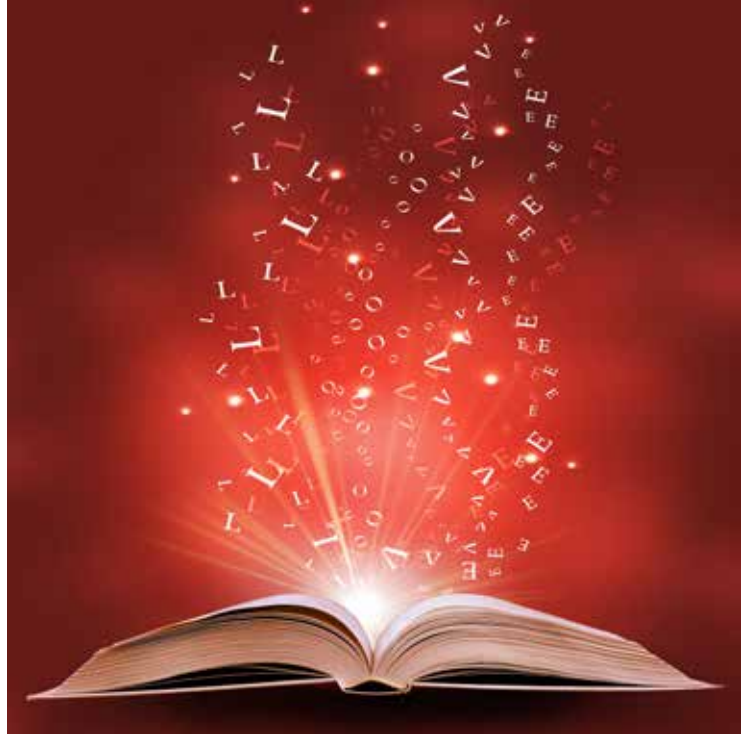




The Birth of the Book

Human beings really began to earn their title homo sapiens (Latin for 'wise man') during the era that scientists describe as the evolutionary 'Great Leap Forward' which took place between 75,000 and 45,000 years ago.

One of the most significant developments that date from this time is the origins of symbolic art as seen in the many examples of cave paintings found throughout the



world. These paintings served many purposes for the early hunter-gatherer communities including a means of recording daily events as well as entertainment and expressing the feelings and emotions of community members. The earliest known example of such cave paintings are found in Chauvet, France and it seems that

even 30,000 years ago there was an innate sense of the importance of passing on experiences and traditions to the generations still to come.

The first writing system is believed to have been established in Sumer (now found in modern day Southern Iraq) between 3400 and 3200 BC. It is known as cuneiform which means 'wedge-shaped' referring to the stylus that was used to make the impression on soft clay tablets. Whilst it is clear that many early examples of writing systems existed to assist traders in record keeping and bartering with others, the drive behind writing seems to have had a far more important and permanent purpose.

Just as the Sumerians and Egyptians believed that writing was a divine creation, the subject matter of early writing reflected the important myths of the culture. The first 'book' to be written entitled The Epic of Galamesh told a mythical account of a



Sumerian ruler between 2700 BC and 2500 BC. It is clear that its author(s) considered the tale important enough to record it for future generations and this must be the true legacy of books; an opportunity to ensure that important myths and indeed truths survive beyond death.

Papyrus or Parchment?

Whilst clay and stone provided the first surfaces for the written word, the first book-making materials came from plants. The Latin word *liber* translates literally as 'the fibre inside a tree' whilst the Greek word, *biblos* originates from the name of the Phoenician city from which papyrus was exported. It is understood that the Egyptians were the first to manufacture papyrus as early as the 4th millennium BC, with the earliest examples, from ca. 2560 BC discovered in an ancient Egyptian harbour on the Red Sea coast in 2012. Whilst papyrus was well suited to a dry climate, it could not be folded and so large and lengthy scrolls were required for longer written texts. A papyrus 'book' was formed by pasting together several sheets into a scroll up to 10 metres in length, although some texts were more than 40 metres long.



Papyrus remained unchallenged as a writing surface until parchment made from animal skins was developed in the 3rd century BC. It is understood that the Egyptian king banned the export of papyrus to Pergamon (in Asia Minor) as he did not want his library in Alexandria to be surpassed by the library at Bergama. Parchment had many advantages over papyrus as it was easier to conserve and was more durable, even withstanding the erasure of text. It also suited the codex form as it was easier to write on both sides as well as being larger than papyrus and therefore yielded more leaves per sheet. It was however, far more expensive than papyrus which remained popular until the 9th century AD.

The Hellenistic period (323 BC- 30 BC) saw a great increase in both the use and production of books as well as their cataloguing and conservation with large libraries created as a sign of great power and political importance. Whilst these libraries were used by the public, they would have been most popular amongst scholars and those who made use of the vast lecture halls they contained.

From Scroll to Book

The transition from papyrus scroll to the codex form began between the 2nd and 4th century AD, towards the end of the period of antiquity. Codex, which translates



from the Latin for 'trunk of tree' or 'block of wood' is essentially a book as it is known today; made with pages bound together, although these would not have been made from paper until its journey to Europe in the 11th century. The transition from

scroll to codex has been regarded as the most significant development in the history of the book prior to the invention of the printing press in the 15th century.¹ The codex form had many benefits for papyrus users as it would have been far more durable cut into smaller sheets than in lengthy and weighty scrolls. It is understood that scrolls and codices co-existed for 400 years but by the 4th century AD, codices were the dominant form for the book.

During these ancient times, the authors of written texts had no rights to their works and these would often be edited or added to by those responsible for their copying; to be an author was a role full of glory but little financial reward. It was towards the end of the age of antiquity that the monasteries began to play an increasing role in the reproduction, conservation and protection of written texts. This was in part due



to the destruction of large numbers of Christian texts ordered by Diocletian in 304 AD. This protective role continued during the collapse of the Roman Empire in the 5th century

when large collections of books were summarily destroyed by invaders. Most monasteries had a scriptorium where monks would painstakingly copy and decorate manuscripts that would be used for further religious education and instruction amongst their own community and beyond.

The Origins of Paper

The first examples of paper were vegetable based and originated in China in the 1st century BC where it was used for wrapping and padding rather than as a writing surface. It was also used for many other purposes before becoming established as a carrier of the written word, including as toilet paper (from the 6th century AD) and as tea 'bags' (from the 7-10th century AD).

It was during the 7th century AD that paper moved from China to Japan and in the two centuries that followed, paper had travelled to central Asia and the Middle East before travelling to Moorish Spain in the 11th century. By this time, parchment had replaced papyrus as the most commonly used writing surface and it remained in use for luxury editions of texts with everyday copies being made with paper.

The monastic period of the book came to an end in the 12th century as university cities begin to grow and the production of books moved outside of the monaster-



ies. Prior to this time, most books would have been written in Latin, rather than the vernacular language of the people. This was partly as literacy was often judged by a person's ability to read and write in Latin as well as it being the language of the monasteries where book production had been focused.

As the Scriptoria moved out of the monasteries, more books were written and copied in the common language. It was also at this time that the practice of selling and trading in books began. Another production breakthrough came with the development of the first water-powered paper mills in 1282. This technique for paper manufacturing was far simpler than the Chinese and Muslim paper-making techniques and this led to a significant fall in the cost of paper which was now one sixth of the cost of parchment.

The Printing Revolution

Whilst the printing press was invented in the 1450s, there had been many different forms of printing preceding this date beginning with wood block printing in China from the 9th century. Johann Gutenberg was a metal craftsman from Mainz in Germany and whilst there are few known details about his life, it is believed by



scholars that he would have spent at least ten years designing his metal printing press that led to the creation of the famous Gutenberg Bible, printed around 1455.

The distinct feature of Gutenberg's press was the moveable metal type as opposed to its predecessors that relied upon

engraved blocks of wood. These blocks of wood would be carved with an entire page of a text and then printed onto paper and whilst this was an effective method of producing printed text, it was extremely time consuming. Gutenberg made more than 300 moveable type pieces for the Gutenberg Bible and before it was printed, he perfected the technique with single sheets of paper and smaller books including an instructional work on grammar. It is believed that Gutenberg produced between 160 and 180 copies of the Gutenberg Bible. There are still more than 20 examples preserved in national libraries and universities throughout the world with 8 copies at various sites throughout England and Wales.ⁱⁱ

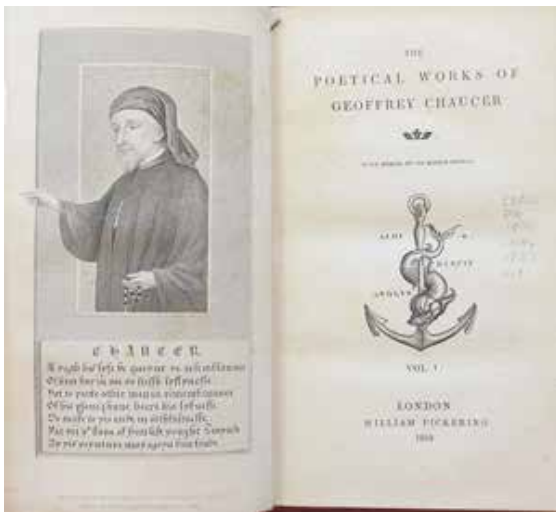
The printing industry spread voraciously throughout Europe, largely due to the universality of the Latin language. Within a quarter of a century, all Western European cities housed a printing workshop. The cost of a book printed at this time

was equivalent to about two thirds of a month's salary for a skilled worker. This explains why books were considered such a luxury item and shared through reading aloud. Many of these early printed works were so treasured that they were individually bequeathed in wills. Within a further 25 years, it is estimated that 15 million books had been printed and as with all emerging technologies this increase in supply enabled the price to slowly decrease ⁱⁱⁱ .

The impact of the invention of the printing press was obviously not limited to storytelling. Within 100 years of Gutenberg's triumph, Martin Luther posted his famous objections to the Catholic Church in Wittenberg in 1517. Luther had huge numbers of small leaflets outlining his beliefs published and these quickly spread throughout European cities. It has been suggested that had it not been for the printing press, the Reformation may have never been more than a 'local quarrel'.^{iv}

The Renaissance and the Birth of the 'Pocket' Book

The 14th and 15th century saw immense changes in Western Europe and people's attitudes to reading and literature were no exception. Individuals became more interested in learning about the world around them and as printing techniques developed so too did popularity in reading as individuals. It was also this period of history that saw the birth and growth in humanism. This led to books



being increasingly published in vernacular languages as opposed to solely Latin and at a price which meant that reading (and thus education) was not merely for the rich in society with reading silently as an individual becoming more popular than reading aloud within a group. Alongside a thirst for knowledge, came a new found interest in works of fiction influenced largely

by Aldus Manutius who began printing pocket sized editions of the classics in the first decade of the 16th century. The cost of these pocket versions were considerably lower as they were printed in large runs of 1000 copies and used an italic font so as to fill each page with more printed text.

Typefaces

The handwritten word has historically been restricted by the writing implements available at any given juncture. Until the quill pen and paper were readily available, letters were formed singularly without any curves out of necessity. It was

Aldus Manutius again who is credited with the development of the cursive or italic style of writing, which was beneficial to the quill user as it caused less splatter from lifting the pen from the paper. Gutenberg chose a Gothic script known as textura or blackletter for the Gutenberg Bible, and this particular handwriting style had been popular throughout Western Europe from the 1150s and continued to be used until the 20th century in Germany. In the century that followed the publication of the Gutenberg Bible, a number of other typefaces were developed and these fell into one of three categories that mirrored developments or trends in the handwritten word of the time;

Gothic Typefaces (from 1454)	Roman Typefaces (from 1467)	Italic Typefaces (from 1500)
Textura	Roman	<i>Italic</i>
Examples and other names include: Blackletter Bastarda	Examples and other names include: Bembo Antiqua	Examples and other names include: Aldine Cursive

The Art of Bookbinding

The assembling process for the book has undergone relatively few changes since the first codices of the 1st century AD. The earliest examples suggest that sheets of parchment would be folded, written upon and crudely stitched together. From the 3rd century, multiple folded sheets (often referred to as signatures) would be stitched together to produce a thicker book. A spine made from a thin wooden board was introduced in the 7th century to protect the binding and the process of hand stitching remained for a further millennium. In the late 19th century, David McConnell Smyth invented a sewing machine with the sole purpose of stitching books. The transition to glued bindings began in 1895, although these were not popular until the 1930s when the paperback book format first became popular. By the 1940s, the DuPont Company had developed a hot melt adhesive binding process which produced the most robust format for books to date.

Images of early binding and modern adhesive bindings –



The Industrial Revolution and the



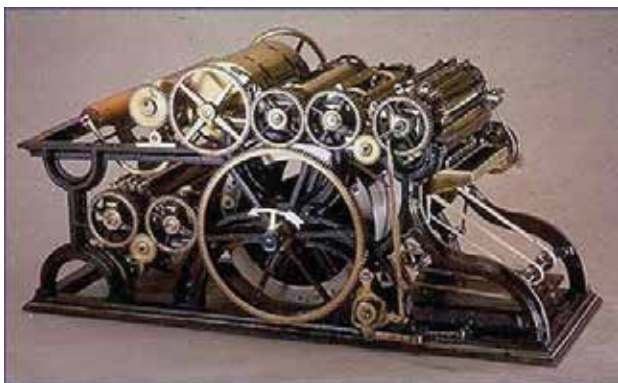
Printing Press

Printing presses remained very similar to Gutenberg's design until the nineteenth century. The process involved many stages and each was completed by hand on wooden presses;

"By modern standards, Gutenberg's printing process may seem slow and tedious; compositors put type together by hand, and a skilled compositor could assemble 2,000 characters or letters in an hour. A computer can arrange the same number of characters in about two seconds. Today, more words are being printed every second than were printed every year during the fifteenth and sixteenth centuries.^v "

During the course of the 19th century, a significant series of developments in the design of the printing press took the number of impressions per hour from 250 to 12,000 by 1865. Some of the key innovations included:

- 1800 – Stanhope Press made entirely from cast iron
- 1814 – the steam-driven Koenig Press able to print 400 sheets per hour
- 1832 – the cylinder press able to print between 1000 and 4000 impressions per hour
- 1844 – the first rotary press able to print up to 8000 copies an hour
- 1865 – the Bullock Press which used self-feeding rolls of paper, and was able to print up to 12,000 copies an hour



Whilst the Industrial Revolution played the biggest part in propelling the printing industry forward, there was also significant pressure from organisations such as the British and Foreign Bible Society and the American Bible Society who were both established at the start of the 19th century with the mission of enabling Bibles to be available for all. This demand for large, cheap print runs could only be met with the invention of steam driven paper mills and printing presses.

Books in the Digital Age

Whilst the dominance of the ebook in the last decade represents a huge shift in reading culture; the book began its move towards the digital age in the 1920s. At this time, the Royal National Institute for the Blind began to test different techniques for recording talking books to open the world of the literature to the blind. By 1934, the first talking book appeared in the USA as part of a project known as 'Books for the Adult Blind'. It contained excerpts from the Bible as well as works by Helen Keller. The first talking book in the UK, *The Murder of Roger Ackroyd* by Agatha Christie followed in 1935, consisting of 10 records each containing 25 minutes of reading on each side.



Over the next two decades, a series of inventions transformed the book writing and publishing process including;

1935 – The first electric typewriter

1945 – The first phototypesetter

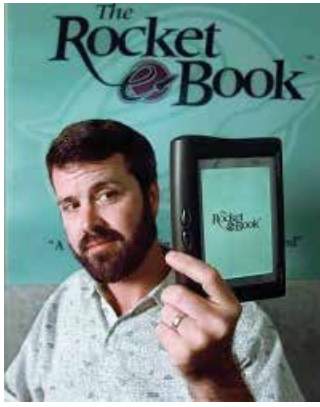
1955 – Universal Copyright Convention establishes protection for 50 years after an author's death

1959 – The first Xerox machine

Further developments for those who were unable or preferred not to read books came in 1969 when audio cassettes were first used for talking books, followed by the CD in the 1980s. Between the cassette and the CD, Project Gutenberg was launched by Michael S Hart in 1971.

Project Gutenberg and the Birth of the Ebook

Whilst at the University of Illinois, Michael Hart had access to a computer and after receiving a free printed copy of the Declaration of Independence on the 4th July 1971, he decided to type the text into the computer and save it for other users on the computer network to download for themselves. This marked the birth of the ebook and it became his life's mission to digitise as many books as possible, for dissemination to as many people without charge. By 2011, Project Gutenberg had 33,000 books and 60 different languages in its digital collection.^{vi}



By the turn of the millennium, books had been released on both CD ROMs and floppy discs and both Google and Amazon had been founded. Additionally, the first eBook readers had also been launched, known as the Rocket eBook and the Softbook.

In August 2012, Amazon reported that for the first time, sales of ebooks had overtaken sales of both hardback and paperback books. This rapid expansion and growth is expected to continue with predictions that the European ebook market will be worth \$19 billion by 2017^{vii}. Whilst many may lament that this digital reformation will mark the end of reading, the research suggests the reverse, with many users of ebook readers reading four times as many books as before.^{viii}

For those still concerned about the future of the book, the words of Michael Hart, may be a comfort;

“One thing about eBooks that most people haven't thought much is that eBooks are the very first thing that we're all able to have as much as we want other than air. Think about that for a moment and you realize we are in the right job.....Learning is its own reward. Nothing I can say is better than that.”^{ix}

i Roberts, Colin H.; Skeat, T. C. (1983), *The Birth of the Codex*, London: Oxford University Press, (p 1)

ii Further details of the location of the Gutenberg Bibles can be found at
<http://www.hrc.utexas.edu/exhibitions/permanent/gutenbergbible/other/#top>

iii Statistics cited at
<http://www.library.manchester.ac.uk/firstimpressions/-From-Manuscript-to-Print/Early-Printed-Books/Who-were-the-readers-of-early-printed-books/>

iv Cited on Manchester University's library website located at
<http://www.library.manchester.ac.uk/firstimpressions/-From-Manuscript-to-Print/The-Explosion-of-Print/From-the-printing-revolution-to-the-Reformation/>



v <http://www.hrc.utexas.edu/educator/modules/gutenberg/books/printing/>

vi For more information about Project Gutenberg visit the website at www.gutenberg.org

vii Statistic taken from:

http://blogs.forrester.com/michael_ograde/13-01-22-europe-will-be-the-largest-ebook-market-by-2017-worth-19-billion

viii Statistic taken from Amazon spokesperson interviewed in the Guardian newspaper, August 2012:

<http://www.theguardian.com/books/2012/aug/06/amazon-kindle-ebook-sales-overtake-print>

ix quotations taken from Dr Gregory B Newby's obituary for Michael S Hart, 2011 located at

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