover, are examples of rhetoric, and as such but a small part of the total of the educational discourses mobilised in the development of scholarship (that is now viewed as higher or university education and activity) in the Western world. It is possible to see the remnants of the ancient Greek attitudes to learning in both of them; it has even been argued that they are part of an evolution of which the modern university is a logical outcome (Bowen,

1972; Butts, 1955; Cubberley, 1922; Fletcher, 1968), but as Rothblatt (1993: 21) points out, it is 'difficult to see a common heritage or tradition through so many vastly different eras, social and political systems, in the evolution of the modern university'. Neither can one see this evolution idea so neatly played out in the birth of the modern university, as even an examination of the early Greek ideals reveals contested ground, with discourses of both the well-rounded in-the-world character and the pure out-of-the-world philosopher struggling to gain dominance in these early moves towards systematic education practice for the men of the city-state models emerging at the time, who would need some sort of guidance in relation to best practice for their human endeavours.

To embrace an evolutionary view would be to ignore that contestation, those complex political economies that Luke (1996: 3) describes as entailing:

> the immediate statements and imperatives of the institutions it serves; the politics of the academies, government funding agencies, and corporations where theory, research and curriculum work is undertaken; and larger political and economic interests that influence what can be said, by whom, and in what terms across and within institutions.

The existence of a systemic Athenian education system does not necessarily imply a university, a library or even the concept of higher education as a precursor to the modern system. The bipartite division of educational ideals suggested by Rothblatt (1993) presents a narrow enough focus as to what it might mean to be educated, even in ancient Greek terms, or even who is to be educated. The ideals of democratic participation that are concomitant with the educational ideals were certainly not extended to women and slaves, in the same way as education of the type practised upon and for the youth of Athens was not. The idea of lower social orders having any sort of participation in this systemic education is not even contemplated, barely commented upon as an exclusionary device in discussions of the origins of Western traditions of education. Marginalised groups in such ways kept in their socio-economic places, significantly, do not figure in the debate at all. A contested version of the educated person, then, applied only to males within élites that had the means to purchase the leisure time required for such pursuits.

It was in the middle of the twentieth century, in 1959, that Drucker ([1959] 1996) styled the modern era as one in which workers in a knowledge age also find themselves constructed as members of the information age, where the terms 'knowledge' and 'information' are conflated, used interchangeably and taken for granted in regard to their meanings. Learned (1924: 5), in the early years of the last century, was confident in his idea of knowledge: 'the whole range of verified scientific fact, matured judgment, and products of the constructive imagination generally incorporated into books', which is, moreover, inclusive of 'nearly everything that is clearly known' and 'much of the best that has been thought and felt by man'. The idea of knowledge resonates with concepts of scholarship and scholarly work. Even Wikipedia (2008) is confident in its definitions in this regard:

> Scholarly method – or as it is more commonly called, scholarship – is the body of principles and practices used by scholars to make their claims about the world as valid and trustworthy as possible, and to make them known to the scholarly public.

The construction of knowledge as an outcome of scholarship to be disseminated to the world has served to underpin not only academic structures, protocols and procedures but also a whole printing and publishing industry derived from taken-for-granted dimensions of the work of scholars.

The modern university has been constructed as the site where research activities make an authentic contribution to the world's store of knowledge by virtue of their engagement with authentic scholarship. Scholarship, constructed as being based on research, and working with the conventional view of research as being the generation of new knowledge or using existing knowledge in new ways (itself a generation of new knowledge), has generated its own epistemological discourses. Such discourses construct their own epistemes. Foucault (1973: 72) describes an episteme as 'a world view that is so comprehensive it is not possible for people in one episteme to comprehend the way people in another episteme think'. The work of Boyer (1990) is an example of ways in which these sorts of discourses have been mobilised and taken up, underpinning a particular construction of scholarly activity that conflates knowledge as an outcome of research and scholarship. Such discourses have been mobilised and assiduously taken up by universities around the world. Associated protocols of peer-reviewed publication of

research are the distinguishing factor of academia, as it constructs its own episteme to be negotiated by any who wish to be known as scholars.

The result, then, is not the book as the repository of the knowledge generated by the sorts of scholarly activity with which the Western world is now familiar, but the scholarly journal. Guédon (1996) argues that the greatest paradox of printed scholarly journals is that they act more like archival and legitimising tools; that what is printed there acts like a form of official sanction for scholarship. Digital technologies make information readily available, and more easily accessed. Digital technologies have in effect narrowed the gap between the capabilities of the publisher and the scholar. This means that scholarly communication is moving to a position where the scholar is the publisher (Hunter, 1990). While advances in digital technologies may raise issues for publishers and academia in relation to retaining control over the intellectual property of scholars who publish their research work in this form, opportunities for knowledge sharing that are opened up have positive implications for teaching learners how to develop knowledge from information, and not rely on information alone. It has not always been so.

1

From the agora to the scriptoria

Before the agora

The Mesopotamian clay tablets dating from 2500 BCE (the now commonly accepted archaeological CE was originally meant as Christian Era, before it came to be read as Common Era, with BCE read as Before Common Era) give the first indications of the human realisation of the potential of writing things down. These were tablets that could fit in the hand, measuring 7.6 square centimetres, as well as larger ones of 63 square centimetres that people found useful for recording things that mattered to them. These form the earliest versions of what would be considered to be books, as several of the smaller tablets, ordered appropriately for handy retrieval of the information contained on them, could be carried around in a pocket, a pouch or a box. Clay at least cannot burn, and this is one reason why there remain copies of those small, stylus-made wedge-shaped marks into clay to intrigue and delight as poetry, prayer, accounts, letters and so on of a bygone age. It may be hard to imagine from the distance of the twenty-first century, but this was an important development in human social evolution, for the cuneiform text of those dried and fired clay tablets preserves early writing as it might be understood today. It was a radical departure from drawing with and on various media; it is representative of a systematic, organised method of recording information. Not only that, they provided what is probably the first stimulus for what appears to have become an important human impulse in the collection of such works, as Nippur library in what is now eastern Iraq shows the remains of an archive room, attached to its temple, filled with such tablets. Seventh-century BCE Nineveh had 25,000 such tablets in an apparently highly organised collection marked by labels, plus a catalogue, 400 years before the great Library of Alexandria came into existence (Battles, 2004). And

what labels they were. Lerner (1999: 15) gives an example of the following:

> Honoured and noble warrior
> Where are the sheep
> Where are the wild oxen
> And with you I did not
> In our city
> In former days
> Lord of the observance of heavenly laws
> Residence of my God
> Gibil, Gibil (who was the fire god)
> On the 30th day, the days when sleeps
> God An, great ruler
> A righteous woman, who, heavenly laws and commandments
> The king whom you bore.

It is a catalogue from a Sumerian library of clay tablets, and it reads like a poem. The lines indicate that the cuneiform used in the creation of the tablets was put to aesthetic uses as well as the purposes of accounting and financial records of various types, suggesting a sensual reading experience that would draw on human spirituality and sensitivities to captivate the reader. Indeed, those who discovered such lists actually mistook them for poems, but they are incipits, the first few words of the text of the book, much like the use of the first few words of an untitled poem in the indexes of anthologies of poems today. A form of books, then, along with a form of librarianship, was part of early civilisations' ways of life, and this aspect of early librarianship does have a more lyrical appeal than a Dewey catalogue number.

What had happened that these clay tablets came into being, and with that came into value? Human societies had for many thousands of years existed well enough without writing, for a society can exist without writing. No society can exist without reading (Manguel, 1997: 7). People would read not only written words: they would read the environment, animal tracks, the stars, the clouds, and attribute important meaning to these things as far as their lives were concerned. Many people still do, relying on more than books to generate information that they need. Neurological studies show that, as a result of genetic processes begun *at conception*, the human brain is programmed to read. Manguel (ibid.: 35) says:

> By the time the first scribe scratched and uttered the first letters, the human body was already capable of the acts of reading and writing that still lay in the future; that is to say, the body was able to store, recall and decipher all manner of sensations, including the arbitrary signs of written language yet to be invented.

In Mesopotamia, the invention tapped into what humans are effectively hard-wired to do, and the 2000 BCE development of the papyrus scroll produced a form of the book that would endure for more than 2,000 years. Associated with ancient civilisations such as those of Egypt, Greece, Rome and Babylon, its dominance as the book form was not challenged until the codex, closely associated with Christianity and its production of books, was developed in 150 CE. The codex as a sheaf of bound pages of writing on parchment or vellum changed the organisation of books, with the ease of page turning replacing the more cumbersome scrolls. Adopted and developed by the new Christians, by mediaeval times its format and material had evolved to where it could lay claim to having 'transformed European civilisation in a way only equalled by the printing press ten centuries later' (Panayatova and Webber, 2005: 24).

The potential of writing, of recording information in some form of book for the generation of knowledge, had not been immediately realised. It took some time to develop. Even so, information and knowledge are not one and the same thing, and it is important to make a distinction between them. The clay tablets may have recorded information, but it is what people would do with that information that would lead to the generation of knowledge, or not. Information is facts, data, figures and so on, gathered by means of reading, listening to others and so on. It is a very public thing. Knowledge is when information and data are filtered through experience and applied as a meaningful thing to that experience, so that it is internalised and becomes one's own. It is a very private thing, and it must ever be so – once it is articulated, explained, written down or whatever, it becomes information again (Pennell, 1999). It is then up to whoever encounters it to internalise it and turn it into their own private knowledge (see also Zeegers, 2007: 244). Information of and by itself is never knowledge, and this is one very good reason why education systems have emerged over time to generate, share and record that information for the benefit of knowledge production by others.

Ancient Greece

Sixth-century BCE Athens' approach to educating its young men established a tradition of the search for truth through discussion of pertinent subjects in minute detail. Socrates may have seen his role and the role of any teacher of any worth as something akin to that of a midwife – that of bringing forth what is already there to fruition. This was the rhetoric involved, but such education's main purpose was to train in oratory through exhaustive study and mastery of rhetoric, in conformity with the political aims of Athenian democracy. With the Lyceum we see the study of science and mathematics introduced to the curriculum, but even so, the establishment of the Museum of Alexandria (with its collection of 700,000 books, in spite of the emphasis on the dialectical approach of the time) is at quite a remove from Athens itself. Greek education is constructed through its language as the medium of instruction, through its philosophy and through its approach to and strategies of pedagogy. The very idea of reading to develop one's knowledge is anathema to such a system.

The technology required for such a pedagogical influence is unremarkable enough in a largely non-literate era: rhetoric requires neither print nor penmanship and is eminently portable, and the question-and-answer format of this oral tradition in the style of a Socrates or a Plato could be refined, perhaps even perfected, in any agora (or facsimile) in the world. The assumptions underlying the notion of learning in this form of educational delivery were that of a master-student relationship based on teasing out the elements of what constituted truth from any number of distractors that could be hearsay, indefensible presumption, illogical reasoning or just plain sophistry, and to do so through interactive dialogue. The dialectics developed within such a form of teaching and learning were what was remarkable about the development of the system. Plato himself decried the use of the written form of interactive communication as little more than a type of mnemonics, seeing memorisation of the content of discussion as serving little useful purpose in learning beyond that of giving *an impression* that something had been learned. He would argue that truth will not be forgotten once it has been created by the mind of the learner (Bowen, 1972: 99). What was also remarkable were the conditions under which the style arose.

The scholar of the times

The ancient Greek subject of education was male, normalised in relation to the city-state and training for the role of guardian of that city-state. He was seen as an active participant in the political and military constructs of that form (Plato, 1956). Ancient Athens, then, formulated the conditions which made possible the objects and concepts of that educational discourse. The knowledge generated in these conditions carried within it the power to define others, inducing the effects of power in this Greek world, and the later Roman military incursions found their results similarly defined in relation to Greek educational ideals.

The break with traditional discourses of myths and legends to explain the world as peopled with gods and demigods and spirits in need of propitiation presented a certain level of abstraction regarding observable events and human and other natural phenomena. The cycle of the seasons, the regularity of the positions of heavenly bodies subjected to more rational accounts than myths allowed for, marks a disruption that generated new discourses based on new intellectual enquiry. Such developments produced different kinds of abstractions, new knowledges of the sort that produced discourses of philosophy as explanations of the world, especially as concerning the relationship of human beings to the physical, social and supernatural worlds. Such were the discursive fields that gave rise to the mathematics which discovered the apparent harmony of physical elements in the world, and which treated humanity itself as an integral part of such mathematics. The intellectual endeavour of that system allowed for the prodigious amount of knowledge – 'logic, rhetoric, grammar, the sciences, the humanistic and normative studies and a corresponding body of artistic and aesthetic cultivation' (Bowen, 1972: 217) – that Athens had produced by the sixth century BCE.

The Library of Alexandria

The book certainly existed, and it had gone well beyond the Mesopotamian clay tablets as a record of what was valued as human knowledge. Papyrus proved to be a most suitable medium for recording what was required, invented by the ancient Egyptians and in use in the ancient world in general. Papyrus scrolls heaped in the Library of Alexandria, 400 years after those clay tablets, in the third century BCE accounted for the collection of books that it housed. It was this

development that marked a shift in relation to the library, the book and scholarship.

Drawing on the perceived successes of Aristotle's peripatetic schools for its model, the Library of Alexandria manifested the vision of Ptolomy I to house all the books of the world. Ptolomy I wrote to every other king, every governor, every ruler of every type, asking for books of all kinds to be sent to him. This was a request for every kind of book by every kind of author and in every genre – poetry, prose, rhetoric, history, prophecy, medicine, philosophy, sophistry – and it worked. The great library was to record everything written in the past, in the present, and everything about the future. To facilitate the implementation of the vision, royal decree ensured that any book that arrived in Alexandria would be confiscated and copied, and then returned to its owner. Those owners could not be sure that they had received the original or the copy in return, but this was the time of despots and one complied. It was also remarkable for its acquisitive approach to the value of knowledge (Battles, 2004: 30), something which took on a wider social implication beyond that of the scholar as an individual. The state was going to influence this and control it, and, what is more, maintain its control.

The Library of Alexandria was not just to store all these books; a programme of scholarship was implemented, where famous scholars of the world, such as Euclid and Archimedes, were invited to come to Alexandria to work. They were to do this free from the constraints of lack of access to books, and perhaps more importantly free from the constraints of having to make a living, as the deal included stipends for the work they conducted. The work of such scholars then generated new books, as they annotated the books at their disposal, wrote treatises on them and then treatises on their treatises, and so on, and the storehouse of knowledge expanded accordingly. The main library, the Muséon (House of the Muses), provided for celebrated scholars, and the so-called smaller 'daughter library' that was established in the fourth century BCE provided for the scholars not so privileged as those of the Muséon.

The sort of librarianship involved in cataloguing, storing and retrieving the books here had none of the lyrical overtones of incipits. The tags of authors' names and books' titles attached to the ends of scrolls allowed one to locate an author's work, certainly, but working through 700,000 books in this way could be a laborious task. Callimachus, perhaps the most famous of the library's librarians, devised a system of cataloguing the books not only using authors' names alphabetically listed, but also tables for each genre. This way, a scholar could peruse the catalogue for epic, lyric, tragedy, comedy, philosophy,

medicine, rhetoric, law – and of course the category of 'miscellaneous' (Manguel, 2008: 50). It was a system that served subsequent Islamic libraries as well, but in both cases the system was fraught with classifications of books based on subjectivities that bordered on whimsy. It was not until Melvil Dewey was inspired in the nineteenth century CE to allocate numbers to subjects, and decimals to subgroupings within those subjects, that a more efficient means of cataloguing, and thus of storage and retrieval, in libraries was begun.

Successive Ptolomies carried on the work of the Library of Alexandria, maintaining their ban on the export of papyrus, and seemingly unperturbed by the Pergamenes inventing parchment when they were faced with a lack of papyrus for their own writing. It was a development that was to make possible the systematic scholarship of the Judeo-Christian tradition and to have it positioned at the forefront of all considerations of what it meant to be a scholar. Neither Judeo nor Christian in its inception, the very activity of studying in a library constructs knowledge as generated through an engagement with information, filtering that information through one's own experience. The information came through the medium of the printed text, stored in a library for retrieval by the scholar, with responses to that text in a systematic and once again print medium, in the form of writing, and the storage of that writing. The text itself may be constructed as a knowledgeable Other, authoritative in its claims to knowledge generation in the person who would engage it. The agora and the learning that might have been engaged in Socratic oral traditions were no longer in evidence.

There is no trace of the Library of Alexandria now, and all references to it from contemporary accounts simply assumed that everybody must know what a library was, what it looked like and how it might be used, for no surviving accounts go into such details. Nor is there any reliable account of what happened to it. There are two interesting stories about damage to and destruction of the great library. One is that Julius Caesar, in his assistance to Cleopatra in her struggle against the Ptolomies, had his ships burned in the harbour and in the conflagration the books stored there (the 'ships collection' books seized for copying) were destroyed, but there were probably hundreds rather than thousands burned in this way. The other is an apocryphal story of its destruction at the time of Alexandria's conquest by Arabs in the fifth century CE. The story goes that one of the priests asked about the books, counted as part of the treasure now belonging to the conquerors. The reply he is said to have been given is ascribed to Caliph Oman: 'If what is written in them agrees

with the Book of God, they are not required; if it disagrees they are not desired. Destroy them therefore.' The story goes on to say that the burning of the books fuelled Alexandria's bath-houses for six months. It is not true, however much disaffected scholars may have wanted to apportion blame to enemies of their culture. Alexandria was offered and surrendered on terms, and the buildings (and the books they contained) were saved (Battles, 2004; Padover, 1967b).

Ancient Rome

It is perhaps ironic, then, that the Pax Romana extended the conditions under which Greek influence was to expand, proving its advantage to the Roman man required to undertake civic and military duty as part of his in-the-world performance as a citizen. While the 'pure philosopher' of earlier contention was lost in this most pragmatic Roman incorporation of Greek ideals of scholarship, Greek language continued to dominate throughout the ancient Orient, and to be incorporated into Roman educational practice. The educated person, constructed as male and active in civic duty and all the rights and responsibilities that this entailed, emerged as the valued construct of the scholar and of scholarship. Books remained largely the province of that élite, with private libraries dominating the scene, until Julius Caesar's vision of a public library in the Forum in Rome around 39 BCE. Even though he died before it materialised, it was built. It had its books available for public use, and it had two reading rooms, one for Latin books and one for Greek books. This model served for the libraries that developed in the Roman world. Private collections of books and those for public access in the two major languages came to the fore to support the scholars of the times.

The books were collected in a storeroom or a series of storerooms, depending on the size of the collections, which were fitted with pigeonholes or cupboards in which the scrolls were kept, with the tags of titles and authors' names attached to the ends of the scrolls visible to the browser. Reading areas, such as covered walkways where people might read, were provided, as it was not at all usual for books to be read where they were stored. The Egyptians stored their scrolls in jars or wooden chests, the contents of which were identified by titles and descriptions of book contents on blank outer sides or with a parchment label pasted on, and archives kept in temple compounds (Lerner, 1999). While in the Library of Alexandria storage and retrieval were a more

organised affair, and imitated elsewhere, the sense was of the importance, quality and size of collections rather than of librarianship in the maintenance of those collections.

Such constructs of scholarly persons underpinned discourses of the Pax Romana. The enormous wealth generated from Roman provinces no longer embroiled in warfare meant that there was a period of time in which scholarly activity could be stabilised and engaged with some sort of systematic and orchestrated continuity. Augustus Caesar was able to declare, 'I found Rome a city of brick and left it a city of marble', and part of that beautification included the Palatine Library adjoining the Apollo temple (destroyed with the burning of Rome at which Nero so infamously fiddled), an initiative that subsequent emperors were able to extend to ensure that not only private but public libraries were provided to support scholarship. It was the beginning of a time remarkable for the spread of libraries throughout the Roman world, and it freed Roman intellectual life from its extra-official focus, but it was still a scholarship based on writing and collecting books as more of a hobby than as part of a systematic educational undertaking. Battles (2004) describes Cicero as one such hobbyist collector, devoting a good deal of time, energy and expense to the buying and copying of books for his own library, but he was still a senator and lawyer in his official capacities, one of the Roman élite as an orator.

Quintillian, with his *Institutio oratio*, provides a reminder that a reading person is not necessarily educated. Quintillian's work was derived from Greek rhetorical traditions transmitted through Cicero, which saw the aim of education as the production of the *vir bonus*, *dicendi peritus* – the good man, skilled in speaking, a product of the discipline of a thorough, well-rounded education (Bowen, 1972: 200). The activity associated with reading was not associated with the acquisition of knowledge; the dominance of Greek discourses of education was not under contestation as a result of this activity. There was no suggestion that there was any exclusion to the activity beyond that of literacy itself and, of course, the money and leisure required for its undertaking (quite an exclusion in relation to social class and gender, nevertheless, given the assumptions underlying these qualifications). The power of oratory in the civics of Rome was still the outstanding attribute of education, the question-and-answer technique the basis of the pedagogical approach, although the languages were now both Greek and Latin. Constructs of scholarship represented the educated person as a Roman man from the upper echelons of society, demonstrating his knowledge in observable conditions of public oratory and political

rhetoric, even at the time of the events surrounding the Crucifixion and the birth of Christianity in Galilee.

Sacking and triumph

Clay tablets of Mesopotamian origin are not subject to the ravages of invader burnings. They may be carried off, but they have a greater chance of survival than papyrus, pergamum and the later medium of paper under the torch that put ancient collections to the fire. Rome's main military contact in the second century BCE saw Greek libraries carried off as plunder, even though no books formed part of what was brought back from military conquests of Asia Minor, Syria, Carthage and Egypt. Those were not the books valued. Of particular note is Sulla's capture of Aristotle's library in 86 BCE with the defeat of Athens, which library was subsequently established in Rome as a private collection. What was of interest to the Romans was Greek learning, culture and literature. As military relationships passed into economic ones, an engagement with all things Greek quickly established a feature of Roman scholarship enthusiastically pursued. Indeed, the possession of a library was considered a prestigious achievement, with collectors buying Greek books to grace the shelves.

Books manufactured in Rome were modelled on Greek prototypes that had been plundered, or acquired in less violent ways, and were private; libraries, while they had the appeal of luxury in possession of fine books, also served as the underpinnings of scholarship. There was a status in this that was embraced by the lower social orders and the newly rich, and while the status attached to the possession of a library was by no means a guarantee that the owner may have read the books contained in the collection, the values attached to books, libraries, knowledge and scholarship were an inescapable feature of Roman life. Thus sacking, plunder and triumphal parades may have been biblioclasmic for the original owners, but the fillip to Greek learning and its spread throughout the known world are remarkable. Thompson ([1939] 1967: 4) refers to the phenomenon as the 'invasion of Hellenism into Italy' around 159 BCE. Private collectors and collections were followed by public ones. The first public library in Rome was established in 37 BCE, with the Octavian Library following in 33 BCE and the Bibliotheca in 28 BCE. As with the Library of Alexandria, nobody really knows what happened to such libraries. Perhaps some were destroyed by fires; perhaps others suffered from neglect as Christianity developed. Located

as they were in public temples and devoted as they were to collecting, copying and preserving ancient Greek works, with the proscription of paganism in 392 CE their fate was sealed.

Ancient armies were not the only ones that engaged in the odd ravaging of a library. What we now know as Vikings raided European west coast countries, destroying the manuscripts they found in monasteries' collections, for the idea of their being valuable was inconceivable to illiterate Danes of that era. The Crusaders of the twelfth century CE destroyed libraries in their marches to Jerusalem. Warrior knights and their entourages had no use for such things as books. Hardly scholars, the knowledge that they had and that was valued lay in the strength of their swords. The same century saw Muslims burning Muslim books in their own quest for orthodoxy in the face of perceived threats of heresy in their contents. Mongol invaders in the thirteenth century CE used the books that they found in libraries on their conquering path for fuel, or for leather for their shoes, and massacred scholars and students for good measure to drive their point home. In 1499 80,000 Muslim books were burned in Spain after the reconquest of Granada, for the knowledge that those books contained was not of the Christian persuasion.

Competing forms of knowledge production: the Jews

Hebrew scholars had been engaged in their own knowledge-based pursuits in similar vein to the ancient Greeks, actively decrying the myths and legends of the past and attempting to discern the will of their god as their guide to earthly existence. The synagogue was a centre of edification, of teaching, of worship and of discipline, and the head of each household (and thus a man) had a ministerial role to play, which in itself suggests a knowledgeability required, a knowledgeability based on not only literacy but also access to books. Three of the great religions of the world are based on the book. For Christians it is the Bible constituted by the Old and New Testaments; for Muslims it is the Koran; and for Jews it is its collection of books known as the Bible, 'sedulously studied and preserved with the utmost reverence' (Padover, [1939] 1967b: 339). This Bible was taken on all Jewish migrations, and was a more portable book than the bulky Talmud commentaries of rabbis over the years. The similarity of the Hebrew language to Arabic meant that Arabic works transliterated in Hebrew letters could be read by literate Jews, in books

copied by Jewish scribes. The Jewish reverence for books ensured that they never destroyed them, but placed them in a dead storage deposit of the synagogue, in the genizah – the grave of all things written down: letters, torn pages from books, whole books – virtually endowing them with burial rites as they were considered to be so precious. Perhaps the genizah cannot be considered libraries, as access to the writings was not offered by this means, but they did act as repositories of writing that have proved to be of immense value to bibliophiles as the writing has found its way into Western collections over the years.

The stock content is theological, as with all great religions, but Jewish scribes also copied Arab works on medicine, astronomy and philosophy, mostly from Greek classics. Indeed, what survives largely comes from this source, as Jewish scribes took Arabic translations of Greek works and translated them into Latin as the Roman Empire advanced. Jews thus had access to knowledge from the much more advanced Arabic world to which Christians just did not have access, as well as to stores of philosophy and science literature, which fed into a unique Jewish scholarship. The works were always in danger from persecutors, but the unwillingness to destroy the written word has meant a great deal of preservation of classical works which have survived.

Their pursuits never achieved the dominance of the Greeks, as their conceptualisations did not come to fruition in relation to developments of the city-state, but rather in relation to very personal interpretations of the covenant made with Abraham and a life centred on a synagogue as a spiritual symbol rather than a city-state as a political system. The Jewish scholar was thus constructed by religious discourses of social life based on the synagogue and the abstraction of Jewishness, conditions which, while mainstream in relation to Jewish scholarship, would marginalise such knowledge in relation to Greek educational practice and systems that sprang from this tradition. The book did play a significant role here, but it did so in an intensely personal engagement that could not do more as it lacked the strength of a political organisation, such as the Arabs and the Christians had, to support it.

Competing forms of knowledge production: the Byzantines

The Byzantine age refers to the last 11 centuries of the Roman Empire that began with the founding of Constantinople by the Roman Emperor Constantine (who lived as a Roman and apparently died a Christian…

literally, on his deathbed) in 330 CE and ended with the Turkish capture of the city in 1453. It is part of the Graeco-Roman tradition, not part of a Christian tradition until Constantine dies, and even then it is only a period of gradually strengthening Christianity, with very little surviving from the Byzantine libraries beyond that which tells us that they had a focus on religious texts. By the beginning of the fourth century CE the codex was as common as the scroll, and replaced it entirely by the sixth century CE, with a number preserving the knowledge of the ancient classical works. Decisions had to be made, of course, in relation to what ought to be preserved and what discarded. When one considers the labour-intensive nature of copying books, this was no small thing to be considered.

While Europe sank under the slough of what we now know as the Dark Ages, Byzantium flourished as a centre of culture and learning. Constantine, like other Roman emperors before him, collected books, mainly legal and historical, for the library established in the palace portico. By the fifth century CE there were 120,000 books that had been produced by copyists. The university established in Constantinople with its 15 Greek and 13 Latin professors probably had a library as well (Padover, [1939] 1967a). Nunneries included reading in the programme set down for the women enclosed, as well as for the daughters of the laity who were educated by the nuns, and, as with the men and boys, all instruction was in Latin. Indeed, the only requirement for entry to the programmes offered by the institutions was literacy in Latin. A point of interest is the comment made by Bowen (1981: 248): 'It is significant that in the history of Western education there is no body of literature on the education of women.'

One person playing an important role at the time was Cassidorus, a northern Italian who towards the end of the fifth century CE had worked as an administrator in Byzantium for 15 years, before becoming a monk in his sixties. He founded his own monastery, named after the fishponds in the grounds, The Vivarium, which achieved fame for its scholarly and literary activities. These activities were restricted to copying and storing only, for no additional, imaginative or indeed any new works were given any attention. Its library had by 560 CE established a substantial collection of scriptural texts and commentaries, grammars and ecclesiastical literature, but its most important achievement was the writing and production of authoritative texts on the Bible. Given the force of imprimatur and Inquisition of later centuries, this work is significant in that scholarship was turned to the study of doubtful passages from secular works in relation to ways in which orthodox

religious understandings might be compromised. It was also significant that the doubtful passages were flagged, rather than expunged. It was the sort of scholarship that modern scholars would appreciate, given the emphasis on academic freedom to explore ideas. The Vivarium library eventually found a home in the Latern, the papal library in Rome. Cassiodorus' contribution went further, though, in his work *Institutiones*, dealing with a combination of monastic practice and a syllabus of theological study. It informed the scholarship of its own day, guiding the development of curricula in monastic and cathedral schools as it led scholars to focus their study on scripture itself and the commentaries on it by the Church fathers (Lerner, 1999).

Initially sitting uneasily alongside the pagan cultures of Rome, Christianity eventually gained pre-eminence with the accession of Basil I in 867 CE, beginning a dynasty that lasted for most of the tenth century CE. Under the new regime, copying of theological literature in particular flourished, but it must be said that books and writing were more of the copying kind rather than the generating of new knowledge kind. The resulting largest and most valuable collection of books in Christendom provided resources for the wealthy, but the wealthy (male) scholar was expected to know by heart the works of the ancients and reproduce them verbatim, not to use them to generate any new understandings for himself or his society. For him it was a matter of reproduction of knowledge, not production. As Quintillian had said so long before, reading does not necessarily mean educated, after all. Or as Manguel (2008: 91) said only recently, 'The power of readers lies not in their ability to gather information, in their ordering and cataloguing capability, but in their gift to interpret, associate and transform their reading.'

Competing forms of knowledge production: the Muslims

The space created in the East by the decline and fall of the Roman Empire gave Islam room to expand apace by means of conquest throughout Africa. Under Islam, each fighting man was constructed as a religious subject who had embraced this Muslim religion in whose name the struggle for sovereignty over invaded nations was conducted. This construction of the Muslim man was a vigorously promoted and defended extension of the power that Islamic knowledge produced. Given the number of possible discourses of the time, it meant that in

relation to producing knowledge, Islamic discourses were able to achieve dominance by means of their dissemination through conquest and the rituals associated with Islamic practice. Unlike the Hebrews, who were still constrained by the conditions of their educational discourses, Islamic Moorish forces fought the battles that laid claim to much of Africa and eventually parts of Spain.

The Prophet died in 632 CE, not able to read or write, and indeed this stood him in good stead with his early followers as it showed that he was a man of the people, not one of the educated élite come to preach at them. There was a body of folk literature of the usual kind: legends, poems, genealogies that people transmitted orally from generation to generation, in the centuries before Islamic expansion when Arabs had been largely isolated from contact with the world outside their own political, social and cultural pursuits. The people had no knowledge of reading or writing, indeed associating it with magic and necromancy. In the year after Muhammad's death, the Koran was collected into a continuous book, written in Arabic language and script, and having to draw heavily on Old Persian for its forms (Padover, [1939] 1967c).

The copying of the Koran was done as part of Allah's instructions to Muhammad, so that followers could read it for themselves and come to believe it. It would reinforce their faith. Scribes took seriously the mandate to write down all the words that Muhammad had received from Allah, with the result that followers acquired literacy so they could read and understand these very words as an important aspect of their religion. At the same time as Islam spread, it evidenced no repugnance for the learning of others. That learning was engaged, and Muslims learned from the people that they conquered, even the script from Persia that forms the basis of Arabic script. With the development of Islamic political, social, cultural and indeed military strength, a creative and erudite scholarship emerged – a scholarship which was revered, what is more. Baghdad became a centre of learning, with studies in mathematics and astrology. The royal House of Wisdom established there was at once a library, a school and a research centre. Translations of Euclid, works on algebra and Hindu mathematics – all were grist to this mill of Islamic scholarship, taken with their transformative power to develop original thought. The Muslims measured the solar year with accuracy; they designed irrigation canals; and they had plenty of libraries with great collections for semi-public use, as well as many public libraries. Throughout the entire Muslim world, from Baghdad to Cairo, from Spain to India and all Muslim states in between, religious and political

leaders encouraged learning, down to boys and girls being educated in schools attached to madrassas.

The schools and colleges were not confined to narrow scriptural and theological teaching and learning, but embraced all things that could be known: science, medicine, engineering and mathematics (and that wonderful concept of zero, learned from Indian mathematicians, without which no one would have landed on the moon in the twentieth century). The Muslims drew on the classics from ancient Greece, but they also generated new works of their own in their chosen fields, and disseminated their knowledge as they founded schools and established colleges wherever they went. A curriculum taught in these places would encompass religious studies, certainly, but also grammar and poetry, history and law, philosophy and natural sciences in the language of instruction, Arabic. The Alexandrian model served to inform Arabic notions of scholarship as based on engagement with literature, and a thriving book trade served it well. In Spain the Moorish capital was established at Cordova, with libraries as well as running water, paved streets and general prosperity. Seventy libraries were established in important Spanish cities (and later destroyed in various civil conflicts), containing between 400,000 and 600,000 books, and it was a culture of book learning and book production that lasted for as long as the Dark Ages in Europe. Every important city under Muslim control had its library, open to all scholars, with free paper provided for those scholars too poor to be able to afford it.

And that was another thing: the Muslims had paper. They had not turned to papyrus for their books, or to parchment. They had learned the art of paper making from Chinese prisoners from their campaigns in the eighth century CE, and they had done this five centuries before paper would make its way into Europe. They refined the making of the codex so that with the art of calligraphers and illustrators, taking into consideration the aesthetics as well as the content, books became beautiful and prized for both qualities (Battles, 2004: 64).

It may be possible to argue that it was not until the Christians in the West could see past their own superstitions and embrace the possibilities of such curricula that they could progress their own knowledge. But Christendom was constantly under very real physical and political as well as religious threat. There were the Ostrogoths to fight off in the years of the late Roman Empire, and between the sixth and eighth centuries CE the Lombards were to be resisted in Italy. The Moors had conquered lands right up into Spain itself by the eighth century CE, and their hold was not loosened until the fifteenth century CE. In the time of

their dominance on the world stage in the thirteenth century the Mongols had swept through northern China, going on to conquer the lands between China and Eastern Europe right down to the Dnieper River in what is now Ukraine. The Mongol empire was one of the greatest land empires the world has ever known, backed with military skill and power (Rossabi, 1994), with no Christian impulses to their activities. The Danes raided and plundered across Europe from the eighth to the eleventh centuries, operating as far as Constantinople and the Volga River in Russia. This was yet another significant threat to mediaeval Christendom. Small wonder, then, that it held on to what it could control with grim determination, resisting all attempts to dislodge its influence in its Fortress Christendom stance against heathens at its gates and heretics among the ranks within. That is not to say that superstition did not play a major part in the resistance to new knowledge, but once the barriers were down there was a body of profound Muslim scholarship on which to draw.

Moorish occupation in Toledo meant that by 1200 CE a whole corpus of works on Greek medicine was available in Latin translation, works such as Avicenna's *Canon of Medicine*, acquired by translation from the Arabic. As Padover ([1939] 1967c: 363) would have it, 'the birth of science in the West is perhaps the most glorious part of the history of Muslim libraries'. The appreciation of this was not forthcoming at the time. With the expulsion of the Moors from Spain in 1492, a biblioclasm saw the burning of thousands of these books, and all the knowledge therein lost.

Competing forms of knowledge production: the Christians

Papyrus scrolls in Rome came to serve an increasingly literate population who were reading Greek and Latin works as the empire grew. Those books that related to the Christians were produced in vellum codex (much like a modern book). As Rome waned, though, so too did its libraries. As Christianity waxed, the body of literature for the religious guidance of early Christians, such as it was, was in Greek. Bowen (1972: 237) sees this as a fundamental problem for Christianity in the first and second centuries CE, as a 'continued presence of Greek philosophy' with 'virtually all the concepts of Christianity expressed in the Greek form, recorded in the Greek language, [with] attempts at clarification made by scholars themselves trained in Greek schools and philosophical

tradition'. The educated early Christian subject, then, was constructed by privileged discourses of the time, and once again the technology was associated with oral traditions as unremarkable and portable as those of the agora. So too were the conditions from which it emerged, with a number of city-states loosely aligned within the larger Roman Empire, and later Christendom.

In those first two centuries there was no church structure of the type that could contest the dominance of Greek education discourses. There was no single Church authority, no recognised hierarchy, no definite canon of scriptures to support the concept of the new religious movement based on imitation of the life of Christ and transform it into a coherent, systematic doctrine. The metropolitan sees existed, certainly, in Antioch, for example, and in other places like Rome, and within these structures in the framework provided by city-state models, a certain amount of codification and interpretation of the (Greek) works of the apostles was possible. In spite of increasing scholarship in Christian centres, philosopher scholars of the Greek tradition still dominated. The conditions under which new discourses could come to prominence were not possible until the Council of Nicea in 325 CE, giving rise to the use of Latin as the language of scholarship that would systematise Christian doctrine (SBS, 1998).

The Nicene Creed itself is a major, if not *the* major, signifier of discourses emerging in these different circumstances, establishing the concept of an absolute Church authority defining an absolute truth for all Christians to hold fast. No longer would the personal search for an absolute truth under the guidance of a master or midwife philosopher, as Socrates saw himself, constitute an education at the higher levels of educational endeavour. The dominance of Latin as the language of Christian knowledge production can be appreciated by virtue of the exercise of political power in the name of religious righteousness, constructed as truth. This was manifested in the closure of the University of Athens in 529 CE by a political figure in the form of Emperor Justinian in response to a perception of the unrighteousness, and thus apostasy, constructed as integral to its operation as a centre for pagan thought. Aristotle had worked to break down all human knowledge on the basic premise of everything working in a systematic way, on the basis of logic. He had argued that there was a logical reason for everything being the way it was, that one should develop a world view only from experience and not from faith. A scholar working from these principles would draw the right conclusions. It is possible to see how this would sit uneasily alongside articles of faith espoused by Christians.

The Danes

Perhaps the largest contribution made by the Danes – the Vikings – to scholarship in the Western world was their repeated and exhaustive sacking of settlements along the west coast of Europe, particularly Britain and Ireland. The monasteries and their gold, silver and other precious metals and stones used for ritual paraphernalia and the decoration of the covers of sacred texts were major attractions, but not the books themselves, or what they contained. The Danes' attitude to books meant the destruction of precious manuscripts that they considered of no value. What is more, the social and economic instability resulting from Dane hostilities caused disruptions to commerce, as those who could retreat into centres of military security in fortified castles did so, leaving those who could not to fend for themselves. Communications were disrupted, and the effect on scholarship was profound. Scholarship was not a matter of concern for the knights within their castles as they strove for some sort of military ascendancy over threats from hostiles. Scholarship survived only in isolated places: in the abbeys, cathedrals, churches, some courts and indeed some castles, but in general the nobility had little concern with learning in any form. Instability, constant military vigilance and the lack of a leisured class meant that the conditions for the flourishing of scholarship were absent.

In spite of the sort of support that Justinian provided to the developing influence of Christianity, there was serious threat to its continued existence in the forms that it had developed in opposition to all things pagan. Decimation of Christian churches and Christian learning at the hands of Danes did not result in plundered books feeding into a system of scholarship for those Danes, for it was not until they relinquished their plundering activities that England, Ireland, Wales, Scotland, Denmark, Norway, Germany and France were once more free to trade. In spite of all of the Danes' pillaging of monasteries, their scriptoria and the libraries of the great houses in the heyday of their Viking days, the books themselves tended not to be brought back home as part of the plunder. Scandinavian libraries were late in developing in the Middle Ages. It appears that there were no bibliophiles among their number who would carry off the books they encountered, for they were burned as useless plunder or stripped for their leather and precious decorative materials. Books arrived in Scandinavia only with the arrival of Christianity, but pre-Christian texts preserved through oral traditions died out with the embracing of the new religion. Iceland managed to

hold on to some of this (see for example Hallberg, 1962), but most of the rest is lost.

The scholar of the times

Such were the conditions that made possible first the concept and then the practice of a monastic system based on the contemplative life spent in isolation from the world, a different construct from the 'in-the-world' educated actor of Athens and Rome. Given the constraints of a codified system of beliefs, it was a more doctrinaire than doctrinal guidance for the grasp of truth, again a different construct from the 'out-of-the-world' philosopher in pursuit of the purest, highest forms of knowledge through minute examination of all possible explanations for the phenomena of the world. The structure becomes stricture; the technology remarkable in its demands for a generation of knowledge based on manuscripts, books and writing. The break of the first monasteries with Greek tradition was as complete as that of the first Greek philosophers with their traditions of myths and legends. Here was a shift in constructs. It was something that recurred in a different form in the Italian-led Renaissance, but that was a different time and a different country. It also recurred in the Organisation for Economic Co-operation and Development (OECD) construct of scholarship in current times in a globalised world, that of generating new knowledge or using existing knowledge in new ways to create new knowledge. This was all yet to happen. Christendom was not yet the major political system of the times, but its emergence as a discourse underpinned by a scholarship of ecclesiastical and monastic considerations and requirements was incipient. New forms of supporting apparatus would be developed over time in the form of the scriptoria and their associated procedures and protocols. Christendom was itself the context of knowledge production.

2

From the scriptoria to the printery

The book of the times

Codex had emerged as the book of the Christians even as the Roman Empire was about to disintegrate. Codex replaced the scrolls. Codex book production was a technology that allowed a shift from a focus on the oracy of the agora to one on scribes, writing materials and the written word. Portability was sacrificed in such a development, hence the library as conceived today. There was as yet no such technology as the printing press, which reduced the cost of production to an incredible degree. The printing press was an astonishing invention. Where a book may have been calculated at perhaps $400 to produce, a printed version was the equivalent of $1. This was still far in the future.

The Ptolomies had created their own monopoly on papyrus products in their attempts to establish the international sovereignty of their Alexandrian library, adopting the convention of Roman libraries being associated with temples. The Christian monopoly that developed supported scholarship that was prescribed, proscribed, confined and constrained in the name of heresy detection and prevention. Because of this, it was scholarship constructed as replicating existing knowledge rather than generating any new knowledge, for it was considered that all that there was to be known by humankind was to be found in the works being produced at such cost to the institutions and individuals involved. On a grand scale, scholarship was shaped, named and framed within a Christian episteme that constrained scholarly thought. At a time when the Arabs were world leaders in their most notable advances in physics, chemistry, astronomy and medicine, the Christian world sank further and further into the Dark Ages of its own making. As Cubberly (1922: 207) puts it, 'Out of the astronomy of the Arabs the Christians got only astrology; out of their chemistry they only got alchemy.' They had sold themselves short.

Christendom as the political entity of Christianity saw the exercise of extraordinary political authority wielded over other political entities ruled by nobles and royalty in the guise of spiritual concern for the people. It was a theocentric context manifest in the *Mappamundi* (De Bello, circa 1300), so different from anything that Mercator might dream up, which placed Jerusalem at the centre of the world that was called Christendom. De Bello's *Mappamundi* may still be seen on display at Hereford Cathedral in the UK. Like any map, it is a representation of a human imagination of a world that is known to exist, but which cannot be comprehended by the human eye. That world, for a mediaeval scholar, would encompass the known world, for while the various land masses can be identified in the map, what is most salient is that there is no Europe. There is only Christendom. There are no Europeans; there are only Christians.

There is no world outside of the Church, not even down to the smallest details. The ability of the Church to gatekeep knowledge and frame this knowledge within all Church teachings was exemplified by this very detail. 'They wouldn't say, "Here's a red flower". They'd say, "Red for the blood of Christ, thorns for the pains of the devil, green for the emerald of sincerity" and so on… The whole of nature was nothing but a kind of giant, holy cryptogram, to be decoded by the faithful' (Burke, 1988, quoted in Patterson, 1997: 32). The net result is wholesale rejection of scholarly tradition from ancient times, certainly, but also a refusal to engage new scholarship as it developed in the Arab world and was spread by Arab conquest. Fortress Christendom dominated all forms of scholarship, and with it all forms of book production. It was an episteme that allowed for no alternative framings or positionings of scholarship.

Rise of Islam

Bowen (1972: 1) describes Europe by 600 CE as a society 'intellectually and culturally barren'. According to him, such learning as had survived the first six centuries was 'conservative, encyclopedic and degenerate', confined as it was almost exclusively to monasteries and cathedrals. The scriptoria collections were usually inaccessible to scholars as they were locked away in the monasteries across Europe, silent testimonies to the glory of the Christian God and not subject to any sort of uniform cataloguing systems. It was not possible to know even of the existence of

any particular works – a significant factor in preventing their use for scholarship. In any case, as Jones (1997) points out, the books were simply too valuable to make available for such purposes beyond the religious themselves.

That is not the whole story of scholarship at this time, though. It was under the spread of Islam that the world experienced the greatest growth in libraries that it had ever seen. The religious impetus was there, certainly, for it was seen as Allah's instructions, so that followers might be able to read it and believe it. The corollary to this is that people must also become literate (Battles, 2004), a further fillip to scholarship. The European Church may have imposed bans, endorsed its rituals and educated its clergy accordingly, but the Eastern Church established its own educational discourse that placed it at the forefront of intellectual activity. It drew heretics who had fled the European Church dominance and who continued their work, and its site of activity was alongside that of the rising assertion of an Islamic episteme where ancient Greek continued to be read and translated into Eastern languages without being subject to the normalising strictures possible under its interpretation of holy writ.

Islamic constructs of scholarship had embraced, translated into Arabic and thus preserved the works of philosophers of antiquity, especially those of Aristotle, and it is largely because of this that they may be accessed in the twenty-first century. Islam during those first centuries of the Common Era established its own episteme, its own break with the Greek notions of what constituted learning and knowledge. In the initial stages the Koran was not written, but passed by word of mouth through the generations until its written form emerged, collected into a continuous book in 633 CE, after Muhammad's death (Padover, [1939] 1967c). Islamic scholarship incorporated ancient Greek, Hindu and Persian learning in an episteme that enlarged and enriched their endeavours, as opposed to constriction and confinement through the bans and contraband knowledge of the monastic system. Within a generation of the Prophet's death a school was established at Medina, and by the third century CE the system had arisen of attaching a school to each mosque for the instruction of every boy and girl from the age of five years, made affordable by the charge of a trifling fee (Bowen, 1972). The emphasis was on religion – what it meant to be a good Muslim (much as the early Christian emphasis was on the imitation of the life of Christ) – but the knowledge generated under this episteme was underpinned by the ability to read and write in Arabic for the purpose of study of the Koran, arithmetic and mathematics later being introduced

to the curriculum. There was a concept of higher education for the higher social classes, and this curriculum comprised algebra, logic, biology, law, history, grammar and theology, with the greatest emphasis on this last. State-supported madrassas, or colleges, became intellectual shrines for all scholars from all over the world, Muslim theologian or no. The books produced by scribes and copyists were housed in places like Spain, which had 70 libraries established under Moorish direction that lasted for some 500 years, almost at exactly the same time as Europe was living through its Dark Ages (Lerner, 1999). Perhaps one of the greatest achievements of Arabian scientific knowledge is not just the creation of the knowledge itself, but the ways in which it was spread throughout the world. It was the libraries that were so widely established under Islamic regimes that gave access to this knowledge. Toledo may be seen as the chief place for the dissemination of Arab knowledge, where by 1200 CE the whole corpus of Greek medical knowledge was available, as well as Avicenna's (Ibn Sina's) *Book of Healing* and *Canon of Medicine* (Padover, [1939] 1967; Battles, 2004). This is how scientific scholarship found its way into the Western episteme, but it was not an easy road.

Every traditional Islamic city possessed public and private libraries, and some cities like Cordoba and Baghdad boasted libraries with over 400,000 books (Battles, ibid.). These could best be described as being run along the same lines as twentieth-century municipal free libraries. The practice is marked by an absence of constraint that is remarkable only if examined alongside that of early Christianity, and by incorporation of knowledge generated through a more wide-ranging scholarship than the European Christian Church allowed, an apparently inclusive rather than exclusive activity. In sharp contrast with the epistemes of European Christian education, Muslim epistemes were based on geometry and algebra learned from the Greeks and Hindus, and chemistry and pharmacy. Ritualistic hygienics produced its own knowledge in relation to medical properties associated with healthcare, so the properties and production of medicaments such as sedatives and anaesthetics meant that medicine was a legitimate and laudable practice rather than flying in the face of Divine Will, producing the reputedly finest doctors in the whole of the known world, as well as druggists subject to state examination before being allowed to practise (Meyer, 1972). The major limiting feature was the religious ban on dissection, in common with the Christian taboo and indeed with many cultures, that hindered the development of surgery. Yet Ibn Sina's work was published and became the leading world medical text right up to the seventeenth

century (Battles, 2004). It is still in use in certain Islamic countries such as Pakistan.

The scriptoria

The shifting perspectives on scholarship generated by the dominance of Christianity in Christendom was hardly one of scholarship *per se*; rather it was one generated by the new Church's perceived need to eradicate the influence of all pagan discourse to enable assertion of its new discourse of Christianity manifested in the Council of Carthage's 401 CE ban on the clergy from even as much as reading any pagan author at all (Cubberley, 1922: 51). The act of reading took on positive and negative aspects, the written word looming large as part of the technology of Christian learning. The newly established cathedral schools under the auspices of the bishops would serve to ensure that a 'properly trained' clergy would operate the 'in-the-world' apparatus of the Church in the parishes and dioceses; the monastic schools run by individual abbots would provide the apparatus for the 'out-of-the-world' religious training and serve a dual purpose in keeping isolated monks occupied throughout the day during breaks between stipulated meditation and prayer sessions while providing manpower for printing and copying facilities for the books and manuscripts upon which the new learning was based. The individual struggle for the search for absolute truth was removed as an increasingly centralised Church authority took on this task, informing acolytes at various stages of their education of what had been learned and what was now to be absorbed by them via exchange of written forms of the new knowledge. Much of the intellectual strain of identifying and articulating the problematic was removed from the learner as pre-formulated questions were posed, followed up with prefabricated answers in a mock dialectical format of a question-and-answer style. The assumption underlying such a methodology is that all that needed to be known could be thus compartmentalised, and indeed, as the scholarly discourse allowed for such a formulaic approach, it could. The deliberate and systematic exclusion of any knowledge that would disturb religious compliance effectively disempowers such knowledge by refusing to acknowledge so much as the possibility of its existence.

The strategy has the appearance of the philosophical debate of the Greek educational discourse, but it lacks its substance. Similarly, the

Trivium, a curriculum composed of three subject areas for lower-order learners, comprised grammar, rhetoric and logic and was to be mastered by memorisation, that very thing eschewed by the ilk of Plato. The nomenclature implies a certain mimesis, the substantive elements do not. Grammar was studied with a view to producing a graceful turn of Latin phrase in imitation only of the style of the ancient scholars. Rhetoric was not used to develop and refine philosophical appreciations of the human relationship with the world, but to compose commercial documents – wills, bills of sale and so forth. As to logic, what had before been employed in the search for an absolute truth was now turned to the service of the theologian in the detection of error, fallacy and heresy in doctrinal discourse (Meyer, 1972). What has happened is that very displacement and transformation of concepts posited by Foucault (1974: 3) as belying direct historical linkages characteristic of grand narratives of history.

Add to this the practice of the confessional, ever so much more powerful than any panopticon that Jeremy Bentham may have invented for the purposes of surveillance, which Foucault (1980) uses in his analysis of the confessional in *The History of Sexuality*. What we see is real power, 'the name that one attributes to a complex strategical situation in a particular society' (ibid.: 93). As a ritualistic apparatus for 'the production of truth based on each individual's acknowledgment of his or her own actions and thoughts' constructed within the conceptual framework of religious norms of discipline and punishments, it is, as Foucault (ibid.: 40) says, 'thoroughly imbued with relations of power' that are 'so deeply ingrained… that we no longer perceive it as the effect of a power that constrains us'.

This was all made possible by the monastic/episcopal systems and associated hierarchy tied to political systems sustaining and sustained by the new political entity, Christendom, with Jerusalem as its capital, which had supplanted the Roman Empire (see De Bello, circa 1300). The discourse was informed by religious precepts based on one absolute truth to be found in Christian scripture, giving rise to Christian doctrine, embodied in the Nicene Creed and manifested in conduct of appropriate ritual according to established, regular, canonical practice. The natural harmony of the world revealed through philosophy, science and mathematics was discarded, the discourse now framed in terms of perpetual conflict between the abstract concepts of good and evil metamorphosed in the form of one God, the angels and saints on the one hand with Lucifer, Beelzebub and any number of devils, incubi and succubi on the other, observable even to the untrained eye in the form of

such things as floods, pestilence and warfare. The regularity of the seasons, the constellations, the rhythms of the earth were marginalised knowledges as the liturgical calendar subsumed their import. Meyer (1972: 79) describes the astrological knowledge of the time as being 'hampered by a fog of theology'.

Such a discourse would not admit of medical knowledge to diagnose and cure diseases, as it could not progress beyond theories of satanic or divine intervention as punishment for sin or reward for prayer and good works, nor of prognoses beyond that of the keeping of shrines and holy relics, let alone the odd miracle. Neither would it allow for the participation of women beyond that of handmaiden as nun or abbess; wife at best, whore at worst, if a man must shun the priestly ideal that came to adopt celibacy and all its implied misogyny, and succumb to the demands of the flesh. St Paul's rather acerbic injunction to his early distant learners, the recipients of his epistles, that it was better to marry than to burn, is indicative of the status of women who were to occupy their places within the discourse of Christianity as it spread throughout the known world. At the same time the discourse adhered to strict hierarchical structures within both secular and religious spheres, relegating poverty and wealth alike to the will of God/punishment-rewards system, thereby marginalising any knowledge that may have been generated through social discourse that did not fall within the discursive field of scripture and limiting access to the knowledge that is power, the power that is knowledge, to social élites based on clergy and clerical connections.

The labour of the clergy in the scriptoria producing the mass of literature based on scripture bore a heavy burden of faithful reproduction of such knowledge as was allowed. The force of this is not to be underestimated. It dates from the injunction of St Irenaeus, who died in the year 202, and was carried on by St Jerome in the Middle Ages:

> You who will transcribe this book, I charge you, in the name of Our Lord Jesus Christ and of His glorious Second Coming, in which He will come to judge the living and the dead, compare what you have copied against the original and correct it carefully. Furthermore, transcribe this adjuration and place it in the book. (Monastery of Christ in the Desert, 1998: 2)

The production of books was, moreover, part of the religious activity of the monks as embodied in the rules set by St Benedict on the prescribed

hours for reading and copying to fill the day. The poverty rule meant that monks could not own these books, which remained the property of the ecclesiastical institution, which then made provision for their storage, usually to allow them to be read where they were stored, as they were certainly too heavy to carry. For each sheet one sheep must provide a skin, and for one complete copy a rather large flock of sheep must needs surrender their skins (Irwin, 1964: 148). Over the thousand-odd years of scriptoria production, monastic libraries accumulated large manuscripts with large, round writing, careful spacing, intricate artwork designed not simply to embellish but to reinforce the spiritual import of the written word, held between oak boards covered with leather and another set of elaborate decoration, held together with five large-headed nails (Talbot, 1958: 67). In his classic book on mediaeval libraries, Thompson ([1939] 1967: 31) describes them as a 'treadmill for meaningless labour' rather than as 'a shrine where the expiring flame of literary culture was sedulously preserved'. What is more, the practice within the monasteries was to allot one book to each monk at Lent each year to read until Lent the following year – hardly a frenetic pace of learning (Talbot, 1958: 68). Collections rarely consisted of more than 100 volumes in the monasteries of the Middle Ages, and, given the investment of time and labour in each of these, were highly prized and carefully guarded (Ollé, 1967: 30). Ollé (ibid.) would argue that the collections of books in monasteries in mediaeval Europe were hardly libraries at all, if by 'library' one considers a building housing a collection of books. What existed was a nucleus of necessary service books and scriptures, along with books for teaching, practical books containing what there was of medical, legal and husbandry knowledge, and books for devotional purposes. The collections were limited, especially in England before the Norman Conquest of 1066, where there were comparatively few monasteries given the tendency of the Danish incursions to murder monks and plunder monasteries. These houses had neither the need nor the money to acquire many books beyond the nucleus that provided for their needs. While the collections did tend to grow over the years, with the copying of borrowed books from other houses, occasional purchases and gifts and bequests, there is no suggestion of systematic, orchestrated and deliberate growing of monastic collections as part of library protocols and practice. Neither is there anything but the most rudimentary sense of librarianship associated with the collections.

In the attempts to establish the continuity of the library-scholarship tradition from classical times, some scholars have taken pains to point to the architectural similarities of the Roman colonnade, along which the

papyrus rolls were stored in small boxes in a pigeonhole arrangement, and the cloisters of the monasteries where the books were stored (see for example Irwin, 1958: 3). The earliest processes and protocols for book production and storage adopted existing Roman models of libraries located within or near temples, as scriptoria and then armoria were established in monasteries and the books produced were housed there rather than elsewhere, but their indifference to anything that was not firmly entrenched in the religion, such as the Bible itself, psalters and prayer and service books, meant that the sort of knowledge that scholars might access from the classics was effectively lost to them. Ecclesiastical control of the episteme meant that for centuries developments in the Arab and Asian worlds were closed to all who would follow their scholarly enquiry into areas others than those devoted to Church-prescribed forms, especially given that anything else was proscribed with threats of eternal damnation, which could be arranged before one was even dead by way of excommunication and thereby denial of any access to grace that would save an immortal soul (see also Zeegers, 2006). Thompson ([1939] 1967: 30) suggests, though, that this was part of an unconscious adoption of existing Roman institutional protocols, in effect 'a compromise with paganism' that carried with it a strong and permanent antipathy to books in general and an indifference to any books that were not Bible, psalters or service books in particular.

Martyrdom and taking to the desert in imitation of the life of Christ that marked early Christianity as fringe elements of wider societies evolved into lives of prayer and renunciation of the evils of the world, the flesh and the devil in monastic societies as the religion became established by the fifth century. Mortification of the flesh was accompanied by contemplation of the Word of God, and this meant a growth in book production. Nonetheless, the religion of the new Christians was as much based on a book as the Jewish religion out of which it grew, with its focus on the Old Testament, and it did draw on the classical grammar, literature, history and philosophy for its own learning and teaching, but it developed a complete theoretical system based on established understandings of the convictions of the early disciples as formulated, discussed and defended (ibid.). But a religion and indeed a political system based on a book need copies of that book if they are to flourish. The monastic system based on the rule of St Benedict positioned the Bible as central to all monastic life, and the copying of it and associated liturgical and sacred works as central to scriptoria activities. These same volumes were constructed within scholarly discourses on the books as containing what St Benedict has described as

the true meaning of the Word of God that could only be properly understood with the help of the work of the scholars trained and endorsed by the Church. That, of course, put all other work beyond consideration.

The growth, though, meant that books could not be housed in the scriptoria which produced them. The armoria housed the books, and quite a few of these were needed given the requirements of monastic activity. Reading Christian literature was a basic requirement for Christian life under the rule of St Benedict. There were specified times for reading, such as on Sunday. The Lenten reading programme required one book to be read in its entirety for each monk. Psalters and hymnals were required for daily worship, and scholarly texts for use in classrooms in the training of scholars and Church leaders. Lives and biblical commentaries were required for reading aloud at mealtimes, and legal, technical and medical books were required for the administrators and specialists within the monastery (Lerner, 1999). There was no real position of librarian, or of librarianship, or training for either. An armarius, usually the choirmaster, was appointed by an abbot to perform librarian-type duties in relation to the distribution of books to the monks themselves, but seldom would they be loaned outside of the monastery itself. There was no recognised right to borrow; it was a courtesy extended to monarchs, ecclesiasts, aristocrats, other libraries and scholars, perhaps.

Lending and borrowing had their dangers for the integrity of a collection, though, and loans were given only where a pledge of security was given by the borrower. A book would be borrowed for the purposes of having it copied, which was the most common reason for borrowing. An exchange of books for mutual copying might be done. One monastery might send a copyist to another monastery to copy a certain book, which carries with it less danger for a collection, as would the execution of a commission to copy a book for another monastery. Out of this situation came the first copyright case in Western history. The Irish monk Columba (born in 521) found the abbot Finninan's copy of Jerome's translation of the Bible irresistible, but was denied permission to copy it. He did it anyway, surreptitiously, and was brought to court under Brehan law. King Diarmit famously awarded the case against Columba with the comment, 'To every cow her calf; to every book its transcript', with the resulting exile of Columba from Ireland to Iona (Casteleyn, 1984; Lerner, 1999). There he founded a monastery whence Christian teaching and learning spread in Britain's north. His monks studied and copied scriptures and lives of the saints while they trained

generations of Church leaders and scholars in the traditions that the monastic system had so firmly entrenched.

By the ninth century, with the growing collections of individual books produced at such great costs within scriptoria, they came to be valued as part of the monastery's treasure, and inventoried as such. This was archival activity rather than cataloguing. They generally took a crude form of lists of books without any order or sequence, with alphabetical order rarely appearing in those lists that have survived. Where works by Augustine head the lists that have survived, this is because of his importance as one of the Church fathers and leader of hostility to ancient learning, not because his name starts with the first letter of the alphabet. Then come the Bible, Church fathers' writings, theological works, homilies and lives of the saints, followed by secular literature at the end. There are no spaces for any additions that might be inserted as the collection grew, suggesting the rather serendipitous nature of collection growth.

Books not in use were kept in the cloisters in chests, presses, wall cupboards and so on, in the armarium, with crude shelf lists apparently compiled without any thought of order or sequence, and certainly no sense of subject-and-author details. As collections grew, lists became more standardised, being based on seven classes of works – archives, scriptural commentaries, constitutions, synod or council proceedings, homilies or epistles of the Church fathers, lectionaries and martyrdom stories – and sub-classes for secular literature in the liberal arts: grammar, rhetoric, logic, arithmetic, geometry, music and astronomy – as the rules of Cluny were applied in annual audits of books. Indeed, the inclusion of secular works in various vernaculars complicated the librarian's life as works then had to be separated in accordance with distinctions between a lay and an ecclesiastical library (Thompson, [1939] 1967). By the thirteenth century we see increasing uniformity in armarium activity as books start to receive labels: red for theology, green for medical works and black for law. Storage becomes a matter of books being placed on their sides so that the titles may be easily seen on the front cover, and titles gradually appearing on the spines so that they may be stored upright on the shelves as more efficient use of space. It was also at this time that the practice of chaining books was introduced.

One could lose one's immortal soul in relation to the books themselves, for severe spiritual penalties were involved in stealing a monastic library book (De Roover, [1939] 1967: 608), ranging from a simple statement of the worst of all possible consequences for any

Christian, like 'Whoever steals or alienates this book, or mutilates it, be anathema', to the more articulate:

> May whoever steals this book let him die the death; let him be frizzled in a pan; may the falling sickness rage within him; may he be broken on the wheel and hanged.

Lerner (1999: 88) has a similar example of a curse displayed by the Cistercians of Vaux-de-Cernay:

> If any one attempts to carry away one of these books by theft, by fraud, or in any other manner, let his name be struck from the book of the living, that he be not inscribed with the just but instead, delivered to the fire of hell, be tormented endlessly.

The practice of anathema was condemned at the Council of Paris in 1212; chaining the books could be seen to be as effective as psychological trauma. One can sympathise, given the labour-intensive nature of this type of book production in cloisters unheated in winter, with no artificial lighting, no breaks from labour in allotted scriptoria time without permission from the abbot himself; work which one monk describes as 'Three fingers hold the pen but whole body toils' over an estimated 166 days per book in the cold or the heat, with cramped fingers, and so on. There are stories of monks who in exquisite script have written on their pages, 'Thank God it will soon be dark', or 'O, that a glass of good old wine were by my side', or 'St Patrick of Armagh, deliver me from writing' (De Roover, [1939] 1967: 606). One story in particular is redolent with human interest. One monk put in a note at the end of his labours over a tome, 'Jacob wrote this'. After this is written in another hand: 'A certain portion of this book is not of his own free will but under compulsion, bound by fetters, just as a runaway and fugitive has to be bound' (ibid.: 601).

Access to the books was confined to those considered to need to know what they contained, and these people were the monks. The Irish monks in particular travelled throughout Britain and Western Europe, carrying their copies of books in polairi – leather satchels that could be carried about and hung from pegs for storage – as they engaged in their own version of mortification of the flesh in their voluntary exile, establishing new monasteries with their scriptoria and armoria and spreading the faith and thus the traditions of Christian scholarship of orthodoxy and a horror of heresy in their progress. The Venerable Bede was one who

profited, becoming 'the best read and most prolific writer of his time' (Lerner, 1999: 42). Indeed, reading Bede's (1990) *Ecclesiastical History of the English People* one is struck by the intimate tone of the writer in his depictions of such characters as Augustine and Pope Gregory, a sense of the very human nature of their relationships with each other and their God in relation to the people among whom they were to spread and consolidate the faith.

The feudal system as developed in Europe, based as it was on military activity with war as its central concern and an organised knighthood emerging by the tenth century CE, also incorporated discourses of knightly endeavour which did consider literacy as a fit skill for any knight. The knowledge produced in relation to knighthood constructed its subject as a fighting man, not a man educated as a Greek warrior-statesmen would have been. The concept of the well-balanced development of the entire man is simply not part of such discourses, and women are completely excluded from this in feudal Europe. But feudalism was based on a closed system of rural strongholds both physical and social in character.

For all of the religious houses' renunciation of the world, the flesh and the devil, that world did exist outside the walls. Monastic schools were attached to the monasteries, where the sons of those wealthy enough to afford the leisure for learning would be educated. There was a laity to be serviced, and priests to be trained in that service. The chain of command from pope to cardinal to bishop to priest had to be supported by a literate priesthood that conducted the religious rituals of the ecclesiastical calendar as the role of the Church and the bishops strengthened. Schools were attached to the various sees, and these cathedral schools were run not only for the provision of religious service to the general population but also to provide a continuing source of candidates for clerical positions within priestly ranks. Initially run by bishops who delegated control and teaching functions to their chancellors, the schools taught theology, music and canon law to the incipient priests and other Church functionaries, still largely ignorant of the advances in learning and knowledge creation of the Arab world. They were urban schools rather than rural monasteries, and they too established libraries for their own scholarly activities. The cathedral school at York, for example, trained the secular clergy and produced the great scholar Alcuin, who was invited by Charlemagne to leave York and work for him at Aachen. Here Alcuin established Charlemagne's substantial library in the eighth century CE, remarkable not only for its collection of classical works but also for its inclusion of vernacular

works of poetry and grammar. It was a palace school that Alcuin headed, a training college for the Church and state leaders that Charlemagne, as Holy Roman Emperor, needed. They were bureaucrats, efficiently trained to administer the political system for which he was responsible. Alcuin had all essential Christian works – the Lord's Prayer, the Apostles' Creed and the Benedictine Rule – translated into German, and worked on the principle of making these available to the religious and the laity. He knew the value of secular works for Church purposes as well. The so-called liberal arts curriculum that combined the grammar, rhetoric and logic of the Trivium with the arithmetic, geometry, music and astronomy of the Quadrivium informed the teaching and learning of such schools across England and Europe. The arithmetic of that time was still based on Roman numerals, but contact with the Arab world during the Crusades made possible the introduction of the numeric system of Indian scholars that Muslim scholars had so eagerly embraced and made their own.

By the time of the Crusades, cathedral schools and their libraries and students were a well-established feature of the education system of the Church, but unlike monasteries they were to develop and grow into the wider society which they served. Mendicant orders, the Franciscans and the Dominicans, eschewed monastic life but embraced a spiritual role out in the world administering to wider populations than monasteries, fixed to their sites of operations, could.

Fortress Christendom moved from the defensive with the first Crusade in 1095: offensive action against the heathen, with seven crusades in all by 1244. The Crusaders did their own share of biblioclasmic work as they proceeded, but not enough to destroy all of what had been produced beyond the confines of Christendom. Christendom's isolation was over. Feudalism was irreparably weakened, and a secular force developed to take up the spaces created. From 1100 onwards the population of Europe increased, and with this economies expanded. New commercial classes emerged, old trade routes reopened and new ones were established. The mediaeval city was based on these trade routes, especially those by sea, and Venice best exemplifies this development. It had no agricultural land, but its commercial activities were nothing if not robust. With the North Sea free from Viking raids and increasing relative political stability, more centres of trade such as those in Genoa and Pisa could develop, for the cities had the benefit of resident nobility who did not have to go off to fight whatever threat loomed. With the expansion of urban life came specialisations in occupations. The role of merchant, with its attendant generation of

money, came to be an honoured position, especially as it brought wealth to both cathedral and castle, benefiting both bishop and lord. With this came the need for secular learning: bookkeepers, administrators, skilled workers and so on to cope with expanding commerce. Such needs were not met by the cathedral schools, but by the activities of guilds – closed brotherhoods to preserve the secrets and skills of trades and occupations, with their own systems of qualifications set for admission to professions and occupations. It is a trend that repeats itself over and over: the social and economic needs of a given population or section of a population with needs for knowledge and learning being denied by established education systems and having to develop their own.

The universities

Financial benefits of trade with the rest of the world meant money that could be deployed for the glorification of the Church throughout Europe, and for the personal spiritual benefit of wealthy laity. The eleventh century CE saw new architects and architectural techniques drawn upon for the creation of the great cathedrals, most of which were built between 1050 and 1350. They drew the increasing numbers of the new leisured classes wanting a scholarly life. All their students were clerics or intending clerics in some form of holy orders, and they too turned to typically mediaeval patterns of group actions in the form of guilds to develop and defend their intellectual occupations. The term *universitas* originally meant any group of people organised in a guild, but came increasingly to designate guild organisations of teachers and students. While we have no exact dates for the universities that developed out these universitates, they were well established in the twelfth and thirteenth centuries CE. The greatest of these was the School of Paris, growing out of Notre Dame cathedral and benefiting from the drawing power of Abelard. Abelard's view of scholarship had a profound influence on intellectual enquiry: 'through doubt we are led to enquiry; through enquiry we reach to truth' (Bowen, 1981: 57).

Exciting as this might seem in relation to the opening up of education discourses, it was really a means that Abelard could employ in his own teaching and learning to scrutinise his own faith and that of his students. Truth had after all been carefully defined in centuries of Christian scholarship, and it was part of a scholar's task to reach that truth for himself. Dialectics focused on correct reasoning procedures regarding the

maturity of ideas, judgements and terminology. Syllogistic reasoning with careful attention to correct definitions would be demonstrated in verbal argument following the procedures established in classes on logic. There was no question of disputing any truth or truths derived from Church interpretations of revelation of the Word of God. It is ironic, then, that Abelard fell foul of Church authorities when he published his *Introduction ad Theologiam* in 1120. Written as an attack on heresy, the book was promptly declared a suspect work that ought to burned, as it was deemed a deviation from true faith by an orthodox synod (Báez, 2008). For the scholars of the time, that search for the truth in one's faith had its own pitfalls within constructs of what could be known and ways that it could be learned in the universitates. The idea was to settle, not to raise, religious issues within the confines of doctrine (Bowen, 1981). Truth and knowledge were conflated, and explored as scholarship under the supervision of teachers trained to do this. The model served to inform developments for others during the thirteenth century, during which time the medical school at Salerno was established and Bologna became a pre-eminent institution for the study of law. Paris reflected its cathedral school origins, but Bologna reflected Italy's increasing importance in commercial fields and its needs for professional training in those fields. By the end of the thirteenth century it was possible to identify in these institutions what would pass for a well-established university with highly developed corporate structures and programmes of studies. Bologna and Paris provided models for others in Europe: 11 in Italy, five in France, four in Spain, two in England and one in Portugal. By 1400 another 22 had been established, including in Germany and the Slavic countries. With this emerged the increasing tension between the rights the universities felt they had to decide what subjects to offer their students, and the authority of the papacy to proscribe any offerings they deemed unfit for a Christian scholar (ibid.).

It is in the late thirteenth century too that the word 'faculty' emerges to describe various subject variations within teaching guilds, eventually to replace the word 'guild' itself, and then to describe the groups of scholars in each subject area. Town-and-gown tensions developed as students took up residence in university towns, erupting into physical and sometimes deadly conflict. Charters, papal and royal, were designed to protect the rights of both students and townspeople. Students, often very young boys in early adolescence, came to the university towns, were quartered in the associated residential colleges, grouped according to their country of origin in various nations, and quite reasonably were seen to be in need of the supervision of older teachers. Their first degree was

an arts degree, with three higher degree options in theology, law or medicine. The lectio or lecturing method by which they were to acquire their learning consisted of the lecturer reading aloud the standard authors, and commentaries on these, followed by a debate. A range of divergent opinions on matters of dispute, systematically organised according to established categories, rounded things off. The method of standardised argument and dispute formed the basis of instruction almost exclusively across the universities.

Successful students could achieve a bachelor's, a licentiate or a master's degree, this last being a teaching credential, although most graduates never went beyond the bachelor degree. The licentiate was yet another means by which Church control could be exerted over scholarship in universities. It originated from the papacy, and with this qualification one could teach at any university across Christendom. Without it, one would struggle to find profitable work. The University of Paris, for example, was part of the chain of command of the Bishop of Paris, and so to the Pope. There was a direct influence of the Church through the master's degrees, and thus an influence on orthodoxy to be taught and learned.

The scholar, even though verbal arguments held sway, did not have the advantages of one in the agora. In this system, he needed books. He needed a standard text of the Bible, concordances and glosses, and postills (alphabetical arrangements of keywords of the Bible with their textual locations). The pedagogy employed required books for reading aloud to students as well as for the preparation of disputations. The disputation was a public performance with a standard format: outlining a question for consideration, a presentation of possible answers in negative and positive formats, supported by references to the Bible itself and the works of the Church fathers on such questions. The cathedral schools and then the universities supported the pedagogy in their provision of separate library structures in which to store and provide scholarly access to the required books. Reproduced by copyists, these books were exorbitantly expensive, so only wealthy students would own their own copies, although the mendicant monks would have them provided by their own orders. The Dominicans, for example, would have a copy of the Bible, Peter Lombard's *Book of Sentences* (a compilation of various arguments for or against particular propositions and the answers given) and a copy of Peter Comestor's *Historica Scholastica* (a collection of Biblical narratives and commentary by such authorities as the Church fathers). Secular students would be able to source copies from lending libraries maintained by stationers, called stationarii, and

could copy or have them copied for themselves. The stationers worked from bookstalls attached to the universities, with their book production activities strictly regulated by the universities' demands that correct copies of texts be kept and rents for books not be inflated. By the fourteenth century the universities would specify which books, revised and corrected where necessary by the relevant university boards, were to be kept in stock. Corrections demanded by the university boards were an expense to be borne by the stationers, now known as *venditores librorum*, with a nice little incentive to students to report faulty books as they received a quarter of the fines imposed for breaches of the regulations (Thompson, [1939] 1967). The new profession of the libraire, or bookman, covered all aspects of the making and selling of books. Having the experience of working with the selling stationers who issued texts, acted as agents and employed staffs of scribes, some of these became the first printers and publishers when the printing press made its appearance on the European scene (ibid.).

The vigilance regarding correctness as to points of orthodoxy in the face of the dangers of heresy was by no means diminished. The emphasis, though, was still on the Bible and correct interpretations of it. Those studying law were studying canon, not civil, law. Medicine, excluding surgery and pharmacy, with no anatomical studies of the human body, was a study of the works of and commentary on authorities such as Galen and Avicenna from earlier times, and so on. Out of these schools grew the universities, and with them a particular form of scholarship and valued knowledge, for contacts with Muslims and Byzantium did not cease with the end of the Crusades, so there was a broadening of intellectual as well as commercial life. Arab scholars had been active across Italy, Sicily and Spain in the twelfth and thirteenth centuries, with their knowledge of law, medicine, arithmetic, geometry, logic and metaphysics, and their use of what we call Arabic numerals, even though these came from Arab conquests in India. The recapture of Toledo in 1085 CE was a particular boost to scholarship in the Christian world, as here were found books on every major discipline, originally in Greek, translated into Arabic, then into Spanish, and retranslated again by Christian scholars into Latin. Books that had been lost to the West – works of Euclid, Ptolemy, Aristotle and Greek physicians – became available to scholars for the first time in hundreds of years. The augmentation of existing Aristotelian works and the introduction of such works as those of the Jewish scholar Maimonides provided a rich source of what was essentially for Europe new knowledge. What is more, it gave a fillip to the universities that had emerged from groups of teachers and

learners based around cathedral schools that gradually formalised their structures of teaching and learning. By the end of the fifteenth century more than 75 universities had been established across Europe (Butts, 1955)

The books that were used were themselves from those in monastic collections, for the mendicants' focus on poverty sat uneasily alongside the extravagant beauty of the scriptoria manuscripts. What they needed was cheap, portable books, and what the book producers responded with was smaller pages, cramped lettering, abbreviated words and modest bindings. At this time they developed some of those features we now find common in books: tables of contents, subject indices, subdivisions within the text such as chapters and verses in the Bible, and a nice little innovation in underlining particular quotations in red to stand out as important appeals to recognised authorities as part of the teaching and learning protocols. These types of books suited the requirements of the mendicant orders: liturgical and theological books to serve as preaching aids, all in Latin, with glosses between the lines or in the margins and concordances (alphabetical lists of important words in the Bible and their locations in the text). And they were produced on paper.

Thompson ([1939] 1967: 630) sees the invention of paper as the most revolutionary change in the history of book-making before printing. Cheaper than parchment, it made books so much more affordable for teachers and students, which in itself had enormous implications for access to those books and the knowledge that might be generated in a study of their contents. Paper had been invented by the Chinese centuries before, spreading gradually from China to central Asia and Persia and other lands captured by Arabs. The unlimited supplies of paper to the Islamic world had enabled the development of their scholarship at the very time that Fortress Christendom had retreated into itself and thereby cut itself off from such developments elsewhere in the world. The scribes and copyists were still used, for the block-printing invention of the Chinese had not had the impact that perhaps it could have. University studies were dependent on textbooks. A standard exemplar would be made and distributed to scribes. A system of piece-work meant that loose pages of a section of text could be distributed for mass copying by individual scribes, then assembled, bound into single volumes and distributed quickly and efficiently. Economies of scale meant further reductions in production costs and book prices.

University collections developed with books on logic, grammar, science and law, and collections of classical works, even if they did not

form part of the curricula. Books in Greek or Hebrew might have been rare, but Virgil, Horace and Ovid were represented in collections, as was Aesop's *Fables*. The works of Roman historians sat alongside Christian ones, as did books on elementary arithmetic with those of Euclid. One might find a *computus* there, for the calculation of movable feast dates, such as Easter, along with the lives of the saints. The libraries of cathedrals and churches, some of which would match those of the universities, would hold such stocks, accessed by the laity as well as the clergy. With the walls of Fortress Christendom effectively down, as cities developed, so would private libraries. Wealthy merchants would buy religious works for their private reading, such as psalters and lives of the saints, and perhaps copies of works by Cicero, Livy, Ovid and such. Cosimo de Medici's private collection within the Medici palace and the public one at San Marco in Florence were carefully overseen by his own personal librarian, Tommaseo Parentucelli. Parentucelli spent his time cataloguing the collection, selecting the most appropriate titles for purchase to ensure that the quality of the library was beyond question, and in effect created a canon of classical and sacred literature that other bibliophiles would draw on for their own libraries. Cosimo became Pope Nicholas V in 1450, refounding the Vatican library in Rome. His grandson, Lorenzo the Magnificent, continued the work of the Medici library, and papal successors continued that of the Vatican library. Pope Sixtus IV wanted the library to serve the faith and the Church, and to do this through serving the scholars engaged in the enterprise.

Something else happened as well. The works of Petrarch and his contemporaries Dante and Chaucer came upon the scene: profane, popular and in the vernaculars of their time and place. A new language form, the literary language, developed its own protocols and processes, and a new reading public understood it and embraced it. Reading could be done for pleasure, for the filling in of leisure time of leisured classes, and a different type of book containing different types of knowledge, outside of the direct control of Church or Church employees, became available. With no pretensions to academic knowledge, with a focus on social, personal and individual concerns, these books extend the dimensions of the reader's scope, and themselves are opened up to wider functions and uses. What these writers could not have known is that their insights into the human condition, couched in the words they so carefully selected, would become part of a literary canon that would sustain yet another sort of scholarship in the universities that had not yet turned to them for their embedded knowledge. They could not know, either, that the readership of their works would eventually be perceived

not only as being learned, but also cultured and refined. That would not happen for several more centuries.

The production of such books still had the perennial problem of the copyists. Petrarch despaired:

> Who will discover a cure for the ignorance and vile sloth of these copyists, who spoil everything and turn it into nonsense?... There is no check upon these copyists, selected without examination or test of their capacity. Workmen, husbandmen, weavers, artisans are not indulged in the same liberty. (Lerner, 1999: 97)

Petrarch's concerns did not lie with concepts of truth as much as with those of veracity, a continuing concern in book production up until the arrival of the printing press in what came to be known as Europe. The range and scope of the book grew, with associated very basic and practical cataloguing involved in keeping up with the works of a collection. By the fifteenth century a wall system had come into play, with bookcases along the walls and reading tables in the middle of rooms, and it was possible to see the way the room would be configured to represent what we would now recognise as a library, but not what we would recognise as scholarship. For this, we would have to have the books unchained, the structures relaxed, the strictures removed and the world beyond scripture accessed in the name of knowledge generation. For this, we would have to have reform, if not outright revolution.

3

From the printery to the bookshelves

Printed books

The State Library of Congress in Washington, DC, in the United States has two Bibles on opposite sides of the open space on the landing of its entry staircase. On one side there is a copy of a scriptoria-produced version. On the other is a Gutenberg Bible, looking very much like the manuscript version opposite, complete with hand-painted illustrations. It looks very much like one that a poor monk, like our Jacob, might have produced. It represents the mediaeval idea of what a book should look like, and it maintains the tradition of the book as containing the essential knowledge of an educated Christian. The reproduction of what was familiar to scholars and scholarship tends to highlight attempts at continuity with past processes, procedures and protocols rather than a revolutionary break with what had been happening for centuries. The original codex, evolving as it did into a traditional manuscript over hundreds of years, survived the new printing technology that arrived in Europe in about 1439 (Panayatova and Webber, 2005). Indeed, the early printers printed their most valuable books on to parchment, not paper. The result was that they did not look any different from the older manuscripts, as seen in the State Library of Congress example, but they could produce them on a scale that no scriptorial system possibly could. The arrival of the printing press in Europe is generally accepted as the one single event that marked the close of the Middle Ages. Its perceived threat to the established order was almost immediate; Rowland Phillips, Vicar of Croydon at the time, declared. 'We must root out printing, or printing will root us out' (cited in Irwin, 1966: 136). People like Phillips may not exactly have been rooted out, but they fell by the wayside in the great changes in political landscapes heralded by the arrival of the

printing press. These changes were worked out between that time and the Lutheran revolt of the 1530s.

Even so, Gutenberg was not the inventor of printing, for the Chinese had been using the technique since the eleventh century for the production of their own books, particularly the officially acceptable versions of Confucian texts. They too had used books as a means of gatekeeping knowledge, as had the Greeks, Romans and Muslims. Gutenberg is credited with the introduction of movable type to Europe. The printing press could be seen everywhere by the 1470s, well established in commercial publishing ventures in cities and towns across Europe. Fortress Christendom had prevented the access to knowledge that contact with other cultures might have engendered, but that had changed with the opening up of the world to other cultures and the rise of political systems that could operate outside the parameters of Church authorities. Opening up to the world stimulated new ideas as new knowledge was encountered, and the capacity to communicate these ideas to new and larger audiences was made possible by technological advances undreamt of in previous eras.

The end of a blinkered approach to the world allowed, among other things, access to paper. Paper had been invented by the Chinese, and from 751 BCE had spread via Islamic routes across all parts of the known world except Europe. Its abundance had facilitated the production of books at lower prices throughout Islam, with bookshops operating in every Arab city in the middle of flourishing literary cultures, but it had taken 500 years to make its way into Europe in the thirteenth century. Paper introduction was a remarkable enough event; in combination with the printing press of the middle of the fifteenth century it revolutionised book production and popular access to books, and ushered in a new era of scholarship, knowledge production and book publishing, storage and access. New forms of gatekeeping were emerging to be accommodated in new ways.

Church authorities had maintained robust control of the books published across Europe, and had found this task relatively uncomplicated while the use of copyists, in monasteries or in towns that supported cathedral schools and the later universities, was the only way in which books could be produced. The printing press offered opportunities for a complete break with traditional book production methods, even if the contents of those books were not immediately affected by the possibilities that the printing press suggested. The capacity of the printing press to produce books small enough to be held in the hand and carried about the continent in saddlebags and travelling

cases had a particular influence on scholarship, as books could be made more readily available and accessible. The revolution that would be required to break the stranglehold of the Church on scholarship, knowledge and the contents of books could not be the result of the printing press itself, though, much as the Vicar of Croydon might protest. Much more was required, and yet to come.

Books by such writers as Petrarch, Dante and Chaucer that had already been published by traditional copyist method in vernacular languages catered to a new readership at the same time as they created that new readership. A vernacular literacy could be tapped in the interests of the new writers and publishers, but that readership did not materialise spontaneously. Political developments in the emergence of strong monarchies in England, France and Spain, and strong princedoms across Italian and German states, wrought profound social changes, as the stability that these engendered, even as they engaged in constant warfare with each other, allowed commerce and trade to flourish, and with these a rise of bourgeois classes. Clerical concerns, established, maintained and mightily resistant to change over a period of 1,450 years, did not expand to meet the challenges of the new political, economic and social contexts that were the stuff of mid-fourteenth-century bourgeois life.

The possibilities suggested by the printing press initially had little effect as far as the new universities and their libraries were concerned. Their roles were, after all, based on an episteme of the defence of orthodoxy and the education of administrators for Church and state purposes. The universities were not in the business of generating new knowledge, a concept which would not develop until the sixteenth century, and even then did not consolidate until the nineteenth century, under the influence of Humboldt in a Prussian-led unification of German states, whence a new episteme would emerge. Perhaps more to the point, they felt no need to make any adjustments to their customary activities, for the Protestant Reformation was not to have its impact on universities for some time to come. They continued to focus their attention on the recovery and application of ancient learning within parameters set by traditional Christian scholarship. Latin retained its position as the language of the learned, certainly, and thus of the educated clergy, but the prose and poetry in vernaculars in such works as *The Divine Comedy* 'virtually raised the Italian language to the level where it rivalled Latin, and for literary and belletristic purposes at least, displaced it increasingly thereafter' (Bowen, 1981: 183).

The incipient Renaissance of the fourteenth century saw the permeation of secularism in scholarship, a humanism that would turn to scholarship for producing a well-educated man with a trained intellect along with a well-rounded personality who would be able to assume leadership responsibilities in the emerging nation-states. He would be a man of action in the economic and political contexts of the Renaissance period, well grounded in classical knowledge, on intimate terms with all aspects of poetry, song and dance while being endowed with physical prowess and military acumen, and having well-developed social graces. He would need this acumen, as constant states of turmoil between the political entities across a divided Europe would call upon him to fulfil his obligations as a leader in this regard.

Such a man would embody all the ideals of a Renaissance Christian gentleman. He would be a humanist, one who accepted humanity rather than deity as the centre of knowledge and learning. He would not have developed along these lines by studying at any of the universities that had grown out of the old cathedral schools; such new learning as a Renaissance man would have was not promoted by any Church organisations, but by royal courts and municipalities as they strove to manage and administer the political, social and economic structures of nation-states. Wealth was manifested in gold and silver money, especially from the colonies in the New World which could provide the precious metals, and land and labour were relegated accordingly within the new mercantilism of the times.

In France, Germany and Italy royal courts accepted the new learning represented by the humanism of the Renaissance long before the universities did. The universities of Prague, Vienna, Enfurt, Leipzig and Rostock, founded between 1348 and 1385, were encouraged to embrace the new forms of scholarship as they were funded by the princes and merchants who needed their well-trained graduates in their service. In England, the Oxford reformers made some headway in this regard, and Cambridge's founding of Trinity College in 1546 made the movement from mediaeval to humanistic traditions for scholarship in England complete. Modifications to the curriculum saw the decline in logic, and grammar expanded to include the study of Hebrew and other Oriental languages. Greek was considered to be such an Oriental language. Literature, including history and poetry, was added to the courses of study, with an emphasis on literary accomplishment. The idea emerged of academics as members of a free association of scholars who would meet to discuss intellectual and cultural affairs, and who would draw on the notion of Man, with a capital 'M', at the centre of their studies as

well. The episteme had shifted its focus from deity to Man as its centre of importance. The new episteme would involve scholars working with their students on the cultivation of the appropriate personality for the times, the ideal graduate for the needs of the courtier and the prince. The development of the well-rounded individual and the delivery from what Butts (1955: 193) refers to as 'the obscurantism of mediaevalism' laid the foundation of a liberal education for scholars in Renaissance Europe. Even so, such a liberal education was marked by piety and reverence (Rothblatt, 1993). It did not turn to scholarship as generating new knowledge; it provided a form of scholarship that would receive existing knowledge and not question it, with a proper respect for authority that would never challenge existing power structures. It challenged traditional Christian scholarship and extended its limits, drawing on the more substantial features of Greek and Roman traditions of classical studies of poetry and oratory that Dark and Middle Ages Christendom had eschewed. It was not an outright rejection of it.

Secularism within humanism influenced the books written and published, many titles feeding and being fed by the needs of a lay society comprised of increasingly literate and leisured burghers. These people created a demand for book production that went beyond that of the cloisters, and even before the printing press arrived had accounted for greater book numbers than those produced by the poor Jacobs on scriptorial treadmills. Renaissance scholars such as Erasmus, Thomas More and Rabelais explored philosophy, but produced no new explanations of the physical world. Some gains were made in this field of scholarship, for scientists of the Renaissance did publish their works: Mercator published his projection of the world map in 1569; Versalus gave the world his detailed study of anatomy in his *De Humani Corporis Fabrica* in 1543, a major contribution to medicine; Codus produced his great pharmacopeia in 1542; Turner published his *Historia Avium* from his research as an ornithologist in 1544. They published their works in the scholarly language of Latin, and their works sat alongside those produced in the vernaculars. Church authorities responded with some alarm as traditional orders of things were in danger of being upset. Scholars designated as sceptics or rationalists (and who saw themselves as scientists), by their very natures potential heretics, had a good deal to fear. Copernicus died before the publication of his work, but his translator, Bruno, was burned at the stake because of it. Galileo, under Inquisition scrutiny in the 1630s, recanted rather than face the horrifying ordeal of its ministrations.

The law of legal deposit, conceived in France with the 1537 Montpellier Ordinance of Francis I, would enrich the royal libraries as all copies of newly published books were to be provided to the Royal Library at Blois, certainly, but it also had the effect of bringing to the notice of French Church authorities anything that may be considered heretical or blasphemous. Other later versions of the Francis I Ordinance, such as England's Star Chamber decree of 1637 that saw the Bodleian Library at Oxford granted the privilege of deposit, had similar effects. The increasing collections required increasingly sophisticated means of organisation. The Bodleian had already by 1613 published the first catalogue of such libraries' collections, and while the Cambridge University Library established in the mid-fifteenth century was not taken as seriously as the Bodleian, it nevertheless had developed a fine collection. Trinity College in Dublin has been described as having one of the greatest libraries in the Western world, and is especially proud of its having the *Book of Kells* (Ollé, 1967).

This was always a losing battle that Church authorities waged. With people like Francis Bacon waiting in the wings of the academic stage, Church authorities did not have it all their own way, in spite of their prohibitive laws. The University of Wittenberg, after all, had Martin Luther as a professor of rhetoric, and there were still all those possibilities of the printing press, speedily, efficiently and cheaply printing the sixteenth-century clamour for reform on the more affordable and available medium of paper, in the various vernaculars, to an increasingly vernacularly literate public. Boyd and King (1972) represent the ensuing upheavals as having caused all learning to be thrown into confusion, with the intensity of the religious convictions involved splitting learning from worldly wisdom, and spiritual knowledge from faith. The monastic response to the printing press and its possibilities had been to turn resolutely to the traditions that had underpinned them for so long. There were very few presses directly associated with monastic houses across Europe, and although printed books of services had been used, these never formed part of the library collections of these houses, for 'like all big and impersonal corporations, they could not trim their sails to the prevailing wind' (Irwin, 1966: 136).

In the age that produced Erasmus, they could not see that their pedagogies and curricula were no longer relevant to the modern world, and the technology that supported the new ways was the printed editions from the presses, written initially in Latin and now in the vernaculars. This was to spell the doom of monastic houses across Europe in the sixteenth century, particularly as these works operated in tandem with

Protestant reformers to achieve the changes that produced new forms of religion, and hence new forms of knowledge and new forms of scholarship. The Renaissance was, as Durkheim (1969: 149) points out, a 'merciless rejection' of the old knowledge. This was in spite of experimental reasoning still being unknown, for it did not emerge until Galileo came on to the scene, and even then did not take hold until Francis Bacon exerted his influence in the sixteenth century; with this came an even more urgent need for books as 'the supreme medium of education' (ibid.: 153). The gatekeeping role of the book had not been weakened; rather it had changed in form and purpose.

The Bible in the vernacular

Literary and exhortative works were not the only ones that exploited the suggestive possibilities of vernaculars and the vernacularly literate in the new times. The use of vernacular language translations of the Bible, with the rise of a number of religious movements that challenged Church authority, harnessed the particular possibilities of the printing press. Lutheranism in Northern Europe, Calvinism in Western Europe, the Huguenots in France, the Dutch Reformed Church in the Netherlands, the Puritans in England and the Presbyterians in Scotland all benefited from their versions of the Bible being produced efficiently and cheaply by the printing press. The effect of this is not to be underestimated. Whatever scholars, princes, courtiers and merchants might be reading, for the masses the Bible and scripture remained the mainstay of their spiritual and intellectual lives. The laity may have developed rich stores of narratives and histories in centuries-long oral traditions, and developed and honed the skills to memorise and recount them, but this was outside the range of concerns for salvation of their souls. Sacred works would deal with those, and for this a Bible was necessary. Vernaculars were considered uncouth, suitable only for townspeople and peasants. Latin was for clerics and the literati, and languages such as French for the upper echelons in such countries as England. The Latin text of scripture was a constant reinforcement of the ignorance of the illiterate, and of the power that those in the know have over them. The Latin-speaking clergy and statesmen were those in the know. Make available a Bible in the vernacular, and that power is destabilised.

Small and portable printing-press-produced Bibles in the vernacular could be quickly, and secretly if necessary, transported across Europe, to

be picked up by followers of those who genuinely wanted religious reform. Religious upheavals count as political events, given the relationship between Church and state, and the impetus of such events translates into theocratic concerns when the religious persuasion of a citizen can be based on a ruler's choice of religion. Backed by the military and financial power of rulers, and supported by the wealth of merchants, religious conflicts played out on a larger stage than individuals' own souls provided.

The Protestants

The Church had maintained its authority over what was to become Europe since it had risen to power with the disintegration of the Roman Empire under barbarian attacks in the fifth and sixth centuries. It had been able to rely on the support of the Frankish kings, especially Charlemagne, throughout the eighth and ninth centuries, with the first real threat to its power coming in the conflicts with the Holy Roman Emperors throughout the eleventh, twelfth and thirteenth centuries. These had weakened its position, so that its authority in things both spiritual and temporal had been eroded. The kingdoms of Castille and Aragon, united with the marriage of their two young heirs Ferdinand and Isabella respectively, saw Spain becoming a growing force in European politics, following the routed Moors into Africa and occupying all of the north-west Atlantic coast of Africa by 1511. It had colonised much of the New World by the end of the fifteenth century.

Spanish kings had taken up the position of Holy Roman Emperor in the sixteenth century, at a time when England was but a minor player on the world stage, when Italy was in conflict with both France and Germany, and Germany comprised no fewer than 300 separate and virtually autonomous territories ruled over by an emperor. Spain continued attempts to return these lands to the suzerainty of the Holy Roman Empire, waging its own war against the whole of Protestant Europe throughout the sixteenth century. It was more than could be achieved, and Spain itself declined as a world power, unable to enforce an orthodoxy of religious allegiance on those independent nation-states which continued in their own versions of religious allegiances. The influence on scholarship was far-reaching. Conservative forces bent towards making scholarship an instrument of political and religious policy, but these forces were under constant attack as they failed to

translate into effective educational practice. The recurrent theme of education as a means to a better world in its assaults on ignorance would promote heterodoxy rather than orthodoxy, to open up rather than close off fields of knowledge, and the heretofore successful efforts of Church authorities were to fail rather spectacularly in the new era.

It could be argued that the great reforms initiated by Martin Luther in 1524 had the same sort of impact on the world that would not be seen again until the moon landing of the twentieth century. They produced more change in the European world than the printing press could account for. Schools were henceforth to educate Protestant Germany's political, commercial and religious leaders. To effect this, books were needed. These were books that would guide a Christian community, in this case a Protestant Christian community. The books to be used were still the scriptures, and what were considered to be the best commentaries on them. The languages to be learned from them were the languages of the Bible: Latin, Greek and Hebrew, although chronicles and histories still reflected the hand of God rather than Man in all events depicted.

The printing press had made a textbook movement possible, which made learning accessible and, perhaps more importantly, portable. This was so only for those already learned, as only learned men could write well, for other learned men to read and learn from. It was only gradually that the printing press affected university libraries as the Protestant Reformation not only reformed existing universities but led to the establishment of new ones to train a Protestant clergy and educate physicians, lawyers and public officials. The clerk of the sixteenth century emerged as something more than one in holy orders, but the literature of the scholar was still highly specialised and restricted to the literati of the time. It was only when works were produced in the vernaculars that new worlds opened up to wider sources of scholars and scholarship.

Henry VIII

Henry VIII's moves to establish the Church of England with himself as its head and the Bishop of Canterbury its spiritual leader in the 1530s included moves to Anglicise schools, dissolve the monasteries and chantries, and enforce the use of mandatory texts in schools and the services of the new Church of England. Instructing clergy were to teach

in English. The 1548 English Book of Common Prayer, to be used as part of all church services, along with all preaching done in English, removed the possibilities of Rome exerting its influence on clergy and the students with whom they worked. Teachers took oaths that affirmed the monarch's religious as well as political supremacy – or not, and suffered the consequences.

Thomas More was a famous casualty, but so was John Fisher, Chancellor of Cambridge. Triffin and Rajasingham (2003: 1) tell of his grisly end when in 1535 Fisher gave his last address naked, lay on his belly for decapitation, had his body thrown into an open grave without shroud or coffin, had his head stuck on a pole for two weeks, and then had it thrown into the river to make space for the next victim. That next victim was the High Steward, Thomas More. Ironically, it was Fisher who had spearheaded the introduction of Renaissance learning to Cambridge, but he could not take that step of denying papal authority and vesting it in the monarch.

Others endured lesser punishments, but they were punishments nonetheless. So-called 'idle clergy' were relieved of their teaching positions in the colleges, and canon law disappeared from the curriculum (as did the position of canon lawyer); Greek would be taught, and biblical theology replaced scholastic theology. Reformation scholars from Europe were appointed to replace the expelled Catholics, and civil law studies would dominate legal scholarship. They were developments that impacted on scholars and scholarship, but they were born of political events, enabled by the printing press and paper technology.

Edward VI took up his father's policies, extending and embellishing them to even greater destruction of monastic libraries. The brief respite offered to Catholics in Mary Tudor's reign was followed by Elizabeth I's deliberate Protestantisation of England. The Act of Uniformity of 1559 required clergy to observe English forms of worship and follow the revised edition of the Book of Common Prayer, reinforced by the required oath of allegiance to the monarch to be taken by all clergy. This was a device that would ensure that no Catholic would graduate from Oxford or Cambridge, but as it was not administered until graduation, that did not prevent them from undertaking a university education. The various rulers of the new sixteenth-century nation-states fostered a sense of nationalism among their various citizenries, and harnessed the potential of the universities to achieve desired political ends. National languages replaced Latin as the language of scholarship, and changes in structure and purpose of universities drove curriculum changes that would transform both student and teaching bodies. People would pursue

university educations for purposes other than working as clergy; the aristocracy and gentry sent their sons, as did Puritan-minded clergy who attacked episcopacy in favour of presbytery, with incipient further reforms to scholars and scholarship thus nurtured.

Counter-Reformations were quick to emerge. Resisting the new episteme of Man at the centre of the world were those who maintained the traditional focus of scholarship with deity at its centre. The Spanish Inquisition that started in 1542 was state initiated and controlled, using Church functionaries to engage its pursuit of heresy and violent destruction of heretics. The Jesuits, described by Durkheim (1969: 226) as an 'army of light troops who would be in constant contact with the enemy and consequently well informed about all his movements', were founded with the specific aim of systematic and orchestrated resistance to the various reform movements across Europe. The Christian Brothers schools were established to inculcate Catholicism in young boys so that by the age of seven, as the saying goes, boys going through the schools would be the Brothers' 'for life'. The Council of Trent of the mid-sixteenth century had as its focus the serious threats posed by very real, often physical, demands for reform. The aims of such activities were to restore education to its position of centuries previous, 'to the very bosom of the sanctuary' (ibid.: 234).

Sacking and triumph

By this time books and their repositories were relatively safe from marauding armies, so that the sorts of biblioclasmic sacking and carrying off to foreign countries in triumph no longer figured in libraries' stories. That did not mean, though, that they were safe from the various depredations that political events might visit upon them. Serving the Faith and the Church required a vigorous watch on heresy, and the Sacred Congregation of the Inquisition of the Roman Catholic Church (the Spanish Inquisition), initiated by Ferdinand and Isabella in 1468, was as vigorous a watch as any in history. *The Index of Prohibited Works* (*Index Librorum Prohibiturum*), sanctioned by Pope Paul IV in 1557 as an outcome of the Council of Trent, officially banned certain writers and their works from being owned or accessed by Catholics, and made the ban good with the threat of excommunication and therefore eternal damnation. It was part of the extension of the Inquisition to Italy, where the Pope could implement its rigours in the papal states. The

Index was a biblioclasmic phenomenon in its own right, giving Catholic Church sanction to the confiscation and destruction of thousands of books across Europe. Enforced by Inquisition functionaries, the *Index* maintained its biblioclasmic hold for centuries, updates being added regularly until 1948, and was not finally abolished until 1966 by Pope Paul VI as an outcome of Vatican II.

That could not be enforced in the new Protestant states. The effects of Luther's *95 Theses*, famously posted to the Wittenberg church door in 1517, took a mere 20 years to spread and take hold throughout Europe. Lutheranism spread from Germany to Scandinavia: as the basis of the Zwinglian movement, it spread through Zürich; taken up by Calvin, it took hold in Geneva. This was a Christian-based response to Catholicism. It was never a rejection of Christianity and what being a Christian might mean for personal salvation through the teachings of the Bible. It was, rather, a rejection of the principal roles allocated to Catholic clergy in mediating that salvation by means of the special knowledge obtained only by clergy, and never laity. Whatever he may have wanted to do, all that Pope Leo X could do was excommunicate Luther. Not for Luther the threats made good on tried and condemned Spanish Catholics, or Italians in the papal states of Leo X's successor, Paul IV. All that the Holy Roman Emperor Charles V could do was to have Luther condemned as an outlaw, for the hold of the Catholic Church had been broken across Germanic states.

While reform was vigorously resisted in monastic institutions, the effects on the universities were remarkable. They became the instruments of the state, which overrode traditional chartered rights, privileges and immunities under the old town-and-gown arrangements. Universities were to conform to the relevant state doctrine, which meant oaths of allegiances to be taken by their teachers. Political control over universities intensified, as part of either state-controlled Protestant demands or state-controlled Catholic demands. Teachers were spied upon, arrested, tortured, castigated, punished in various ways, or rewarded, according to the lights of the ruling castes. German universities took a lead, transformed their arts faculties into philosophy faculties, admitted older students than the young boys they had previously focused on, and their teaching bodies became increasingly secular. Chancellors were no longer bishops, but prominent statesmen, and instruction centred on colleges, with tutorials replacing formal lectures. No small part of this change was the availability of printed books that meant that smaller groupings with more focused studies

could be conducted, rather than the larger groups that would be read aloud to in earlier methods of teaching.

The books themselves continued to hold their fascination for bibliophiles. While the new collections benefited from various plunderings of monastic scriptoria and their precious manuscripts, they also came to include the new printed books. These, after all, emulated the fine books that scholars had for centuries been accustomed to consult, and the developing skills of book binder, illustrator, engraver and lithographer exploited the technological possibilities of the printing press as far as traditions of calligraphy and illumination in manuscript production were concerned. They were as aesthetically appealing as the old forms of books, and bibliophiles outside of the universities and their libraries collected them as well.

Saving the new faiths had its biblioclasmic consequences as well. In England alone, the Dispersal of 1536–1540 represented a great turning point in the history of its libraries, with an estimated 250,000 mediaeval manuscripts, along with the music books stored in the monasteries, lost forever. Royal commissioners appointed under Henry VIII visited Oxford, removing what were deemed to be 'popish' elements – an orgy of pillaging of university and college libraries that could equal the most enthusiastic of any such Viking exercises of centuries before. Edward VI continued the practice with a good deal of enthusiasm in his promotion of the Church of England over traditional Catholic religious practice. It was not until 1598 when Thomas Bodley undertook the establishment of public libraries in Oxford that the damage came to be addressed. By 1613 that library of his had become one of the finest in Europe – the first library in Britain to benefit from deposited books – and until the founding of the British Museum Library was the *de facto* national library of England. Even so, there was nothing in these libraries at the time of their establishment that was in English, for it was not considered a scholarly language. There were books in Greek, Hebrew, Arabic, Turkish, Persian and Chinese, though, and the fact that there was nobody at Oxford who could read them did not appear to diminish their effect; what was important was that there were books on the shelves, and that meant that there was some potential for engaging knowledge and appropriate forms of scholarship for the training of the new Church of England clergy and the education of the young aristocrats who had embraced the new religion, forcibly or otherwise.

The Enlightenment

By the seventeenth century the universities were increasingly irrelevant as far as scholarship and knowledge were concerned. They were still largely closed shops, for medical and legal training was engaged by means of apprenticeships, and financial, commercial and political training would not be offered by universities for centuries to come. The university libraries reflected such values, so that the scope of the collections was not much advanced beyond those established in mediaeval times, even if they did contain works in vernaculars and languages other than Latin. The libraries that developed with the new foci of the new Protestant universities allowed for a more scholarly orientation of the professorship than had previously been the case, certainly, for they grew to serve the needs of the professorship more than those of the students, but they did studiously ignore inclusion of the various voyages of discovery of the time, as they did the writings of the likes of Copernicus and Galileo, Harvey and Newton. These were not part of universities' curricula. The idea of scholarship as the generation of new knowledge or the use of existing knowledge in new ways was still to be conceived. The prevailing episteme was that all that was to be known was already in existence, having been wrought by the hand of God. But it was the Age of Discovery, when no single religion dominated all civilised activity, and people could and would travel the world in search of knowledge and not just plunder, conquest or pilgrimage (Lerner, 1999). The European population had increased from 80 million in 1500 to 100 million in 1600, with continuing exponential increases (Bowen, 1981). English libraries did suffer depredations arising from the ten years of the Civil War between 1641 and 1651, with damage inflicted on a number of cathedral and private libraries. Nonetheless, there was steady growth in libraries over that period, a growth that saw the establishment of more endowed libraries, mostly in towns.

The expansion of intellectual horizons, despite proscription and prohibition embedded in Inquisition practices, was matched apace by physical world discoveries, based on direct observation and scientific experimentation that eschewed articles of religious belief. This did not mean that the new scientists were not Christian; it meant that they did not have their whole world defined by their religious beliefs. Belief and faith were not seen to be in conflict with scientifically determined fact, except of course for Church circles that were in a constant state of denial of what was happening in scholarly fields that were opening up all around them. The writings of Francis Bacon (see for example *The Essays*

on Counsels Civil and Moral: First Published in 1597, As He Left Them Newly Written, as the publisher tells us, of 1888) wielded enormous influence in supporting the use of what came to be called, and adopted as, scientific method in the conduct of scientific research. It was an episteme that produced the division of human knowledge into basic categories: history (memory), poesy (imagination) and philosophy (reason) (Lerner, 1999). It put paid to other forms of truth claims that could not be verified by such forms of scholarship, as it allowed for no division between the sacred and secular that had dominated for so long. This did not mean a rejection of Christianity as far as the scholar was concerned; it meant a reconfiguration of it. The Fall in the Garden of Eden was not questioned. What was questioned was the propensity of Man to overcome, perhaps even reverse, its results.

Along with this came the need for new libraries that would do more than merely keep valuable books safe for professors to consult as they transmitted existing knowledge, and would play a more dynamic role in increasing the world's store of knowledge. The eighteenth century saw a transformation of university libraries, a process described by Lerner (ibid.) as beginning in Germany with the opening of Göttingen University in 1737. What was most remarkable about this new university was that it was conceived from the very beginning as a research as well as a teaching university, a professorial and student community that would add to, as well as transmit, existing knowledge. It was a break with traditions of scholarship in that it foregrounded knowledge as being generated by research, not merely as reproduced from memory. As Lerner says, this could only be achieved with the strong, well-developed library that supported Göttingen's scholarly activities. Books were as aesthetically pleasing in this library as anywhere else, but they had the added feature of being useful for scholarship and not just ornamental to it. Göttingen and its library established a model that would be picked up across all of Europe, and later in developing and developed nations of the New World, where the books were loaned for use outside of the library itself, and expected to be used for study. Göttingen's became the best university library in Europe, and initiated a change of focus from one on the books to one on the user of those books. What this foreshadowed was a science of librarianship which would require not only the training to cope with new foci, but also training institutions in which this could be achieved.

The sort of almost accidental falling into librarianship of earlier times would no longer do, as irresistible social, political and economic forces made their impacts on scholarship. The Babylonians and Egyptians

allocated such care as there was taken of books in their libraries as part of the art of the scribe. The Greeks, the Romans, the Byzantines and even the scholarly Arabs had no concept of librarianship as a profession with its own knowledge and skills to be systematically learned and applied. Mediaeval libraries had no notion of library science, allocating a sort of custodial and distributory role to the armarius rather than having any sort of orchestrated approach to dealing with their books. An educated man during the Renaissance might work for a prince or a nobleman in looking after the books in that man's collection rather than go into medicine, the Church or the law, but would be doing so on the basis of his own cultural understandings of books rather than anything to do with librarianship. He might have essential knowledge of Latin, Greek and Hebrew, and perhaps have some French as well as Italian, but he would be relying on his own personal background as a reader, relying on this for decisions to be made regarding acquisitions or any cataloguing that might be done.

True, books on the topic had been published. Richard de Fournival's thirteenth-century *Biblionomia* and Bishop Richard de Bury's fourteenth-century *Philobiblon* dealt with issues associated with book collections. Gabriel Naudé's *Advis Pour Dresser une Bibliothèque* (*Advice on Establishing a Library*) in the seventeenth century gave advice that was widely circulated in Europe and available in Latin and English, designed for getting some sort of order into the various collections across the continent. The Scotsman John Dury, a stout Protestant, wrote his *Reformed* (that is, as part of the Reformation) *Librarie Keeper* in 1650, declaring a librarian to be 'a factor and trader for helpes to learning, a treasurer to keep them and a dispenser to apply them to use, or to see them well used, or at least not abused' (Dury, [1650] 1983). Here one could see the beginnings of that notion of librarians taking on roles of educators and advocates, roles that went beyond the custodial or the distributory, but it was still a call for what might be possible rather than a description of what was in existence. All that had gone before was not good enough for the sorts of scholarship that Göttingen presaged; proper librarians would be required. This, too, was still a long way off, but the seeds of need had been sown.

Outside the universities

It was not until the nineteenth century that universities caught up with the idea of being knowledge-producing institutions. For too long they

had clung to the separation of town and gown, standing aloof from political, social and cultural developments as they pursued the sorts of intellectual endeavours that they valued. While they had participated, willingly or otherwise, in Reformation and counter-Reformation movements, they had benefited from resurgent interest in higher education and the new forms that it could take as new nation-states emerged as dominant forms of political organisations. What had left them largely untouched were the scientific revolutions of the seventeenth century and the philosophical debates of the eighteenth century. Even as their curricula had been expanded, they remained narrow offerings, with more and more irrelevant transmission models of teaching methods catering to an intellectual élite. Even the Protestant countries looked to their universities for the training of a Protestant clergy, paying only marginal attention to education for other professions required in the changing world that came to be characterised as the Enlightenment. The model that presented itself in the activities and foci of Göttingen was not to be taken up for some time yet, but that did not mean that scholarly pursuits stagnated as they had under the spectre of Church control. The power that the regime had wielded over scholarship had been removed, and the great intellectual achievements found their voices outside the universities.

A system of preparation for the professions other than those provided for by universities had been in place with the guild systems since mediaeval times, where a master practitioner's nod of approval would establish all the qualifications necessary for professional admission. The extremely limited curricula of the universities, and the cathedral schools that preceded them, had meant that the skills and knowledges required for the number of trades and professions that serviced the nation-states had to be developed by other means. The craft guilds had been sort of closed brotherhoods that preserved the skills of the trades, occupations and professions that that they represented. They had given birth to the concept of a masterpiece, an exemplar of one's mastery of a given craft, and in such ways maintained standards that preliminary training and demonstrated competence were designed to achieve, so that the idea of a diploma or even a university degree was not envisaged as professional entrance. An example of this in England, the Inns of Court, had worked effectively since Norman times to massage new French laws and existing English local customs into a seamless system of English common law. Clanchy's (1993) examination of 300-odd years of practice derived from the transition involved is a detailed and fascinating account of how this

was achieved. The Inns of Court educated and certified potential lawyers without the benefit of full-time teachers, examinations, courses or degrees. It was a system that was never challenged by Oxford or Cambridge, which at various times focused on Roman law, international law, jurisprudence, constitutional history and so on, without taking up an interest in teaching practitioners ways to manage and negotiate English common law.

The Inns of Court, surviving as a relic of an essentially mediaeval system, effectively became England's third university, and maintained its position until the 1960s (Burrage, 1993). In such ways did some organisations become powerful players in the processes of production of élite professional practitioners that could set the limits for membership, continuing to exert their influence even after university degrees had become mandatory. Teaching academics had set up their own such guilds, after all, to maintain the standards of their chosen profession. By these means they could also determine the sorts of remuneration that their successful members could expect. It was not unusual, then, for systems which paralleled those of the universities to be accessed for the knowledge and skills they developed.

Those who could not find access to new knowledge in their own intellectual fields in universities either turned to such organisations or established new ones that would support new forms of scholarship. Those scholars' achievements made profound and lasting contributions based on an episteme that it was possible to generate new knowledges. They are a remarkable group, conveniently listed by Patterson (1997: 128): Shakespeare, Kepler, Galileo, Descartes, Harvey, Moliere, Milton, Spinoza, Hobbes, Locke, Wren, Newton, J.S. Bach, Hume, Rousseau, Voltaire, Johnson, Franklin, Adam Smith, Mozart, Gibbon, Burns, Kant, Watt, Jefferson and Hegel. From the men on the list came advances and inventions in science, medicine, music and literature, as well as the telescope, the thermometer, the pendulum clock, the barometer and so on. These people and the groups that formed around them became what we now call the Invisible College. Not a fourth university along the lines of the Inns of Court, it was constituted by its own learned discussion groups who would engage the works of these men in the late 1640s. Newton, having spent 35 years at Cambridge, is the only man on the list associated with a university. He invented calculus, discovered the composition of light and wrote his *Principia Mathematica* (Newton, [1687] 1972). This book alone effectively destroyed the mediaeval episteme as it set out a scientific theory of how the universe worked, and

in doing so went much further than Galileo ever could in removing deity from its centre. Bragg (2006) counts it as one of 12 books that changed the world; it heads the list.

In similar vein to developments in Europe, much of the scholarly activity that had been conducted in America had been done outside the universities. Thomas Jefferson had no benefit of university education, but he did have an extensive personal library. Neither did the mathematician, Nathaniel Bowditch. The botanists John and William Bartram worked on their own, as did the astronomer Maria Mitchell. Meriwether Lewis was not an academic, but was trained by the American Philosophical Society for his exploration of the American West. A notable exception was John Winthrop, the first academic scientist of Harvard, who undertook the observation of the transit of Venus in Newfoundland in 1761. The original American State Library of Congress had sought to provide the same sort of access to books for its scholars, but it had suffered at the hands of the British as they continued to wage war with what had become the United States of America after 1776, and in 1812 had burned most of the building and the books that it had housed. Thomas Jefferson had amassed a personal library of 6,487 books, which he sold to the library in 1815 for $23,900, saying:

> I do not know that my library contains any branch of science which Congress would wish to exclude from the collection: there is, in fact, no subject to which a member of Congress may not have occasion to refer. (Quoted in Manguel, 2008: 73)

It became the basis of a collection that is now the largest in the world, freely accessible to all who wish to consult its holdings, and still separate from any university organisation. In 1802 there were only 21 science faculty positions in the whole of the United States (Boyer, 1990). American universities, too, had been slow in their uptake of new epistemes and all that they offered scholarship.

To be fair, some universities did embrace what was being produced: Leyden and Utrecht in the Low Countries; Vienna, Halle in Wittenberg and of course Göttingen in the German states; Edinburgh and Glasgow in Scotland. Oxford had been busy in 1633 in opening its Ashmolean Museum for Natural History and establishing the Oxford Philosophical Society. Later it was the first to publish university textbooks based on Newton's work in astronomy, physics and mathematics, a move which made the *Principia Mathematica* so much more accessible to and hence

more widely consulted by scholars than had previously been the case. The others simply ignored what was happening.

In spite of, perhaps even because of, the inattention of universities in general to the new sciences being generated, parallel institutions sprang up in the seventeenth century to support and disseminate the findings of new scientific research. The Royal Society in London was a direct outgrowth of the Invisible College, and the Academie des Sciences in Paris and the Academicia del Cimento in Florence were other prime examples. The library developed within the Royal Society heralded a new development in libraries, that of the specialist library. Books had been needed to support the various forms of scholarship in the past, but new expansions in constructs of scholarship in the new age required particular forms of library collections and management for emerging intellectual needs, where collections and catalogues were required for scholarly access. Post-Reformation scope for satisfying developing needs for science, mathematics, medicine, political philosophy, military studies and suchlike happened because of the scientific revolutions of the seventeenth century. Narrow, Latin-based humanities curricula were outmoded and inappropriate for the new breed of students as vernacular-based science and technology studies were eagerly sought, but not to be found in universities. It was through the societies and academies that new knowledge and scholarship were to be promulgated, through their meetings, lectures, demonstrations and publications. And with these publications, the academic journal was born.

Something else happened at the same time. A vernacular reading public had extended the market of readers during the Renaissance, when classics in vernacular translations had become available, and when emphases on culture and refinement had given birth to books of etiquette and polite behaviour, also popular. A new reading habit had been developed, that of personal reading. Personal libraries were not new, although the inclusion of such new forms of books in the collections was, but what was really new was the invention of the chimney. The chimney meant that rooms rather than halls could be designed and built, and with these the privacy and seclusion that personal chambers within houses could provide. A private and personal engagement with books that could entertain as well as edify provided further dimensions to the world of the literate (Ollé, 1967). Previously, a book 'either improved your mind, or disciplined your soul' (Irwin, 1964: 275) – now it could also enliven the spirit.

The scholar of the times

Irwin (ibid.) points out that the same word, 'read', is still used for both entertainment and erudition. Scholars would read as they had done before, with humanism informing intellectual activity that had placed Man at the centre of the world. The walls of Fortress Christendom had been breached, and all attempts to repress the knowledge that flowed through those breaches were doomed to failure, as the world had been opened up to scrutiny on bases not previously permitted. With the invention of the printing press, and especially with the introduction of paper, scholars could avail themselves of the tools provided by printed editions of vernacular versions of existing and new knowledge that could be published and distributed across Europe as quickly as the presses could print them. The swift and effective spread of the Reformation sentiments could only happen with papal authority weakened beyond recovery, giving rise to the need for libraries greater than ever before. The spread of literacy beyond the clerical orders was a remarkable development on its own. Thomas More in 1533 estimated that more than half the population of England were able to read English – that is, 2.5 million out of 4–5 million English were literate (Irwin, 1958: 5). The laity, and not just the lay nobility, had begun to own books themselves, and to will them as part of their valuables in inheritable estates. Latin language links to scholarship and personal reading were weakened. Scholars and others would also read in new ways, as they availed themselves of classics and new literary works for entertainment. The demand from a new, larger reading public for printed versions of books had confronted libraries with new issues as well: 'for the first time since the Alexandrian libraries, the librarian was compelled to face the problem of quantity and selection and arrangement and routine' (ibid.), the beginnings of library economy that was to become a perennial problem for centuries afterwards, right up to the present day.

The scholar could operate within the parameters established by the reformed and the traditional universities, based as they had become on the printed book to support scholarly activities, and never obliged to generate new knowledge. They would learn what their universities expected them to transmit to their students; some of these may have been new additions born of Reformation movements, or they may not have changed at all if their universities had escaped such forces. Scholars who studied the physical and metaphysical worlds would have had little opportunity to pursue their studies in their universities. Newton, even

though he held a chair in mathematics at Cambridge, gave only a few lectures for 18 of his 35 years there, and these were reportedly poorly attended (Patterson, 1997: 135). His significant work was done in spite of his association with the university.

A new form of scholarship had emerged as humanism had repositioned Man as central to the proper concerns of the scholar, and scholars took up their own positions as knowledge workers to 'to relieve and benefit the condition of man' (Bacon, 1888), a radical departure from biblical and theological studies that had centred on scripture, even as these had been embraced by trainers of Protestant as well as Catholic clergy. The scientist framed as the new type of scholar could make his claims by means of the Bacon-influenced scientific method, positivist and hypothetico-deductive approaches as producing new discoveries, new theories, new universal knowledge based on the ideal of scientists as disinterested, objective people making careful observations and conducting experiments to produce rigorously analysed data. This knowledge constituted new truths, ones that went well beyond any to be found in scripture, as they made visible a physical world that began to emerge from that curious combination of theology and superstition that had dominated scholarship for so many previous centuries.

The merits of the scientific approach posited by early natural scientists established the benchmarks that in later centuries enabled other approaches to develop and refine their knowledge parameters, and indeed to insist upon the establishment of their validity as appropriate methods of research and acceptable generators of knowledge. The empiricism demanded of scientific method placed knowledge in the realm of experienced, observable phenomena which could be measured and quantified, and while quantification is not an absolute requirement of empiricism, and certainly not confined to it, it is nevertheless characteristic of it. The emphasis on the objective, detached observer, whose discovered knowledge of a universal reality that existed quite independently of social constructs and could be unproblematically transmitted as a universal truth to equally objective and detached members of the same scientific community, dominated concepts of what might be considered to be knowledge. The reality, objectively studied, was constituted by its physical properties as well as having an independence in no way impinged upon by the scholar, and vice versa. It was a position which presumed that any knowledge generated by philosophy and metaphysics, for example, was not really knowledge at all as it did not accord with standards set by 'true' or 'normal'

scholarship. It was a framing of scholars and scholarship of the times that has been passed on to the present day.

Scholars pursuing scientific knowledge, having thus established the episteme of scientific endeavour, would apply specificity of method to research activity to ensure that the universal acceptance of knowledge generated by the activity would be guaranteed. This was done by strict adherence to empiricism, a means by which theory might be generated regarding phenomena observed, the basic aim of the scientist. Kerlinger (1986: 9) sees theory as 'a set of inter-related constructs, definitions and propositions that present a systematic view of phenomena specifying relations among variables with the purpose of predicting and explaining the phenomena'. Theoretical analyses would give rise to generalisations inductively or deductively drawn with regard to relations between the variables studied; these were subjected to further testing to reveal laws, principles and necessary connections that would allow for a theory to be developed. All of this, of course, would impact on the *tabula rasa* of the scientific mind and therefore be systematically dealt with in pristine conditions that would obviate any misinterpretation or distortion: pure observation, pure testing, pure theory unsullied by human predilections or deficiencies.

It is straight Enlightenment thinking: the idea that natural phenomena could, through subjection to science, be known, explained and ultimately controlled as a result of scientific knowledge, with the insistence on objectivity to eliminate any part that could possibly be played by personal beliefs and opinions at each stage of the process. Blaikie (1993: 19) describes it as 'letting nature write its experiential message on the passively receptive mind'. It was a complete rejection of biblical and other types of philosophical interpretations of the physical world and the place of Man in a productive relatedness to the world outside of the self. The gatekeeping function of the book was in no way diminished; it took on different forms as scholarship developed along new epistemic lines.

4

From the bookshelves to the study

A reading public

Previous generations had lived in the various phases of the Age of Enlightenment, with enormous social, economic, cultural and political changes, marked by human intervention not only in the social and commercial world, but also in the physical. Newton had developed his theory of gravity, Harvey had found that blood travelled around the body via a circulatory system, science (not taught in schools or universities as it was considered unsuitable for educational activity) was pursued by learned men in societies set up for the purpose. Great philosophers such as John Stuart Mill (1910, writing in the 1860s and 1870s) published works on what were previously unthinkable topics such as liberty for all humankind, not to mention the equality of women and the duty of the state to protect children from harm. It was a period marked by the finest ideals of social emancipation and human advancement through the elevation of human existence out of the depths of mysticism, superstition and fatalism of a Church-dominated society that could look upon horrifying events such the great plagues that wiped out whole populations in a matter of days and say it was a punishment for their sins. The Enlightenment took a scientific view of such things, and came up with scientific solutions quite independent of religious beliefs. It generated an enormous backlash for religious institutions and irreparably weakened them.

An episteme had emerged that defined the world in relation to concepts of order, purpose and structures. It was an episteme that explained events in scientific rather than superstitious ways, and developed technology out of that science that could control events, prevent disaster and manage things in orderly fashion (Zeegers, 1999). With the horrors of the French Revolution behind them and the

establishment of new democracies before them, people could look to developments unimaginable in previous times. De Tocqueville's 1835 and 1840 volumes of his *Democracy in America* (de Tocqueville, 2009) and his 1856 *The Old Regime and the Revolution* (de Tocqueville, 1955) gave serious consideration to this new notion of democracy as it manifested in his times, especially in relation to a new-found focus on the individual and that individual's relationship to the social order. Individuals had never featured so significantly in the European world before, and having this emerge even more strongly in the New World was a particularly salient development that would have deep repercussions as science generated the new knowledge that was to be gatekept, and the books and journals that scientists produced became the vehicle by which this was achieved.

It was the era in which Rousseau (1762) could present different social constructs of the child, part of a movement that led ultimately to the dizzying prospects of modernism. This was all to be achieved by virtue of human intervention in the natural, political, economic and social worlds, where Man would dam rivers, blow up mountains, invent machines, set up production-line factories, improve food-crop production, manufacture fibres – name it, and Man could do it. There would be no more famines. Indeed, since the introduction of democracy, in the history of no democratic country has there ever been a famine (Larson, 2002). There would be no more unrelievable pain and suffering, no more poverty, ignorance and disease. Such was the promise of the new episteme.

Combinations of mass poverty, widespread malnutrition, lack of sanitation and perfect conditions for infectious epidemics had meant that death was very much a daily reality for child and adult alike. There is a touching story of a French village in mediaeval times that has its children's bodies buried in the yards of houses, much in the same way as we would bury our loved domestic pets nowadays (Ariès, 1962), but by 1750 much of this had been addressed, even if there was still a long way to go. Inoculation against smallpox was introduced in 1721, and became widespread practice by 1726, although things like TB (the 'consumption' of Victorian novels) and influenza were still capable of wiping out whole sections of populations up until the Second World War, and AIDS still threatens large numbers of people throughout the world in the twenty-first century. Nonetheless, things were improving so that more people lived longer, and the political and social stability in Europe that had grown out of its revolutions of 1848 continued to benefit the growing populations. Most of the universities stayed out of all such

developments. The French universities, for example, saw themselves as institutions for maintaining the *status quo* and banned such works as *Émile* (Rousseau, 1762), which they considered to be subversive.

There was a whole new world developing outside the universities, nonetheless. The wealthy needed an educated servant class to enhance the gentility of their existences in their country and town establishments, and servants had to be educated if they were to be at all suitable for such positions. Village schools started to open – the notorious dame schools castigated in Victorian novels – often run by elderly and impoverished women, usually widows, who had come down in the world and been forced to support themselves in such ignominious ways as teaching children implied. At the same time, larger surviving numbers of illiterate children of the lower classes threatened to grow up into ungodly adults who would constitute a dangerously large criminal class in the country towns and cities, and such a threat to the wealthy could not be ignored. Sunday schools began to be established around the turn of the nineteenth century, again with a view to moral and spiritual inculcation of the children. The children's literature of the time, even though it is intended for only those children who could read, usually the upper-middle and aristocratic classes, shows a great deal of concern for inculcating good moral values and behaviours in children, as part of their preparation for a moral adulthood (Saxby, 1997).

The idea of schools and schooling for children is a relatively recent Western invention born of democratic ideals, beliefs, values and even fears. As schools became more formally institutionalised for the young at a number of class levels, traditions of education, curriculum and practices emerged. What are known as the classics (Latin and Greek) were taught in the great public schools in England, and in lesser-status schools attended by middle-class children, with more elementary and basic schooling for children of those working-class families who could afford to educate them. These children would be readers, and would need books from their time in the classroom and into adulthood, as students in the universities and as an adult leisured class.

It was not until the nineteenth century that considerations of the publishing, storing, organisation and management of the books that supported the scholarship of the times became more defined in relation to library principles. What we now recognise as librarianship emerged as its own field of scholarship, an information science in its own right whose principles and practices were as much subject to contestation as any other field of scholarship. Traditional views of the librarian as a

scholar with a special bibliography competence (Lerner, 1999: 198) sat alongside Dewey-inspired constructs of an efficient manager of collections with a democratic bent for social improvement through access to books and the knowledge that they provided. The books they dealt with were seen as a valuable resource to such ends, still playing a supporting rather than a central role to the scholarship that they nourished. In the mediaeval monastery, the collections of books that we might call libraries supported prayer. In the universities that emerged from cathedral schools, they supported education. In the private collections of the wealthy, the noble and the royal, they supported the power as well as the pleasure of their owners. In the new democracies of the world, they supported the advancement of the entire social body. Throughout all of this, librarians were seen as qualified for the job if they exhibited a love of literature, with a respect for learning being a bonus; people who would collect and preserve human knowledge, and facilitate access to this by those who needed or wanted to know this for themselves. The study, that room lined with books, a comfortable extension of the personality of the owner, was born in the eighteenth century (Irwin, 1964), and access to scholarship was extended and refined.

Woolf (1987: 55) draws a distinction between reading for the sheer joy of it and reading for knowledge in her essay, 'Hours in a library':

> learned man is a concentrated solitary enthusiast, who searches through books to discover some particular grain of truth upon which he has set his heart. If the passion for reading conquers him, his gains dwindle and vanish between his fingers. A reader, on the other hand, must check the desire for learning at the outset; if knowledge sticks to him well and good, but to go in pursuit of it, to read on a system, to become a specialist or an authority, is very apt to kill what it suits us to consider the more humane passion for pure and disinterested reading.

Any avid reader of books will recognise the distinction being made here, but that avid reader will also recognise a false dichotomy. Readers read for different purposes, and those who indulge their passion for 'pure and disinterested reading' respond with an understanding that only those who are most happy when curled up with a good book can have. They will have found their reading similarly bisected as to purpose, but it is the learning part of the reading that holds a strong attraction for such readers, every bit as much as that delightful reading for pleasure. The

dichotomy is not very helpful, for it suggests a joy in one as being absent in the other, and the learning in one as probably being absent in the other.

Rosenblatt's (1976) notion of an aesthetic-efferential continuum provides a more appropriate basis for considering reading and knowledge generation. She proposes a continuum of aesthetic reading and efferential reading. Aesthetic reading is that which is engaged for experience, feeling and thought. Like the concept of knowledge, it too is a very private thing. Efferential reading is engaged for more public purposes, predominantly for the acquisition of information to be retained after the reading has finished (Rosenblatt, 1991: 445). The idea is similar in descriptions of different purposes for reading as those of Woolf, but Rosenblatt does not present these as opposites, or mirrors of each other, taking some pains to represent them as being on a continuum, and to stress that there is overlap; that these do not operate separately from each other. Increasing literacy levels, books produced in vernaculars and their increasing availability courtesy of the printing press had meant that another reading public had been developing alongside that of scholars, well outside of universities and research societies and academics. That public eagerly took up the books that were being produced, and not just those written and published for entertainment.

Circulating libraries

Circulating libraries made their appearance in England around the 1720s, and were principally an eighteenth-century phenomenon. In the mid-eighteenth century a reading population who read for pleasure would have had the delights of such works as those of Henry Fielding and Samuel Richardson for entertainment, and looked for more of the same. They found ready access to them in the circulating libraries that had sprung up in London and the larger provincial towns by the 1750s, an indispensible part of the leisured classes' tendency to frequent the watering holes of places such as Bath. They were attached to milliners' and drapers' shops, where women would access them, and coffee and chocolate houses where men would do the same. They could be borrowed and returned, bought and discarded, as people filled in their leisure hours being entertained by books. Printed books were cheaper than ever, but still priced at ten shillings and sixpence per volume, usually being published in the three-decker, or three-volume, form. Small

and light in weight, they could be read in studies, on sofas and in comfortable chairs rather than the reading rooms of old repositories.

Mudie's Select Library, established in 1842, was a circulating library that came to popularity with the so-called 'carriage classes'; for a cheap basic subscription rate of one guinea (one pound and one shilling) it would deliver its books within London as well as country areas. It had the added advantage of guaranteeing that anything alluding to any sort of moral turpitude had been weeded from the titles it offered to its readers (Ollé, 1967). A common misconception about these libraries is that they focused on popular fiction, ever seen as frivolous and not worthy of serious consideration as literature, but they did contain numbers of serious works as well.

One famous subscriber to such a library established by one Mrs Martin is Jane Austen (2004: 17), who writes of it to her sister: 'As an inducement to subscribe Mrs Martin tells us that her Collection is not to consist only of Novels, but of every kind of literature &c &c…' Apparently the great Austen was considered as being above novels by Mrs Martin – surprising, really, when she is one of the greatest novelists of all time. Austen adds, 'She might have spared this pretention to *our* family, who are great Novel-readers & not ashamed to be so.' Nonetheless, she subscribed, and perhaps even availed herself of the 'every other kind of literature', which would probably have been biography or travel genres. Circulating libraries would not have been for scholars, researchers or subject specialists. That was not what they were for, after all. There was no attempt by these libraries to function as repositories of knowledge, but to bring readers and books together in an efficient manner. Given Rosenblatt's (1976, 1991) view of reading, though, this does not mean that they were not educative, with not only the range of genres but the facility for educational access.

With the coming of the railways that transported people all over England, an enterprising William Henry Smith managed to get himself a virtual monopoly of railway station bookstalls, a feature that is still highly visible in English railway stations today. People needed books for reading on their travels, and bought them from W.H.Smith's shops. Out of these stocks he developed his own circulating library. By the turn of the eighteenth century, circulating libraries were there for all but the poorest classes across Britain, but such developments were also evident across Europe.

Public libraries

The university libraries were by now well established, as were the private libraries in the great and smaller houses of the upper classes. Élites had traditionally been readers, and had organised their own books in their private libraries or studies. New ways to access wider selections began to emerge, whether to supplement privately owned collections or to provide access to an increasingly literate public who valued the efferential as well as aesthetic dimensions of what they might be able to explore in the world of books. There was a tradition to call upon here. The Bodleian at Oxford had not restricted its use to Oxford scholars, and was eventually to be referred to as a public library. The Lambeth Palace Library, established in 1610, could be accessed by the public. The British Museum Library had opened in 1759 and was to become the National Library, and both Scotland and Ireland had their National Libraries. The libraries that developed out of the societies and professional organisations that supported the endeavours of scholars outside the universities – such as the Royal Society, the Royal College of Physicians, the Law Society, the Royal Institute of British Architects, Gray's Inn and the Inner Temple – supplied specific and specialist needs for access to books by a reading public, scholarly or otherwise. The Bibliothèque Nationale in France had a collection of more than 300,000 books, thanks to the swelling of its collection from seizures of clerical and aristocratic libraries during the French Revolution.

In the meantime, a rising tide of democratically based convictions led workers to believe that they could improve their lot if they could only improve their minds, skills and understanding by accessing the knowledge contained between the covers of books. Just as the professional and scientific societies patronised by the upper educated classes that had been snubbed by the universities had catered to their own knowledge needs by establishing their own libraries, so did the workers at the lower end, who had found themselves marginalised as fit subjects for education. The Chartist movement that began in 1838 recognised the link between education and power. Chartist reading rooms became very popular, for here folk would find cooperative lending libraries which would soon be competing with the subscription libraries that the ilk of Jane Austen could afford.

In similar vein, the Mechanics Institutes of the eighteenth and nineteenth centuries that were established at the same time as the seeds of the Industrial Revolution were being sown, and which grew alongside

it, contained small libraries of books. Artisans and mechanics showed themselves eager to read about what was happening in their own trade worlds, and indeed the wider world. About 400 Mechanics Institutes had been established across Britain by 1850, with 700 managed and maintained by their own membership by 1863 (McColvin and Revie, 1946). In such ways was a reading public extended. In mid-nineteenth-century Britain 25 per cent of the population were illiterate, but the Mechanics Institutes were a means by which a sort of education could be spread through lower social orders. Books were not cheap enough for a worker with a family to support, and it made good sense to exploit cooperative efforts to buy single books using money contributed from a number of sources. This made purchasing copies for lending a possibility that individual workers would otherwise not have been able to realise. What is more, the libraries formed a hub for worker activities in much the same way as circulating libraries did among the more gentrified. They catered for working classes in ways that book clubs or circulating libraries did not.

In Australia one can still see the old Mechanics Institutes halls that were established to emulate developments in the mother country. Most of them stand empty now, perhaps hosting a country dance or two, or the odd community meeting, but they are representative of a thirst for knowledge that had been dominated for centuries by élites that had denied lower social orders access to it. These, and the local public libraries that relied on endowments by bequests, provided a range of libraries that passed for a public library system in Britain, the United States, the Antipodes and other places in Europe. Such endeavours highlight the enduring power and prestige that accrue to books, for both those who have them and those who do not have them. The tag of bibliophile tends to be applied to those of the upper echelons of society who established valuable collections. Books in the hands of poorer men and women are no less coveted, prized and valued. The attempts of the lower orders to establish their own shared collections in their Mechanics Institutes and rate-supported town council libraries are no less an act of bibliophilia than any other. It may differ in relation to the sort, quality and quantity of books that might form a collection and it may be at a disadvantage for lack of developed skills in librarianship, but it is no less bibliophilia for all that. Working classes established their own book repositories, but these same repositories served to keep them in their place, as they did not attempt to engage scholarship of the kind that élite clerics and aristocracy took up as a matter of course. Ironically, even as they facilitated access to valuable knowledge, it was knowledge that

supported the maintenance of a dominant class. Their libraries and the books they contained acted as gatekeepers to scholarship and privilege.

An incipient British public library system coalesced into a formal one with the passing of the Public Libraries Act of 1850, where town councils were given the authority and power to levy a small rate (the penny rate) for the creation and support of town libraries. It only passed after fierce debate. The very fact of the opposition to the legislation, based on the undesirable features of providing education for the lower social orders, indicates the persistent prevailing view of books and people's access to them as a basic educational act, efferential reading that improves the mind as it engages knowledge. It is represented as education outside of schools, colleges and universities, but it is represented as education nonetheless. The new rate-supported public libraries were to spell the end of the Chartist and subscription libraries. The extent of public library development depended on the energy and dispositions towards them of the town councils, for while the Act gave them the power, there was no requirement for them to establish a library. Such was the public libraries system. There were variations on this model in the different countries that strove to establish their public libraries, usually born of democratic ideals and ideas of public access to books and the knowledge they contained.

Public library growth was happening, and the Library Association that was established in Britain in 1878 received its Royal Charter in 1898. The association was not only to look after the interests of librarians but to promote better library services to the people who sought out books. A new form of knowledge was being born, as systematic and orchestrated study was to support the development of a concept of librarianship with a set of shared understandings that would operate on a global stage that other forms of scholarship were still to achieve. It was the great benefactor of libraries in the United States and Britain, Andrew Carnegie, who made the big shift in library provision possible. Carnegie had himself been a beneficiary of the Mechanics Library in Pittsburgh (Cremin, 1988). Britain received nearly £2 million of Carnegie's own money for public library buildings between 1900 and 1912. It ought to be noted, though, that this money was made available for buildings only. The problem then became providing those building with books, and that rested squarely on the shoulders of the civic authorities that had availed themselves of the money in the first place. It was at this point that their ability to gatekeep what was provided on those shelves came into play. The requisitions librarians thus exercised considerable power in relation to what it was possible for their local people to know.

Lending libraries

Gradually the system settled into what we recognise in our own times. The public library service supplies books for home reading, lending them to borrowers for an agreed length of time, after which the books will be returned or a nominal fine paid. The same public library will supply information that may be used for study, although this function is not as fully developed as it is in specialist and university libraries. This does not mean that a public library will not use its arrangements and agreements with other libraries to provide what a scholar might need, but it is not its speciality function. It will provide a supply of current periodicals (but again, specialist journals tend to be the province of specialist libraries), and it will provide facilities for the use of all that it provides on the premises (McColvin and Revie, 1946), should the borrower not wish to take them away. It is at this point that librarianship came into its own. When books were few, the librarian's role was as collector for the patron and curator for the collection. Books were rare, valuable and to be preserved against misuse, which really meant that they were to be preserved against use! This would not be too difficult, though, when readers were also few, and knowledgeable enough to be able to find for themselves what they were looking for in a given collection. Now there are millions of books and millions of readers to be connected with each other, and the function of a librarian is no longer as straightforward as that of previous eras. Now there is specialisation in what is a knowledge-based profession, and more than one librarian is to be responsible for selection, arrangement and dispersal.

Distance libraries

A 1957 description of a library (Murray, 1957: 51) is redolent of that cloistered, sequestered apartment reminiscent of the monastery:

> A place where [the student] is welcomed and encouraged to pursue a personal and independent search for knowledge and understanding, where his capacities for independence of thought and judgment are enlarged, and where, above all, he is treated as a scholar, to be provided with the peaceful and uncrowded conditions conducive to scholarly work.

There is no reference to the books and journals that may exist in this place. The desks, tables, carrels and chairs are similarly absent. This space is not even peopled by librarians. The ideal is all that furnishes this space, and it is one to which students come: it is not one that emits the information it stores in the form of borrowings to remote places, or even to the students' places of study on campus. It was within the limits of such a construct that the committee was at work, and it was a construct not confined to country, language, creed or race (although confined to males, as indeed the monasteries were). It could be anywhere in the world, with any (male) student living up to the ideal. It exists as an infinitive (see also Zeegers and Barron, 2009).

The concept of distance libraries catering to scholars at a distance from their universities was alien until later in the twentieth century. The advent of distance education constituted a whole new development in a network of events and conceptualisations in which it was possible for a new model of scholarship and library activity to emerge. Karmel (1975: 74) made it quite clear, when he investigated the possibility of developing open education systems in Australia along the lines of the Open University in Britain, that the provision of books, and not just readers and study or unit guides, was 'the key to success in any system of external studies' and that reliance on public and other traditional face-to-face universities' libraries would not do. He argued that:

> In any consideration of openness, whether in full time, part time or external study, library facilities have played a vital part. The part time student, who may have little time to use library services, is in an especially difficult position, while the external student, with the added problems of distance and absence of personal contact with his teachers, is at once even more dependent than other students on library services, and more difficult to supply them with. (Ibid.: 98)

Shklanka (1990: 3) has generated a profile of the distance education scholar for whom libraries were to cater. They were older adults in full-time occupations studying part time for career advancement; highly motivated, with specific career goals; possessing highly developed skills in self-directed learning with a wider range of educational backgrounds and more prior work experience than traditional on-campus scholars; having some form of academic qualifications; and being predominantly female. This picture has been confirmed by surveys conducted by librarians themselves, who have found that the primary distance education library users are adult females with some post-secondary

education and most likely enrolled in faculties of arts, health sciences and social work (ibid.). This is despite the provision of packaged learning materials by the universities, and underscores the importance of the book as gatekeeping knowledge, for as Holmberg (1980: 107) suggests, a set of packaged materials 'does not guide or teach. That is to say, it does not induce the student to learn.'

New forms of scholarship were foregrounded in such attitudes to libraries and books: they embodied a scholarship grounded in education discourses familiar to twentieth-century practitioners within mass education systems in democratic societies. This spelled the end of an élite system where only a select few could take up the life of a scholar. Such scholars viewed personal scholarship as central to wider concerns in relation to the development of a better life and a better world, a continuing process of discovery and self-discovery in which most people could succeed, given the opportunity and support. The goal of such formal learning systems was to assist people to become self-directed and independent learners in an active, as opposed to a passive, process. It was a form of scholarship that constructed the getting of knowledge as obtaining true learning that would lead to change and self-actualisation.

Three-quarters of the way through the twentieth century, academic libraries were pressing the possibilities offered by existing technologies of surface mail and telephone in tandem with the exciting possibilities of the developing information and communication technologies (ICTs) into their service to enable distance education to become an established way of accessing and developing scholarship. While distance education institutions supplied complete packages that would provide the minimum resources for epistemologically and pedagogically effective learning materials, only those scholars who operated at levels beyond the minimum required would take up the services offered by developing specialist distance libraries. One such was Australia's Deakin University Library, an acknowledged excellent (by world standards) library, perhaps the best the world (Carty, 1991). One of its earliest chief librarians, Margaret Cameron (1988), described the application of not inconsiderable librarianship skills that had produced such a fine distance library as akin to 'supping with the devil', requiring 'A ful long spoon'. Distance libraries had opened up the world of scholarship in ways not conceivable in previous times. University-packaged learning materials delivered by distance were just not enough to guarantee scholarship; the library and its books would continue gatekeeping functions, even as they extended their activities and the roles that would underpin these.

Given such developments, it was no longer possible only to use the pronoun 'he' to refer to scholars. Women came to outnumber men enrolled at universities, and these women came to take up faculty roles to educate undergraduates, graduates and postgraduates as well. The later twentieth-century universities had to deal with relentless processes of massification of access to scholarship. Skilbeck (1993: 19) defines the point at which this transition occurs as being when the participation rate is in the range of 15–25 per cent of the population of school-leaving age, and figures since 1993 have vindicated this perception. Hodson and Thomas (2001) report a similar experience in the UK. A major development in relation to this is that the range of scholars' backgrounds implied by such an assault on traditional élites of scholars would produce the sorts of non-white, non-male, non-middle-class populations among scholar cohorts that would give rise to a number of different positionings of those scholars (Barron and Zeegers, 2006).

By the late twentieth century scholarship was no longer the preserve of élites with similar backgrounds, values and beliefs. Two wars, both cataclysmic enough to be characterised by the appellation 'World War', towards the beginning and the middle of the twentieth century, with a number of other conflicts carrying the seeds of a possible Third World War, had meant changes to social, political and economic orders on a global scale. Diversity came to be the hallmark of a cohort of scholars, as former barriers of race, gender and class came down across the Western world, and this was reflected in the universities themselves. This also made it impossible to work with curricula that transmitted existing knowledge to passive scholars. New fields of scholarship that were opened up meant that new roles could be played by scholars from within their universities, as socio-political events were no longer kept outside of scholarly countenance and scholarly leadership in scientific research and development became possible. This was all still to happen in the wake of significant developments, especially in Germany, in the nineteenth century.

New knowledge

A reading public was expanding and being catered for by various forms of libraries in the eighteenth and nineteenth centuries, but scholarship had continued to develop outside the universities. A body of learned men continued to explore the natural world to make sense of what it all

meant, eschewing strictures of religion as they encountered the explicable in the previously spiritual. They published their work, and their books were read with enthusiasm by an increasingly literate public. Chaucer's and Dante's works had become literary classics, and along with such works as those of Shakespeare had become part of a literary canon that schoolchildren were taught. Countless quotes, especially from Shakespeare, became idiomatic in the conversations of ordinary folk. Books continued to be published on the discoveries of what we might consider today to be amateurs, but they had based their work on Baconian principles from the heyday of the Enlightenment, with careful observation of scientific procedure to support their claims to new knowledge. Lyell (2003) had in 1863 published his remarkable geological evidence of a human history that went well beyond what the Bible suggested, and it was an idea taken up eagerly enough by the knowledgeable men of the day, including Charles Darwin.

Perhaps no other book had such a pervasive influence as that indicated by the wonderfully evocative expression, 'Well, I'll be a monkey's uncle'. It is an expression derived from the notion of evolution in Darwin's *Origin of Species* published in 1859 (Darwin, 1968), after his 1839 *Voyage of the Beagle* (Darwin, 2008). Books that would have significant impact on existing social orders across Europe were being produced by knowledgeable people who would not be considered scholars as they worked outside of university systems, which continued to ignore their import as they operated outside of university epistemes. What is more, they were published and read by that increasingly literate public that embraced the knowledge contained within their covers, taking up intellectual positions which meant that the world would never be the same again. Being a monkey's uncle, for example, meant that age-old notions of class and associated concepts of breeding were shown not to hold water. Just as Church authorities could not stem the tide of knowledge, neither could socio-political power brokers, as books of the new age themselves supported and maintained the knowledge that underpinned it. Bragg's (2006) considerations of only 12 such books is illuminating, for the list includes Wilberforce's 1789 speech in Parliament 'On the abolition of the slave trade', which was immediately published and circulated, and Mary Wollstonecraft's ([1792] 1995) *A Vindication of the Rights of Woman*.

One person who tried hard to incorporate his own profoundly held religious beliefs with what had been discovered was Philip Gosse, whose own significant contributions to marine biology tended to be lost in his attempt to reconcile the evidence of fossils and the biblical story of

Creation. The evidence indicated a world that had existed in ways for which no Bible story could account, a world millions of years older than human existence. What was at the time and ever since characterised as a ludicrous explanation was that God had put the fossils into the rocks to test the faith of Christians. One can only imagine the intellectual and spiritual agonies he had undergone to come to this public statement. His son, Edmund (Gosse, 1974), explores some of this in his book, but in doing so represents a whole group of men with the leisure to pursue their scientific investigations into a natural world that revealed itself to their eyes, and through them to the eyes of the rest of the population. This group of men never achieved the status of a Newton or a Darwin, but quietly and methodically went about adding to the world's store of knowledge with the contributions they made from the work they engaged in. They were not scholars, though. They were middle- or upper-class gentrified men who did not take up the demands of an Industrial Revolution on the working classes, nor turn to the universities to engage the scholarly pursuits offered there. These were the men who had the status and power that a leisured-class positioning offered, and they valued a particular form of knowledge that was to become privileged.

The devastation wrought across Europe by the Napoleonic Wars of the early nineteenth century had seen old universities dissolved and new ones established. The Prussian Humboldt took up the challenges that the political and social orders threw up, providing a lead with the establishment of Humboldt University in Berlin in 1810; this was taken up by universities across the unifying Germany and eventually other countries, particularly the United States. So successful has this model been that it has transformed universities all over the world, based as they now are on an episteme of the generation of new knowledge or the use of existing knowledge in new ways as the rationale for their existence.

German universities

It was the Americans who took up the possibilities suggested by the new types of German universities and made them their own. Even as Anglicans and Catholics had rejected the new science-based approaches to scholarship, Puritans and dissenters had embraced them – a seventeenth-century marriage of Baconian science and Puritan theology that connected science and the Bible. As dissenters were being turned out of Oxford and Cambridge in 1662, Harvard University built itself into

the Cambridge and Oxford of the Puritan Commonwealth (Battles, 2004). Enlightened as such a view may have been, it was nonetheless a limitation on a scholarly pursuit of knowledge as far as university offerings were concerned. Frustrated by the constraints of clergy-training foci of such places as Harvard, American scholars had travelled to Germany to expand their intellectual horizons, bringing the new ideas that they had encountered there back with them. Harvard had been established in 1636 by the Puritans who had fled England. They had their own understandings of what scholarship was from what they knew of English universities, and they established their own version in Boston. Harvard had started out as a library, with the gift of 400 volumes of 260 titles from John Harvard, himself a Puritan minister. Reflecting his religious bent, they included no literary works; they were biblical commentaries, sermons and other theological works, with a sprinkling of Homer, Seneca and Cicero, providing the foundations of an intellectual tradition assiduously pursued throughout the existing colonies (ibid.). Eschewing the humanism of Europe, Americans at that time needed to produce an educated clergy to serve the religious and spiritual needs of their own population. The Anglicans established the William and Mary College in Virginia in 1696, the Congregationalists established Yale in 1701 in Connecticut, and so it went on in the colonies down the eastern seaboard. Southern colonies did not follow suit; they preferred to send their young men to England to complete their educations there. Two interesting variations on this push for clergy-training scholarly establishments are Pennsylvania's Philadelphia Academy, which had no religious connection, and Dartmouth College in New Hampshire, which would train Indian clergy as it pursued its missionary ideals in relation to the country's indigenous population.

German scholars had embraced the new sciences of the Enlightenment, absorbing the new knowledges of mathematics and physics with enthusiasm. Previously prescriptive curricula had been replaced by ones based on scholarly freedom, particularly as this applied to research and instruction informed by such research. The lecture replaced monologues based on expositions of scripture, and rather than engage the old forms of the disputation, scholars worked within frameworks provided by seminars. In this new approach to teaching and learning in universities, small groups of students worked under the guidance of a professor on research problems, being trained in the use of the tools of scholarship of the new episteme (Lerner, 1999). Perhaps more importantly, German became the language of instruction, not Latin. Nineteenth-century German universities did not follow prescribed curricula, but taught on

the basis of *Lehrfreiheit* – what the professor thought best for the students to learn in such areas as philosophy, history, mathematics, philology and so on, without government interference. The corresponding concept of *Lehrnfreiheit* gave the student the freedom to choose what subjects he would study and the university at which he would study, and to live independently of the university. What is more, German universities established and maintained exceptionally high standards of scholarship, to a large extent guaranteeing this with their graduate schools in which research specialists were rigorously trained.

The University of Berlin represented a new epistemic regime, entailing a new social organisation of scholarship. The professional scientist replaced the learned amateur, the specialist scholar replaced the broad-ranging generalist, as the emerging industrial civilisation required new applications for knowledge (Wittrock, 1993). It was the feature that would distinguish between nineteenth-century universities and those of the eighteenth, and the new institutional organisation that accompanied such a shift. The term *bildung* characterised the change, being 'a comprehensive concept standing for the human maturity of a cultured, enlightened people' (ibid.: 316) – a concept institutionalised in the University of Berlin and extended to others in Germany by 1870.

The seminar required a new form of library, and with this a new form of librarianship. The old reading rooms alongside the shelves of books would not do, as both professors and students needed access to a wide range of publications as they worked through original source materials to support their research activities. They needed to be able to borrow, and to borrow with ease and efficiency. A new librarian was required, one who could ensure this, and basic principles of library science had to be invented and applied in the new era of user services as central to the library function. The catalogue could not represent the whimsy of the librarian; it had to be standard for ready consultation by the new scholars, and the shelving of books needed similar physical arrangements for ready access. The increasing size and scope of knowledge being produced and engaged by scholars meant that the old closed-stock library had to be reconfigured to incorporate research journals and the protocols and processes required for interlibrary loans being made available. Certainly, small private or even larger public libraries could not supply the needs of the new scholarship. The new professional librarian working within the new forms of library and library services provision would. All of this marked the end of mediaeval traditions.

England had largely ignored such developments. Newman (1982), writing in 1852, over 40 years after the establishment of the University

of Berlin, articulated a view of scholars and scholarship based on an ideal of the philosopher-student whose university experience was a liberal arts education designed for upper and middle echelons of society. In doing so, he drew heavily on fifteenth-century humanist representations of a Renaissance scholar, freed from the dogma of theology. English universities pursued that ideal, in spite of the potential role to be played in the preparation of young professionals for the burgeoning commercial enterprises of the country. Nineteenth-century Newmanesque ideals dominated the episteme embodied in what has come to be known as the Oxbridge tradition, a title born of a marriage of the names and cultures of Oxford and Cambridge Universities.

Such a construction of a liberal education had at its base a focus on the individual as one to be developed through university practices. These were constructed in the vein of Newman's conceptualisations, seeing the university as a place for teaching universal knowledge in its essence and independently of its relation to the Church. Newman saw knowledge acquisition as having no purpose other than the acquisition of knowledge, an entirely self-referential endeavour independent of other organisations' requirements: 'knowledge has its own end' was enough to justify the liberal-education-provision role of universities as far as he was concerned. The scholars in such a system have the advantage in that 'a habit of mind is formed which lasts through life, of which the attributes are, freedom, equitableness, calmness, moderation and wisdom… what I have ventured to call a philosophical habit' (ibid.: 76). Even as Newman was pronouncing his scholarly ideals, Darwin's work on evolution stressed the principles of relativism and impermanence in all earthly processes that would eventually give rise to more limited conceptions of the ideal of the philosopher as the crowning achievement of higher education.

Oxford and Cambridge had positioned themselves as being above such debate. They retained the philosopher-scholar ideal until the major cataclysms of the two World Wars and the ensuing reconstruction that affected the entirety of the social structure began to impact on them. Their own perceived evolution from monastic institutions in the Middle Ages to training grounds of Anglican churchmen in the nineteenth century (in despite of which Newman himself converted to Catholicism) maintained the Oxbridge stance. The Oxbridge scholar, positioned as privileged, thus privileged the European, young, male, lecture-attending, tutorial-participating, face-to-face, on-campus student in pursuit of knowledge for its own sake, eschewing the practical considerations of the world of the professions, industry and commerce.

Newman's views had their appeal for this sort of scholar, but the practical demands of a changing world could not be ignored forever. It was during the nineteenth century that other English universities played an increasing role in professional training, as apprenticeship models were simply unable to cope with the increasing complexities of professional knowledge in fields such as medicine and law. Oxford and Cambridge may have remained aloof from such considerations, but London's University College, for example, established medical training programmes. The Medical Act of 1858 established the General Medical Council to administer the registration of doctors on the basis of appropriate and defined standards of medical training. The improvement of medical education and the conferral of professorial status in the field saw another new episteme emerging. Commercial subjects were developed and offered at London and provincial universities, such as Manchester, which offered its first bachelor of commerce in 1903. French universities had similarly benefited from such reforms since 1884.

The real changes, though, were in German universities, and those in other countries that adopted Humboldt's model of research as generating new knowledge. The changes they had adopted strengthened the industrial and technological capabilities of those countries, as they positioned their scholars within frameworks of academic and intellectual freedom that allowed for advances in cultural and scholarly capital that new epistemes provided. German-led advances informed major developments in scholarship across the rest of the world. It was a position maintained right up until the 1930s, when the Nazis put paid to all that. Once again, the enormity of the political, social and economic catastrophe of the Second World War had the most profound effects on Western scholarship. Writing in 1955, Butts makes a most salient point:

> Today, no one can miss the tragic point: universities cannot reject their social responsibility in a crisis and cannot maintain their traditional liberalism without taking an active leadership in sustaining a free and democratic society. (Butts, 1955: 425)

The Germans squandered their intellectual wealth under Nazism, but it had been drawn upon in no small measure by a number of countries, the United States being one of those. American scholars had turned to Germany for scholarly pursuits offered there in the eighteenth and nineteenth centuries. They returned from their experience of university education in Germany, especially those who returned from the University of Berlin, convinced of the superiority of the German model, with its

focus on the development of scholars, on books, on specialist professors and on wide discipline offerings, all based on research work. More than 2,000 Americans undertook their studies at German universities in the 1880s alone (Cremin, 1988: 557), at the very time that the Morrill Land Grants Act of 1862 had seen federal land granted to each state for the establishment of colleges that would offer studies not only in the traditional liberal arts but also in agriculture and associated mechanical developments. The Hatch Act of 1887 provided federal funds to establish university-supported agricultural experiment stations to create new knowledge that would benefit the farmers of the new lands across the centre of the country being opened up to such developments. Derisively referred to as 'cow colleges', these represented an important new ideal being incorporated into scholarship – service. And democracy.

While the late nineteenth century would see the establishment of research focus in the Universities of Pennsylvania, Harvard, Columbia, Princeton, Chicago and so on, the cow colleges would serve perceived social needs and provide access to new cohorts of students who did not fit the mould of traditional scholars. They would see for the first time non-élites going to college to meet the demands of an expanding United States for specialist knowledges in industry, agriculture and commerce, and not for the Newman philosopher-student graduates. As the idea took hold, American universities took the research university route, with standardisation of academic qualifications based on research capability, professional curriculum offerings and systematic credentialing of academic staff. Departments in these universities centred on scholarly fields and then sub-fields, as the diversification and specialisation demands of the developing country proceeded apace. Their presidents were, in line with the rhetoric of the time that championed 'captains of industry', 'captains of erudition' (ibid.: 560), leading reforms that consolidated the idea of the research university in America. The scholars were more likely to be educated in a speciality than not, and more likely to have been awarded their doctorates from a university programme than from ordination.

That period of increased college founding in the 1880s followed the lead provided by Harvard, one that had taken American scholarship along pathways suggested by Germany. Charles William Eliot was the first scientist to become president of Harvard when he took up the position in 1869, and his inaugural address of that year (Eliot, 1961: 602) indicated the way that he envisioned the university developing:

> The endless controversies whether language, philosophy, mathematics or science supply the best mental training, whether general education should be chiefly literacy or chiefly scientific, have no practical lessons for us today… This university recognises no real antagonisms between literature and science, and consents to no such narrow alternatives as mathematics or classics, science or metaphysics. We would have them all, and at their best.

He was about to demonstrate that it would be possible to engineer change in older universities, and not just rely on new ones to take up the challenges of their times. Hofstadter and Smith (1961: 595) have described the change: 'So rapid was the transformation of the American university between the 1860's [*sic*] and the end of the century that teachers and administrators with a strong sense of tradition were almost overwhelmed.' That transformation from an institution which transmitted existing knowledge to one where new knowledge was created had a particular appeal in the United States, as had the freedoms of choice allowed to both professor and student in the processes of disinterested scholarship embodied in the German universities' concept of *wissenschaft*. With state authorities providing funding in relation to capital and operating expenses, they laid a foundation for future direct influence on operations in academic life, the price that universities pay for their financial security. Professors were expected to produce (that is, to publish) research as a measure of professional competence. The American university, with an emphasis on peer review and research councils to coordinate research funding, became a model for the rest of the world.

At the same time, the same sort of spirit of auto-didacticism that had fired Chartist and Mechanics Institutes movements in England was manifested in the United States. Publishers produced books such as Van Dyke's (1883) *Books and How to Use Them* that were particularly popular. A professor at Rutger's University, Van Dyke had written his book largely for a non-scholarly audience, advising them:

> There is no easy method of obtaining knowledge. You can not distil it from your own individual and unaided thought, nor can it be obtained by observation and experience alone. There is but one true way, and that is a hard, wearisome one; for it is only by comparison of your thought, observation and experience, with the thoughts, observations and experiences of many men, through

> the medium of books, that you are enabled to gain true wisdom. (Ibid.: 8)

The words are reminiscent of the mediating role of Catholic clergy that had been so widely rejected in Reformation movements, ascribing a gatekeeping role to the book in relation to knowledge, taken up with some enthusiasm by book producers and readers alike. By the 1890s the country boasted 4,000 libraries with holdings of 1,000 or more volumes, described by Cremin (1988: 444) as 'relentlessly didactic'; many of these had benefited from Carnegie's benefaction in his endowment of library buildings. The American Library Association was established in 1876, taking an important step in the development of librarianship as a profession, as librarians were now required to take up the developing scholarship of their field in schools for librarians. This was a formal recognition of the need that had arisen for large numbers of professionally trained librarians, developing the protocols that would define the profession as part of enabling public libraries to meet the educational needs of the country. Learned (1924: 12) refers to such developments as part of a passion for 'the diffusion of knowledge in the United States'.

The 1876 development by Dewey of his decimal classification system for use in libraries is of no small import in all of this. His idea was to allocate a numerical code based on a decimal system of what he considered to be a logical hierarchical structure of ten principal topics, with ten subdivisions and, within this, ten classes, each allocated decimal numbers. What was more, the numbers were allocated to individual books, and not the shelves on which they were to be stored. He himself saw the work of libraries as a significant feature of what he considered to be a democratic ideal of making knowledge available to the masses as they read the works within the collections. The application of his system to libraries around the world is part of a lasting legacy to the profession of librarian, even as this meant the end of the perhaps more romantic and idiosyncratic efforts by individual librarians' towards efficient storage and retrieval of works within their collections.

It was in the twentieth century that the professional librarian took on a scholarly dimension that paralleled developments in other fields of knowledge even as this supported those fields. Library associations had been established across Britain, Europe, the United States and the countries that followed this development around the world. By 1998 more than 100 scholarly journals published library-related research activities. The concept of librarianship came to be supported by

university-based scholarship of information science, and with this came the contention that has historically attended all such development of scholarship. Competing philosophies of librarianship emerged for professional debate. An especially heated feature of this has been in relation to special libraries which would tend to limit dissemination of stock to specialists who would pay for it. This might be seen as flying in the face of the sort of democratic ideals of dissemination of knowledge to an entire public, and not just privileged sections of it; it might be seen as commodification of knowledge in the marketplace of a globalising world, with the prospect of lucre corrupting a long tradition of the finest of library ideals of service in the cause of the public good; it might be seen as a shift in emphasis from a profession underpinned by a love of literature and a respect for learning to one of cold and efficient managerialism as far as collections themselves might be concerned (Lerner, 1999). Such tensions as they emerged in the twentieth century are still to be negotiated by the profession.

Publishers offered subscription plans to allow a wider reading public access to the books they were publishing. By 1926 a book-of-the-month club served as a particularly successful marketing strategy, where experts selected what they considered to be particularly good books that would be sent to subscribers at special rates. It was not reading based on any university curriculum; it was the sort of efferential and aesthetic reading identified by Rosenblatt (1976) that would go a long way towards satisfying a thirst for knowledge that had developed in a literate non-scholarly laity. The Literary Guild established in 1927 worked along similar lines, as did the Religious Book Club, the Catholic Book Club, the Children's Book Club, the Free Thought Book of the Month Club, the Crime Book Club, the Detective Story Book Club, the Book League of America, the Business Book Club, the Scientific Book Club, the Early Years Book Club and so on. The YMCA, the women's clubs, scientific academies and learned societies promoted the reading of books for personal knowledge and skills development as people read books on law, philosophy, literature and physical and social sciences, by their very nature approximating scholarly ideals perceived as the province of the educated. The peculiarly American Chautauqua Literary and Scientific Circle of 1878, described by Cremin (1988: 434), provided a systematic approach to such a readership:

> To promote habits of reading and study in nature, art, science, and in secular and sacred literature, in connection with the routine of daily life (especially among those whose educational advantages

> have been limited), so as to secure to them the college student's general outlook upon the world and life, and to develop the habit of close, connected, persistent thinking.

The Chautauqua programme involved a home-study system providing textbooks for use within local circles formed for mutual help and encouragement of study, summer courses of what it designated as lectures and seminars held at Chautauqua itself, examinations and written reports on progress of its members over the four years of study that it delivered. Aside from prescribed texts on such topics as the history of the English people, Rome, astronomy, physiology and political science, there were specially prepared textbooks and tracts, advice on effective study and newsletters, culminating in a 'recognition day' where a diploma was awarded to successful members of the programme. Eight thousand men and women were enrolled in the programme in 1878, 200,000 in the 1890s and 300,000 in 1918.

It was still the universities that were the gatekeepers of knowledge, though. The so-called Wisconsin Idea positioned universities as part of the link between what Boyer (1990) refers to as the campus and the state, where an ivory-tower idea was perceived to meet its demise. It did not happen. Universities still maintained their positions as credentialers of scholarship even as they moved more and more towards the sorts of ideals articulated by Boyer, working closely with government departments during periods of crisis such as the two World Wars, various smaller ones such as the Korean and Vietnam wars, and such programmes as space exploration. American universities experienced unprecedented growth as a result of 2.25 million Second World War soldiers taking up government offers of stipend and payment of expenses for their educational studies with the so-called GI Bill of 1944 (more correctly the Servicemen's Readjustment Act). It was a phenomenon not confined to the United States, as governments around the world came to the realisation that a highly educated workforce was needed for the enormous task of reconstruction and technological development as they emerged from the Second World War. In Germany a high priority for re-education of the people saw the universities reopening with high student numbers.

Children were born in large numbers, giving the world the baby-boomers who in the 1960s enrolled in universities across the world. In Britain, the 1963 Robbins Committee Report proposed a greatly expanded university system with both research and teaching coming into their own, a development crowned by the Open University at Milton

Keynes in 1969. Now adults could get their degrees by distance education. Even so, a comparatively small proportion of the population attended universities. Student activism of the 1960s played no small role in opening up universities to the general population as clamours for reform reverberated throughout the university sectors around the Western world. Civil rights movements and militant feminism further increased pressures for change, so that at the beginning of the twenty-first century universities could no longer be seen as the preserves of élites. Universities were drawn into greater social and political involvement, indeed taking the lead in significant scientific, technological and social developments born of their research activities. More than the now readily available books for a non-scholarly reading public, they established the parameters within which knowledge was legitimised as they pursued their credentialing processes for all who enrolled in or taught at them.

The scholar of the times

The Second World War had demonstrated the direct applicability of research findings, especially as far as American research universities were concerned. That war and its aftermath, the Cold War, had a profound effect on scholarship as it was pursued in universities. The application of knowledge took on an importance not seen before, where abstractions were less valued as part of a scholar's life, even if books on philosophy and philology continued to be published. The scholar engaged the knowledge born of the observable and quantifiable in the laboratory and the wider physical world. The creators of the atomic bomb took the theory of physics and applied it to a project, the Manhattan Project (Jungk, 1964), that was specifically designed to destroy people and the places in which they lived. The bomb itself was 'brighter than a thousand suns', according to Jungk's 1950s' account. It marked a complete transition of scholarship that could engage blue-sky research – that is, research without consideration of practical application – to research that privileged the application of knowledge that it had generated. Ironically, it was a shift in the episteme that saw research as contributing in a most practical way to human advancement, just as it marked the most enormous incidence of human destruction as Hiroshima and Nagasaki were destroyed. It took Enlightenment concepts to a conclusion inconceivable to earlier scholars. The episteme emerged as more highly

valued as far as the scholar of the times was concerned, but this did not necessarily mean that it was a logical or inevitable progression.

Kuhn's (1970) work, first published in 1962, has put paid to much of the claims of science made by scientific method in relation to producing new discoveries, new theories, new universal knowledge based on the ideal of scientists as disinterested, objective people making careful observations and conducting experiments to produce rigorously analysed data. Charlesworth (1982) takes up the idea of myth as a legitimating social activity, of symbols as value signifiers in a society and of ritual behaviour and its professional proponents, practitioners and components, drawing an analogy between this and the scientific community. Kuhn (1970) has to a large extent debunked claims made in the name of scientific method, pointing out that the method itself tells the scientists operating in each scientific epoch not only what to look for but also how to look for it. This would suggest something quite other than the ideal of an independent observer waiting for nature to reveal itself in some sort of manifestation of scientifically discovered truth. Kuhn's analysis suggests that the scientist is a gatekeeper of knowledge. He says that the history of science is a cycle of the emergence and establishment of a new way of looking at the world only in the rare instance of 'revolutionary science' overthrowing the orthodoxy of the prevailing paradigm, and not by a process of verification and/or falsification to weed out any but the best theories. Not only this, but each usurped theory is then, he says, relegated to a lower position in the evolutionary science value scale, suggesting that the linear process of accumulation of scientific knowledge is a construct that is in itself not in keeping with the ideal of objectivity, nor will it stand up to objective testing on either ontological or epistemological grounds.

By this means, then, Ptolemaic theory is supplanted by the superior Copernican one, Einstein's theory of relativity supplants the inferior Newtonian one, sub-atomic theory holds some currency at present, but chaos theory has made its own inroads. The field of science is in itself contested, with claims and counter-claims in relation to truth or universal laws, and not as objective as has been presented. Chalmers (1982: xv) concludes that 'there is just no method that enables scientific theories to be proved true or probably true', pointing to Feyeraband's contention 'that science has no special features that render it intrinsically superior to other branches of knowledge such as ancient myths or voodoo' (ibid.: xvii). That is not to say, though, that subsequent developments in the pursuit of knowledge do not owe a debt of gratitude to the earlier natural scientists. The insistence upon verifiability, on

rigorous analyses and established fact rather than opinion and belief is now to be taken on board by scholars as they work to generate new knowledge.

The confidence in the potential for human advancement by virtue of human interference, the optimism generated by the Enlightenment, has collapsed in the face of the enormous changes experienced by the present generation. It has been described as 'manufactured uncertainty' (Giddens, 1994). With such things as the physical damage to the environment in climate change and attendant natural disasters, lack of effective controls on the emission of industrial chemicals at the same time as the world's forests are being depleted, the Enlightenment ideals of more knowledge, more human controls and greater growth have been exposed as the very factors that pose the greatest threat to human existence

A new reality where the self becomes the research site, where value systems are associated with what it means to be human, where social reality is constructed rather than being 'out there' as part of natural systems, and the questioning, in some cases outright rejection, of the linear logic of the scientific method has provided impetus to alternative strategies taken up by scholars. Human behaviour is now as legitimate a subject of research as chemistry or physics, with the added dimension of human motivation and intentionality to produce a dimension of behaviour that strictly physical subjects cannot – that is, intended, consequential and therefore meaningful action. This opens up discussions of cycles, or perhaps more correctly spirals, of accumulated knowledge. Scholarship in general has been opened up to new fields of intellectual activity, but this occurs within a scholarly environment where particular epistemes are privileged above others. The libraries that have developed alongside the competing approaches to generating knowledge contain the books that document the various spirals and the volume of knowledge generated; the books record what has been generated. But the gatekeeping function of the book has been diminished as questions of who is supported in scholarship become a matter of funding bodies.

5

Scholars of the second millennium

Scenarios

Casteleyn (1984: 235) finished her account of Irish libraries and their contribution to scholarship with a 1963 quote from Dermot Foley: 'The past is behind us. We enter the future palpitating with ambitious speculation.' It is an idea that raises important questions for the future. The evolution of scholarship and the rise of universities as places of research and scholarship concentration may appear logical, and it would seem an easy task to predict trends that would define scholars of the future. But the events of history that have shaped the notion of scholars have not been predictable; they have been interpreted after the event. Making forecasts of the future of scholarship is difficult, partly because of the speed of technology developments but also because there is no reliable way of predicting social, economic and political directions. It is a problem that is not confined to considerations of scholarship, for every branch of human endeavour is subject to indefinable futures. That does not mean, though, that prediction may not be engaged with some assurance.

Schwartz (1999) suggests that we may turn to methods used by ancient Egyptian priests as they predicted the strength of the annual Nile floods. The colour of the flood waters of the Nile informed the priests, characterised by Schwartz (ibid.: 1) as 'the world's first long-term forecasters', how the harvests of the coming year would be, for those colours indicated how much water would flow for that season. Needless to say, it was knowledge shrouded in mystery and mystical ritual that reinforced the spiritual influence of the priests, but it was a case of knowledge being a most powerful thing as they divined the driving forces of water supply that would influence the outcome of events in the country. They were in effect scenario building, using predictors based

first of all on rain, then on flood, to determine the capacity of Egypt to grow crops, which meant boom or bust. Schwartz suggests that it is possible to engage similar processes, as key factors within any enterprise are identified and assessed in relation to both starting points and objectives of scenarios. Identifying them makes visible the presence of deeper, more fundamental forces behind them: social factors, technology developments, economic contexts, political considerations and the physical environment. Once all these are considered in systematic and orchestrated ways, it is possible to write the scenarios. Schwartz (ibid.: 5) considers that this is an art, like story-telling, but perhaps more tellingly like a choreographed dance where different dancers interpret the scenario. Individual actions do produce new driving forces, which introduces elements of uncertainty, but the argument is that one can engage scenario building on the basis of 'predetermined elements' and 'critical uncertainties', not as separate entities but considered for different purposes and in different ways.

Given this, a number of factors may be considered in relation to the futures that scholarship, the library and the book may face. One prediction relating to scholars of the second millennium is the much-cited 1950s' comment of Drucker (see for example in Friedman et al., 2005: 70):

> Thirty years from now the big university campuses will be relics. Universities won't survive. It's as large a change as when we first got the printed book.

Much of the available literature, including this prediction by Drucker, suggests that scholars of the future will only exist in vast virtual environments, and recorded scholarship will only be accessible via digitised libraries. The 30 years referred to in Drucker's proposition have well and truly elapsed and universities as buildings are not only surviving but becoming bigger. In the knowledge society, scholars and universities interdependently work to construct scholarship and all that this implies, and while Drucker's prediction serves as a reminder that technological capability makes some things possible, there are other drivers that will dictate how these technologies are taken up. Even if universities as we know them do cease to exist, the history of scholarship is one of humans seeking to archive their culture and their histories, whether on clay tablets, papyrus, paper or in digital bits. It is a history that indicates that

scholars have been major contributors to what knowledge is produced, archived and retrieved.

There is a plethora of literature that addresses what motivates the work of scholars. The intrinsic motivations are categorised as altruistic, or for career advancement, or a combination of these. External drivers are not intrinsic motivators, and they play their own role in driving scholarship onwards. The debate over whether technology drives scholarship or whether scholarship, or culture or politics, drives technology is not new (see O'Donnell, 1996), and one salient consideration is ways in which the printing press served the needs of the newly developed universities in the sixteenth century and ways in which the subsequent work that scholars undertook in these universities was directed by the new technology of print. Considerations of these issues centre on the development of the book rather than scholars' work but, since many of the books being referred to in such debates are written by scholars, the same debate can be had around scholarship.

The historical events highlighted throughout this book indicate that the scholar of our times draws on a relatively recent history with its roots in the Invisible College in England during the 1640s and the scholarly conference originating with the Royal Society. Communicating the work presented at the meetings of the Royal Society to a broader readership has been argued as being the first published scholarly journal (Oppenheim et al., 2000). Scholars of earlier times were not required to produce knowledge; rather, they offered debate and discussion about ideas and the knowledge produced by others. The scholar of our times, who is required to produce knowledge and publish this knowledge in refereed journals and conferences, may look to the establishment of the research university with its roots in nineteenth-century Prussia. The normalisation of the scholar of our times as a researcher within a university emerges from the events of the 1940s, with applied research used in the military effort of the Second World War. The techno-scientific activities that emerged in the 1940s still remain as central missions in most OECD universities (Kerr, 2001). While not all current scholars are located in universities – there are industry research and development centres, government organisations, independent scholars and so on – these are the foci of discussions on scholarship and attendant behaviours. This would suggest that all that can be said with confidence is that there will be scholars in the future.

Current technological trends

Drawing on Schwartz's (1999) idea of scenario writing, it is possible to predict that the ability of humans to create, store and retrieve information will continue to grow even if limitations are placed on who is seen as expert in creating knowledge. This ability has been made possible with the development of computers in the 1940s and the subsequent development of the integrated circuit (one type being the silicon chip) in the 1950s, which set the possibility for the digital megatrend of the 1990s. In 1986 the first integrated circuit with 1 megabit of RAM allowed people to use personal computers, with attendant capabilities of word processing, and take advantage of the development of the World Wide Web – making the internet accessible as a global network – in relation to self-publishing. The technological capability for media convergence and mobile communications has meant that it is now possible for people to share and store information that had never before been even conceivable. An explosion in the amount of information being stored and retrieved through the internet, the one identifiable tool of the information age, occurred, and understanding the changes in storing and retrieving information is important to understanding changes in scholarship:

> One thousand books are published every day, and the amount of available information doubles every four and a half years... If instead of evaluating the information stored and transferred by computers one focuses on the way computers process information, one realizes... that calculation is not equivalent with information creation. (Suteanu, 2007: 70)

Technological developments in relation to computers and the internet do indicate that there will be increasing reliance on digital and virtual technologies. Much of the literature associated with digital and virtual technologies conflates these (see Zanin-Yost, 2004). Digital technologies include all electronic data-storage technologies; virtual technologies are those that are accessed using the internet. The use of both digital and virtual technologies has increased exponentially since the 1990s. The increase in the number of CD-ROMs, films and DVDs available for borrowing from libraries and the increase in electronic delivery of documents are evidence of this. Both university and public libraries have become increasingly engaged in replacing photocopiers with scanning

machines which allow delivery of documents electronically regardless of the format in which they have been stored, so that scholars of the future can expect to receive much of their information in some sort of electronic format. In such an environment, scholars require both access to computers and the accompanying skills that allow them to retrieve these documents. Those scholars will not only use such technologies to receive and retrieve documents; they also must be competent in the use of digital technologies to perform other aspects of their scholarly work, such as teaching and the creation and dissemination of knowledge. With a growing reliance on virtual technologies, the logic of a Drucker that suggests universities will only exist in virtual space is apparent. While it is possible that there will be an increase in virtual universities, libraries and research spaces, the continued presence and even growth of scholarship on physical campuses present as a more likely scenario. Part of this scenario is the growth of scholarly offerings being made available in virtual space.

The use of developing technologies differs between the two broad phases associated with the research requirement of academic work: production and publication. Currently, the production phase of the process is primarily digital-based through the use of word-processing technologies. In this phase could be added another process, that of reviewing and refereeing academic work. The second phase, the publication of academic work, still manifests in printed material in journals and books, but digital-based publication is becoming increasingly prevalent (Altenhöner, 2006). The move to greater reliance on digital repositories is a contentious issue. Fialkoff (2003), for example, draws on a number of studies to question a sole reliance on digital holdings in libraries, challenging the way user information has been skewed to support that trajectory. Her challenge arises from an analysis of user patterns in making decisions with regard to document storage. She draws on a report by Friedlander to argue that these directions reflect the desires of scholars, not students. She also notes that scholars still use print, but that they print documents from their workstation rather than borrow already printed material from the library. It is possible to surmise from this that people who would bear the cost personally may prefer to borrow work that is already printed. More relevant is the notion that the need for access to printed material by scholars has not changed; it is the way they access this material that has changed.

This pattern is also reflected in the trend towards print on demand (PoD). PoD is a process, service and system of publishing a book only as

it is required. While there is an economic benefit here to publishers, as it avoids the problem of printing books that may not sell, there is also a benefit to scholars as this technology allows books to be produced in single or short-run quantities. Crawford (2008) takes up the possibilities of small-quantity publishing in the domain of publish on demand (publish it yourself – PiY). While the technology for both PoD and PiY is currently available, the question arises of whether or not this is a trend that is likely to be the future of scholarly work. PoD has advantages in relation to reduced stockpiles of books, with digital texts that can be stored for prolonged periods. As long as these remain retrievable, this means that books are less likely to go 'out of print'. PiY is more contentious. A positive feature of PoD technology is that it can be applied to self-publishing – PiY – as this allows books to be as timely as electronic papers with revisions and additions possible up to the point of posting on the web. Demands from publishing houses to sell enough copies of a book to break even are alleviated, as PiY allows for very small take-up. For the author there is a negative side to this, as they forgo access to the editing, indexing, promotions and advertising that come from publishing houses. These are scenario features to be dealt with.

For PiY to be the way of the future would need modern scholars adding publishing skills such as typography to their repertoire. From a scholarly perspective, PiY books lack the traditional refereeing process. While numbers of copies sold may be evidence enough that the book is a contribution to knowledge, it seems unlikely that such evidence will be accepted by universities around the world any time in the near future. Bestseller lists do not of and by themselves constitute scholarly credibility, as even a cursory glance at the sales figures of a *Chariots of the Gods* (von Daniken, 1971) would suggest, while an *Origin of Species* (Darwin, [1859] 1968) would hold its own under scholarly scrutiny and become one of those 12 books that changed the world (Bragg, 2006). If the book cannot stand up to scholarly scrutiny, the uptake by academics is likely to be limited. For scholars the issue of knowledge creation is important, for the modern scholar is expected to be a researcher. It is an expectation that carries with it an import unknown in earlier eras of scholarship, though. Scholarly work is more than knowledge creation; it is peer-recognised knowledge creation. Technological growth, particularly since the 1990s, has meant that expectations of collaborating scholars across the world have come to be taken for granted. At the same time that exponential growth in the quantity of information has been made possible, associated concerns about the

quality of that information as it affects the future work of scholars have emerged.

The interests of the scholarly publishing industry need also to be taken into account, for as a business enterprise publishers will work to maintain their profitability. It might be easy to argue that publishers have unfairly profited from scholar-authors, who are not always remunerated by publishers, but as Oppenheim et al. (2000) say, the professional skills of publishers have enhanced scholarly work through editing and layout, so it is a two-way street. While there are scholarly publishers, such as university presses, that are not-for-profit, the majority of scholarly works are published by international publishing conglomerates. The publishing industry is, according to Oppenheim et al. (ibid.: 362), in 'an international, commercial and frequently highly profitable business'. Publishing conglomerates rely on scholars to provide papers; scholars continue to provide papers as their careers and associated rewards rely on being published (Holmes, 1995). The author does not provide the profit; it is subscriptions from the various libraries that provide this. The market is in a precarious position, warns Odlyzko (1998), when library funding fails to grow, which has been the case in the late twentieth and early twenty-first centuries, and publishers compete for existing funding. Another view on this is that of Meyer (1997), who argues that the specialisation of journals has meant that publishers are not in competition with each other, so they have been able to protect profitability; as prices increase to maintain profits they have not experienced negative effect on demand. This has worked in a scholarly climate where the number of publications produced by a scholar has been the measure for that scholar's career success. Traditionally, the impact of what has been published has not been an important factor for scholars, and publishers have not been required to provide citation factors to secure subscriptions. The climate now, though, is one where agencies that fund university research are moving to a quality assessment index, and this has added a complicating factor to what it means to be a scholar who publishes.

Assessing quality of research has become an issue in a number of countries, where university funding bodies have engaged in quality assessment exercises. The establishment of research quality exercises around the world started in the UK in 1986. Various models of quality exercises now operate in most European countries, the United States, New Zealand, Australia, Hong Kong and a number of other countries in Asia, or are in the process of implementation. Research quality exercises

can be considered as perhaps the most powerful driver of scholarly culture since the 1980s.

Research quality assessment exercises

Evaluation and assessment of research and scholarship are not new. Even the scholarly debates of sixth-century Athens included assessment, and that assessment was based on whether the rhetoric persuaded the audience or not. The tradition of peer review that has existed since the scholarly societies is another form of evaluation and assessment. What is new about current research quality and assessment exercises is that performance is judged relative to other individuals, and each institution is judged relative to other institutions within their country. The relative quality is used to determine the level, if any, of public money each institution will receive. In most countries the quality of an individual scholar is likely to be assessed at an institutional level, as institutions try to maximise their share of limited funding resources. While these research quality assessments are limited to individual countries, the use of university ranking systems such as the *Times Higher Education Supplement* system and the Jiao Tong system does serve to make research quality assessment global.

These quality assessments have been the subject of much scholarly debate. On the one hand it is argued that 'Evaluation assessment and assurance of academic quality is intrinsic to higher education' (Brown, 2004: x) and, so the argument goes, such assessment exercises ensure only quality research is supported through public funding. On the other hand questions arise concerning the narrow view of quality used in such exercises. The contentious nature of what counts as quality measures has led to discussions from which it is possible to glean, from various quality exercises around the world, that 'quality' means 'accountability' and that quality frameworks are a means to justify allocation of limited resources. The general tenet of research quality assessment exercises is that institutions receiving public funding will be more accountable for the receipt of that funding, and the transparency that comes via these assessments will give institutions the capacity to ensure competitiveness in the global education market.

The research assessment exercise (RAE) in the UK is an example of this sort of contention. The RAE provides ratings of particular measures that are seen by the government as representing the quality of research

conducted in higher education institutions. The ratings are used to inform the selective allocation of funds (Roberts, 2003). Roberts says that one of the reasons for the development of this system was to promote quality research and ensure that those universities which can provide evidence they are producing the highest proportion (quantity) of such quality research would receive the greatest proportion of available funding. These are indeed noble ideals, and one would be hard pressed to argue that being accountable for the use of public funds is not in the public interest. With such ideals these assessment exercises – with standard measures that are seemingly transparent – appear to be beyond the vested interest of individuals or institutions. What is masked in such exercises is that the measures they embed have been supported by various interest groups.

Winning in these quality funding models means big money. In Australia, for example, 23 per cent of competitive funding to universities is for research and research training. While higher education institutions around the world vie for bigger slices of their national funding pie, they must look to the authors of the measured outcomes, the scholars, to contribute to improvements and/or maintenance of high ratings. Whatever range of measures are incorporated by the different nations' quality assessments, the prevailing measure is that of the 'impact factor' as calculated by the Institute for Scientific Information (ISI). Using this as a measure means that it is not sufficient for scholars to publish in peer-reviewed journals; they must maximise the number of articles they publish in ISI journals.

Within this context the scholarly or refereed journals (note that not all peer-reviewed journals appear in the ISI rankings) may be examined. Understanding the current place held by the refereed journal within scholarly activity is important, as changes to journals, both technological and economic, have a direct impact on the ways scholars work. Any changes to journals can be assessed in relation to how they support current scholarly culture, as can their ability to support a change in that culture. This provides the makings of another scenario. Not all scholars will publish a scholarly book, but all scholars are required to publish, on a regular basis, in peer-reviewed journals, and the trend now is for the rewards to flow to those who publish in ISI journals. Thus the scholarly ISI journal is likely to hold a privileged position in the selection and archiving of scholarly literature. It is reasonable to suggest that currently it is the scholarly journal, rather than the book, that is the principal repository of knowledge within academic disciplines, and that in the future it will be a small range of such journals that will count. One can

then imagine what changes are possible and likely in relation to the production, dissemination and archiving of scholarly work in the future.

Current key drivers of academic work, the research quality exercises and ISI publication, allow the beginning of an imagination of future scenarios. Scholarly journal publications that commenced with the Royal Society as a way of disseminating information moved throughout the twentieth and twenty-first centuries to a position where scholars were rewarded in a system that has been built around scholarly publication via the scholarly book or the blind, peer-reviewed journal publication. The rewards are prestige, tenure, promotion and funding. Despite contention about quality measures and assessment exercises and issues around discipline-specific peer or expert review, in the second and third decades of the twenty-first century the assessment of research and the individual's contribution to an institution's ranking will continue to be the strongest external driver of scholarly work – the ISI journal is likely to be the means by which scholars can secure prestige, tenure, promotion and funding.

Where quantity, as defined in research assessment exercises, has been the measure of scholarly achievement, problems have arisen for scholars who have been unable to have their work published. The limited number of ISI journals may increase the prestige of those journals, but the consequence for the scholar is that limited space means there is intense competition for publication. Scholars may submit to other journals in hope of the work being published somewhere at least, as long as this somewhere is a refereed journal. With the shift to quality, even with quantity and quality measures, one can expect to see scholars look to ways that maximise exposure of their work. The international measure of quality is impact: the number of times a paper is cited by others. For the scholar the trend to a citation-based system means they require many people to read their work, not just a small group of referees reading and accepting their work into a journal. Citations can arise out of non-refereed material, which opens opportunities to self-publish. In a climate of publish-and-be-cited-or-perish, scholars see web-based publishing as an attractive alternative.

A tension emerges between the need of scholars to have their work given the widest possible dissemination and the need of the publisher to maximise profit by disseminating information to those who pay for it. A further consideration is the need of the library to provide access to information needed by the scholars they support. While Harnad (1996), Singleton (1993) and Oppenheim et al. (2000) frame this tension in relation to vested interests on the part of scholars, publishers and

librarians alike, there is no evidence that any of these parties acts out of callous self-interest. Rather, the evidence suggests that each party tries to act in the interest of knowledge production, storage and dissemination, but does so within different parameters.

For publishers digital publishing is not a problem; it is limiting of access to their digital repository that they require. The rate of take-up of digital publishing by all parties suggests that a large part of the future work of scholars will be in digital formats. The optimism for the future of digital repositories regardless of potential problems is exemplified by Brindley (2006: 493):

> Digitization opens doors to new and dynamic partnerships. Last autumn the British Library announced its intention to work with Microsoft to digitize 100,000 out of copyright books and make them available over the internet. There are complex intellectual property issues involved in such partnership working, but I view the Microsoft deal as an example of how libraries can work with the new players in the information arena as we modernize and update our services.

Accepting the proposition that scholars use libraries as the primary source for retrieving existing knowledge and the primary repository for new scholarly work, it is possible to posit futures for scholars based on some scenarios about libraries. Some possibilities for the future of scholarship can be mapped against technological developments within libraries. There is a range of libraries experimenting with parameters of possible futures, and these same libraries can be identified as providing information that is drawn upon by scholars, be they academic, corporate, government, K–12, military, public or special libraries (see Andrews, 2007). Special libraries are a twentieth-century phenomenon in name only, for they have been in operation for 1,000 years or more as repositories of medical works such as those of Hippocrates and Galen, and records of herbal remedies consulted by monk botanists. In the sense of this sort of specialisation, they engage different sorts of knowledge-access activities because of their given foci, and have become increasingly important as scientific method has gained in influence in scholarship. The increasing knowledge and specialisms within such fields as medicine and surgery, for example, have required ready access by professionals in those fields to the most relevant and current material available. An increasingly litigious public has further underscored the importance of knowledge currency, which may be punished as malpractice. Law

professionals rely on consulting written documents; commerce requires ready access to documents; scientists and technologists require similar fast access to what is currently available in their field. Special libraries have been particularly assiduous in adapting new technologies as central to their sole reason for existence, 'to make the expensive professional knowledge workers more effective in what they do' (Lerner, 1999: 182), but as far as scholarly activity is concerned, more emphasis falls on the academic library than on other types. The future of scholarship in relation to the production and dissemination of information, the archiving of that information and the possible consequences of such modes of storage is intimately related to the future of such libraries, which may be seen not as challenging traditional activities of scholars and their current reliance on the library but as providing mechanisms that may give rise to new forms of gatekeeping of knowledge. Given the amount of material published as part of twenty-first-century epistemes, the role of the librarian becomes even more important in providing access to what is published – there being far too much to allow for private ownership by scholars in their private collections. As Lerner (ibid.) puts it, the role of the librarian prioritises access over ownership of what is published.

There is a current trend for libraries to move away from books and journals on shelves to a system where they interface with publishers' digital repositories, so it is no longer the libraries that act as the actual repositories. They may continue to collect, store, preserve, index and share the intellectual capital of faculty in the form of their scholarly publications and teaching material (Hayes, 2005), but it is the publishing houses that now act as digital repositories for those aspects of scholarly work that count as publications. Once these are stored, the next technological issue is how that information is to be retrieved. The trend towards digital production and publication brings with it risks, particularly in relation to the archiving of electronic-based publication. Manguel (2008: 75–6) gives the example of the 1986 BBC-funded £2.5 million project to preserve the eleventh-century Domesday Book electronically. This project involved more than 1 million people working to preserve the information on 12-inch laser discs that would be read by a special BBC microcomputer. It was an enormous project, but by 2002 none of the information contained on those discs could be accessed as the hardware was obsolete. The original is in the Kew Public Records Office, and still remains the only way to access the invaluable information it contains. The Domesday Project highlights the problems

that arise from rapidly changing technologies in relation to archiving material in ways that remain permanently readable and thus accessible to all in the future.

As Lerner (1999) points out, the rapid obsolescence of technology software and hardware plays an overly important role in decisions of what may be digitally stored or not. We have had hundreds of years to evaluate and assess earlier systems of storage and retrieval of library stocks, but very little time to do this with digitised approaches to information science. Yet we make decisions without having had the time to experience the sorts of things that the Domesday Project might just presage. Many works were lost with the transition from scrolls to codexes, and that was at a time when the profusion of publications of the modern era did not have to be dealt with. The preservation of the technology that digitally preserves books is an added dimension to the problem that advances in information science present. In 1996 the Library of Congress not only copied but actually replaced most of its late-nineteenth and early-twentieth-century newspapers' collection with microfilms, destroying the originals as part of the process. It was the start of a trend in libraries across the United States and Britain. The British Library's collection of newspapers that had managed to survive the bombing of the Second World War was systematically put on to microfilm and then the originals destroyed (Manguel, 2008). In such instances, the reliance on the capacity of microfilm, a relativity uncomplicated technology, to endure is heavy indeed. But we do not yet know just how reliable the latest developments may be in performing that enormous undertaking of libraries described by Lerner (1999: 200), to collect and preserve the record of human accomplishment and imagination and 'to put this record into the hands of those who would use it'. Various biblioclasms of the past have indicated that this is never an area of certainty.

Witness the loss of books from the monasteries dissolved under Henry VIII in the fifteenth century, and the scattering of monastic library collections during the period of the French Revolution, where books posed a threat to authorities' positions. Censorship is another important testament to this. The Nazis' book-burning activities in the 1930s are universally condemned for their attack on the pursuit of knowledge, when hundreds of Jewish libraries were burned down, along with personal and public collections, and specific scholars and writers were proscribed. A most horrific aspect of this is the rather too late recall of Heinrich Heine's 1820s' dire warning: 'Wherever they burn books, in the

end will also burn human beings.' Peter Drucker was one of the authors whom the Nazis considered dangerous, having his early books burned. Even what may seem to be the innocuous work of Vera Brittain (1979), with her reminiscences of the Great War in *Testament of Youth*, and she herself in the event of Nazi success over Britain, were marked for destruction (Brittain, 1980). The Soviets destroyed libraries across the USSR at the very same time that the US House Committee on Un-American Activities exercised an almost hysterical control over what might be published, or read, or put into a script to be acted out in film or on stage. Under the influence of Joe McCarthy and his denunciations of communists across the United States, books were removed from the shelves of 200 US International Information Administration (IIA) libraries, widely denounced as the equivalent of book burnings (Cremin, 1988: 465). Small wonder, then, that in 1953 Ray Bradbury (1997) was inspired to write his *Fahrenheit 451*, where the 'fireman' of the future is a burner of those books that may adversely affect conformist thinking in the American citizenry. This was considered a dangerous thing, a concept not at all new in the history of book production. Apparently, 451°F is the temperature at which the burning of books is most efficiently done.

Barthes's (1988) concept of the death of the author is an abstract born of twentieth-century questioning of the power-knowledge nexus as manifest in books, a view which positions all knowledge as relative and its creation as much about the reader of a book as it is about the author. It is an idea that has generated a raft of research activity in literary criticism, but it has wider applications in relation to scholarship as being a matter of disentangling the contents of a book more than interpreting them. Readers in this case are knowledgeable not because of what they read, but because of the ways in which they themselves, without the mediation of any author's work, make meaning out of what has been written. Such an abstract concept has done much to open up scholarly discussion on the nature of knowledge and its relation to scholarship, but the sort of death envisaged by Barthes, an idea also canvassed by Foucault (1977) in dealing with his own question, 'What is an author?', is an abstract one. Such is the perceived power of books that the deaths of authors have been very real and physical throughout Western history and right up to the present day.

Witness the consequences for Salman Rushdie in relation to a book that he wrote. Witness too the case of Roberto Saviano, described by Chenery (2009). Late 2008 saw thousands of people, wearing Spartacus-type T-shirts emblazoned with '*Io sono Saviano*' (I am Saviano),

protesting across Italy in support of this author, who was under very real threat of death, but not from any religious or ideological source: the source of danger for him is the Mafia, for as he says, 'To set oneself against the clans becomes a war of survival' (ibid.: 26). What had he done? He had written a book called *Gomorrah: Italy's Other Mafia*. Perhaps the most telling point is what Chenery says Saviano himself points out, that 'his book has a life of its own out there in the world. The Camorra can't kill a book' (ibid.: 27). He lives in hiding, as a prisoner who has committed no crime that we would recognise, and the personal toll of this is enormous. In these days of digital text production and mass-produced print copies stored in libraries and their archives across the world, authors find themselves under threat even as their books survive. It is the very fact of their writing their books that provokes the sorts of hostile reactions that underscore the undiminished power of the book.

Libraries of the future

Pronounced abstract or actual physical deaths of authors or not, libraries will increasingly need to confront information retrieval protocols. Information retrieval currently relies on alphabetic character searches of library holdings. In a report about Online Public Access Catalog (OPAC) by Bennett (2006), the Florida Center for Library Automation is reported as expressing an ambition to eliminate totally the practice of alphabetic character search for its library holdings. If this ambition is to be realised it will mark the end of the catalogue as the entry point to a library's collection. This ambition is not uncontentious:

> The literature is replete with examples of entrepreneurial software development in and by libraries. Recent, famous examples include the Endeca-based online catalog at North Carolina State University; the paper describing this work can only be described as required reading by everyone involved... This catalog represents a major advance in the whole concept of a library catalog, addressing many of Markey's concerns. More than that, the product brings joy to the user, opening the library's collection to users through faceted searching, a feature sorely lacking in other commercial ILS products. (Andrews, 2007: 566)

To consider another scenario: the library of the future will have some level of reliance on digital technologies. An analysis of statistics from the Association of Research Libraries (ARL) (Resnick et al., 2007) shows the top research libraries currently spend more than a third of their budgets on electronic resources. By 2010 more than 50 per cent of books sold worldwide will be printed on demand at the point of sale in the form of library-quality paperbacks. The technological and economic factors that place current information archiving at risk (Seadle, 2007) will either be resolved or exacerbated; it may be that an effective international networking of digital repositories with sufficient infrastructure to store the variety of scholarly works may be developed, or it may be that a new form of biblioclasm results, where at the softest point software obsolescence makes data irretrievable but at a harder point the data are corrupted by a computer virus.

Economic factors

The financial viability, possibly, but the profitability, more likely, of documents is likely to influence which journals and books will be digitally archived. Financial viability has two pressure points: the library that needs to justify its expenditure, and the publishers who need to maximise profit. In a market-driven economy any group willing to bear the cost of archiving might well find that its interests are more easily met in relation to archiving. Having a diverse range of investors or government funding might ameliorate the risk of narrow vested interests, but even that strategy comes with risk. Beyond the possibilities that scenarios provide, there is no certain way of predicting social, political and economic directions in this regard. Such predictions are difficult even in countries that have stable conditions, and become impossible for those countries that do not. The effects of the global economic crisis of 2008/2009 on libraries and scholarship will provide some insight into the consequences of a fluctuating economy, but this remains to be seen. Political priorities, even in these stable countries, also change as political leadership changes add to the vulnerability of libraries, whether they be digital or print-based. An example of such vulnerability is given by Seadle (2007: 8), where the Republican government in the democratic country of the United States 'has attempted to recall all copies of government documents that the administration did not want to be public'.

Technological factors

The longevity of digital software is arguably the single factor that poses the greatest risk to digital repositories. Longevity is adversely affected when software products no longer give companies the profits required or when companies fold. The user of the software is unlikely to know when either of these events is likely to occur. According to Altenhöner (2006: 575), the only strategy that will work is the 'existence of a bit stream, the integrity and authenticity of which has been kept in order over the years and decades'. Seadle (2007) says that even with advances in bit streams a portion of current documents will have problems associated with retrieval, as bit streams recover text. But readability is a much broader concern than irretrievability. This is based on the notion that there is no way of knowing what aspects of a document a future scholar may wish to investigate.

The library of the future is likely to be a repository of digital and print resources, with the most substantial component in the digital repository. Most of the literature refers to current libraries and those of the future as digital repositories of information and data. This is a narrow view of libraries, which, as Crawford and Gorman (1995) argue, are much more than this definition implies. Libraries are repositories for the stock of human knowledge, even if that knowledge is only that part of it which has been deemed worthy of representing human knowledge. The library of the future with its high proportion of digital material can expect to have a significant amount of its archives not retrievable. Those people who are in a position to make decisions about what information is stored in ways that are not at risk of technological irretrievability will be like their historic counterparts; they will be the new gatekeepers of knowledge.

As production and retrieval of scholarly work become increasingly a matter of employing digital means, the library may look to offer other services. The Loyola University of Chicago Libraries, for example, 'sees the academic library of the near-future as creating a one-stop shopping experience for hurried information seekers' (Andrews, 2007: 583). The library of the future may well offer services other than those historically or currently associated with libraries. That same university argues that its library will 'contribute to an atmosphere conducive to sustained, serious academic work' (ibid.: 563).

Odlyzko (1998) argues that while technology is one of the major trends driving change in archiving and retrieval of scholarship, it is the uptake by scholars themselves of the technology which supports these

changes. Odlyzko refers to advances rather than change, without considering that the assumption that technological change is an advance is ideological. He argues that evidence of scholars' expertise in technology is seen in the high level of computer literacy globally, developed through the use of e-mail and word processing. Continued growth in electronic resources depends on such assumptions in regard to a level of technological expertise on the part of the user or the librarian (Lossau, 2006), but there is a difference between the use of word-processing software and the variety of platforms used in electronic resources. Resnick et al. (2007) draw on a number of studies that highlight the fact that users experience numerous access problems. These authors claim that while some problems were simple (such as access denied because the content requested predated the library subscription to that database), many problems were more complex than this, requiring intervention on the part of 'multiple levels of staff, departments, systems and external organizations' (ibid.: 144). Access issues arise not only because of user expertise but also because of the number of suppliers of electronic data, with dozens of vendors 'supplying tens of thousands of resources... including aggregators and publishers who change content constantly' (ibid.: 147). Serving these users increased the workload of staff by 0.4 per cent. As the proportion of electronic resources increases one may expect an increase in the number of access problems that will need to be handled by library staff. What will be required of them is a techno-expertise not considered within the constructs of a profession based on the storage and retrieval of books.

The scholar of the times

Tensions have emerged between the different players in scholarly publishing: libraries, publishers, scholars as authors and scholars as readers (Odlyzko, 1998).

In the past, scholarly publishing grew in support of college and university needs to support peer-review tenure and promotion protocols and processes. Today authors are desperate to publish and not perish, just at the time that libraries are unable to purchase the amount of work being published and the nature of a market driven by authors has led to major problems (Brown, 1996). The greatest paradox of printed scholarly journals is that they act more like archival and legitimising tools and not like a communication tool: print acts like a form of official

sanction (Guédon, 1996). This has been successful in narrowing the gap between the capabilities of the publisher and the scholar, giving rise to suggestions that scholarly communication no longer requires the skills of the publisher (Hunter, 1990). Current and ongoing transformation of scholarly work and communication (Harnad, 1990) has generated possibilities suggested by the internet and the World Wide Web as new opportunities for the scholar, with increasing popularity of preprint servers, newsgroups, discussion lists, blogs and mailing lists (*Trends*, 1997). According to Guédon (1996: 71), the 'electronic seminar' could evolve, producing 'dialogic document(s) that more faithfully reflect the interactive nature of scholarly discourse'.

Hayes (1996) predicts that the use of the internet and World Wide Web will have a positive effect on scholarly communication as information flows freely from author to reader without being mediated by the traditional third-party referee or the economic barriers imposed by commercial publishing houses. The good associated with the notion that blurring the boundaries between formal and informal literature will give rise to a 'continuum of interactive, interdisciplinary and collaborative works' that Hayes represents is left unquestioned. A future where information flows without barriers is a future where misinformation also flows without barriers. In the context of scholarly knowledge it is also important to differentiate between information and knowledge; knowledge is information that has been subject to analysis to provide meaning.

Currently, scholarly debate and scholarly publications occupy different spaces. The refereed publication is a statement that peer experts in a given field have critically engaged with the publication. The reader can take that text as being authoritative in the current time given the current information available. Scholarship, like knowledge, is provisional and cultural, and because of this is always in a state of flux. The privilege accorded to scholarly work by means of the processes of peer review is a construct of current notions of scholarship. Given the notion that scholarship throughout history has been constructed as such by those in a position to exercise power, it is possible to envisage a future where scholarship is constructed as the discussion of ideas without peer review or publishing houses. The speed at which scholarly enquiry could proceed in the absence of the peer-reviewed journal may make global interaction among scholars more likely, but Harnad (1996) warns that the creator or originator of ideas loses control of the text as it disseminates in multiple directions in the virtual environment.

The question then becomes one of barrier-free scholarly debate or a continuation of the peer-review system. The answer will be determined in large part by the motivation for scholars. A system of peer review is more likely to be mobilised where career advancement is contingent on recognition by a broader scholarly community and a scholar's contribution can be measured, and judged against others, using the number and perceived quality of research publications. Non-refereed internet discussion, 'free-flowing discussion', is more likely to be mobilised in the context of professional idealism, where the scholarly community together build knowledge without a need to be judged against each other for career advancement. The first scenario is more likely if Schauder's (1994) claims are correct and the scholar's main reason for publishing is to gain prestige. The latter is likely if Harnad (1996) is correct in his claim that the scholar's main aim is to make a contribution to knowledge and offer this to other scholars without restriction.

It is probable that both positions will have a certain currency and scholars will continue to work in diverse ways for diverse reasons. In a world of seemingly infinite knowledge, the scholar of the future, unlike scholars of the first millennium, will need to specialise not merely in a discipline but in sub-disciplines of an increasingly narrow focus. It is likely that some present universities will be quality exercised out of access to public funding, and these resource constraints will be a barrier to their forms of scholarship. Expertise will be subjected to the same pressure. Only a few institutions will have the resources to employ tenured academics, and scholars will vie for diminishing positions. There will be scholars in the future, there will be libraries in the future and there will be books in the future. Whether they will continue to be concentrated in the variety of institutions and organisations that support and are supported by them today is questionable. Drucker's ([1959] 1996: 114) assertion that 'the highly educated man has become the central resource of today's society, the supply of such men the true measure of its economic, its military and even its political potential' purports to distinguish the twentieth and early twenty-first centuries from those that have preceded them. Yet these same words, including the application to males only, could have been spoken in sixth-century Athens. Nothing much has changed… just the technology.

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