

HEMP PAPER CHRONOLOGY.

During the first 500 years China kept the secret of papermaking from the rest of the world. This gave China an incredible edge in new inventions of paper and many of the uses of paper we take for granted such as paper money, playing cards, wallpaper, books, and many others originated in China.

CHRONOLOGY OF PAPER & PAPERMAKING

BY DARD HUNTER (conclusion by hemp.co.uk)

Because the hemp plant provided the pallet for the recording, the history of true pulp paper shows best the relationship of the hemp plant to the progress and civilization of human beings. Prior to the invention of true paper, that manufactured from disintegrated fiber, mankind had used many products of nature on which to draw, paint or carve their characters of language. Among these were bamboo strips, clay tablets, stone, tree bark, papyrus, animal skins, cloth and metals (lead, copper, bronze).



Egyptian papyrus from a framed Hemp Museum painting. Note how it is laminated in strips.

From a Hemp Museum modern painting on papyrus.

The used articles of human agriculture and industry made of hemp and other fibers were recycled into this invention, this pallet of ideas and knowledge known as paper. One in a million Americans know this important story. A summary of Hunter's chronology will bring us up to more modern times, hopefully with a more even, more comprehensive understanding of the role of Cannabis hemp in history. My interjections into this chronology will be bracketed [in this manner].



B.C. 2700. **Chinese characters conceived**; Ts'ang Chieh credited with the invention. [The ancient **Chinese symbol for hemp (left) is 4,700 years old**, and shows the male and female forms in a drying shed for fiber use. (Conrad, *ibid.*.)]

B.C. 2200. Prisse manuscript on papyrus, probably the oldest Egyptian document. Papyrus is a built-up, laminated material and should not be confused with true paper, which was not invented until about A.D. 105.



Hemp Museum framed modern painting on papyrus, 16 X 20 inches.

B.C. 1400-1300. The earliest actual evidence of writing in China is the incised divination bones discovered in Hunan Province in 1899...These writings upon bones consist of short sentences addressed to the spirits. It was, no doubt, the long, narrow form of the bones that influenced and suggested the method of Chinese calligraphy, vertical in form, from top to bottom.

B.C. 500 During the life of Confucius (551 -478 B.C.), China had no true ink and no true paper. Scholars wrote on strips of bamboo with a paint-like pigment held in the points of wooden sticks or reeds.

B.C. 400-300. Silk as a material for writing and books was used at this period, perhaps even earlier...strips of wood and bamboo remained in favor.

B.C. 255. First mention of the use of seals for impressing in clay, without the use of ink.

B.C. 250. Invention of the camel-hair brush by Meng Tien, eventually revolutionizing the writing of Chinese characters.

B.C. 200. An improved method of refining parchment from sheepskin thought to have been introduced by the King of Pergumum (197-158 B.C.), Asia Minor.

A.D. 105. According to Chinese history it was Tsai Lun in the year A.D. 105, who conceived the idea of making paper from the bark of trees, hemp waste, old rags (hemp), and fish nets (hemp) which were macerated in a stone mortar producing the pulp that is characteristic of true paper. Tsai Lun was an Imperial Guard, who announced the invention of papermaking to the Emperor Ho Ti (A.D. 89-105). For the next 500 years, the paper pulp process did not spread out of China. Paper was used for writing, bibliographical purposes, and ornamental use in houses and temples. [This 500 years gave the Chinese a tremendous advantage in developing the manufacturing and uses of paper.]

A.D. 150. An apprentice to Tsai Lun named Tso Tzu-yi was responsible for improving the craft of forming sheets of paper.

Paper dating from this period found in the Great Wall of China by Sir Aurel Stein. Made from rags.

A.D. 175. Text of Chinese classics cut in stone, which later gave impetus to the stone rubbings, a form of printing.

A.D. 250-300. Paper from this period found at Niya, Turkestan, by Sir Aurel Stein.

A.D. 264. **Earliest clearly dated paper.** Found in Loulan, China, by the Swedish explorer Dr. Sven Hedin.

A.D. 300. According to Chinese records, it was about this period that paper began to be universally accepted as a substitute for wood, bamboo, and silk as a writing material.

A.D. 400. **Invention to true ink from lamp-black**, used in China for brush writing and later for wood-block printing.

A.D. 406. The commencement of the Tun-huang papers. These manuscripts date from A.D. 406-1035., all written upon paper. Ten thousand rolls were found in one cave on the border of Chinese Turkestan.

A.D. 450. For the first time the Chinese made use of true ink in printing seals. The seals were engraved in stone, metal, wood, jade, bamboo, and horn and were used in the manner of a modern rubber stamp. This was the earliest instance of actual printing with an incised stamp with ink upon paper.

General use of paper in Eastern Turkestan, replacing all other materials for calligraphy. The paper was made from rags and barks.

A.D. 610. **Papermaking introduced into Japan from China**, the country from which Japan received all of her cultural and artistic development.

A.D. 650. Earliest use of paper in Samarkand [in modern Uzbekistan], the paper imported from China, the world's most highly developed Empire.

A.D. 707. Earliest use of paper in Mecca, the material brought from the seat of its invention, China.

A.D. 751. In this year paper was made in Samarkand, the first place outside China and Japan to understand the secrets of the craft, revealed by Chinese prisoners of war.

A.D. 770. **The earliest instance of text printing upon paper**, the million printed dharani (prayers) of the Empress Shotoku. The paper was made from hemp [100%] and the blocks used in the printing may have been of wood, metal, stone, or porcelain. A number of the dharani are still extant, but no printing block used in this work has ever been found. Each prayer was enshrined in its own individual 8 inch high wooden pagoda. The project took 6 years. While the work was actually executed in Japan, it was accomplished under Chinese influence and therefore this earliest of all text printing upon

paper should be regarded as almost purely of Chinese origin.

A.D. 793. Paper fabricated for the first time in Baghdad, introduced by Harun-al-Rashid (766-809), who acquired skilled artisans from China for the purpose.

A.D. 800. Earliest use of paper in Egypt, probably imported from Samarkand or Baghdad.

A.D. 868. The earliest printed book, the Diamond Sutra, printed by Wang Chieh. The book was found at Tun-huang by Sir Aurel Stein. The roll, the original form of true Chinese book, is sixteen feet in length. The Diamond Sutra was first printed in Japan in 1157.

A.D. 900. True paper made in Egypt for the first time, the methods of the Chinese employed.

A.D. 950. **Earliest use of paper in Spain.** First Folded books used in China.

A.D. 953. The block printing of Confucian classics as ordered by Feng Tao completed after twenty-one years of labor. With this impetus the craft of printing began on a much larger scale than at any previous time.

A.D. 960. During the Sung Dynasty (A.D. 960-1126) the highest development of printing took place, with a perfection of technical excellence never surpassed. All forms of literature were printed and much of this fine work remains in public and private collections.

A.D. 969. **Earliest recorded mention of playing cards, China.**

A.D. 972. The printing of the Buddhist Canon, comprising 130,000 pages. This was the Tripitaka, the three divisions or **A**askets of Buddhist scriptures: Discipline, Discourses, Metaphysics (China).

A.D. 998. By this date the amount of paper money in circulation in China had reached a total of 1,130,000 tiao. A tiao was a string of 1,000 cash, equivalent to about thirty cents in United States money [1940's], but having a far greater buying power.

A.D. 1035. The Persian traveler Nasiri Khosrau, on a visit to Cairo, was astonished to see, **A**ellers of vegetables, spices, hardware, provided with paper in which all they sold was immediately wrapped up, if it were not so already. **@** Probably the earliest recorded instance of "packaging, **@**so much in evidence today.

About this time waste paper was repulped and again used as material for papermaking. [Today called recycling.]

A.D. 1041-9. Invention of movable type in China by Pi Sheng. The Chinese language with its myriad characters did not lend itself to the use of movable

type and therefore the invention had but little use in China.

A.D. 1100. The earliest instance of papermaking in Morocco, having been introduced from Egypt.

First use of paper in Constantinople.

A.D. 1102. **Earliest use of true paper in Sicily.** [Almost 1,000 years after the discovery of true paper in China.]

A.D. 1109. Earliest existing European manuscript on paper, a deed of King Roger, written in Arabic and Greek, Sicily.

A.D. 1150. El-Edrisi said of the Spanish city of Xativa (now Jativa): **P**aper is there manufactured, such as cannot be found anywhere else in the civilized world, and is sent to the East and to the West. **@**

A.D. 1151. A stamping-mill for the maceration of rags for papermaking was put in operation in Xativa, Spain. This type of mill was adopted from the Orient and was used in Europe until the invention of the Hollander in 1680.

A.D. 1154. First use of paper in Italy, in the form of a register written by Giovanni Scriba, dated 1154 to 1166. It is thought that this particular paper had been imported from the East. No other specimens of paper are found in Italy until 1276, the date of the first mention of the Fabriano paper mills.

A.D. 1221. Emperor Frederick II (A.D. 1194-1250), King of Naples and Sicily, prohibited the use of paper for public documents, but the edict was not entirely effective.

A.D. 1228. Earliest use of paper in Germany.

A.D. 1250. Block printing executed in Egypt. The existing prints show Chinese influence.

A.D. 1276. First mention of the Fabriano, Italy, paper mills.

A.D. 1298. **After visiting China, Marco Polo wrote regarding the paper money he had seen** in use in that country. Paper money was the first form of printing seen by European travelers, and at least eight pre-Renaissance European writers mentioned it. The description given by Marco Polo was the most comprehensive and most widely read.

A.D. 1309. First use of paper in England.

A.D. 1319-27. Earliest use of paper money in Japan. This paper money was secured by a gold or silver or other metallic reserve.

A.D. 1322. Usually given as the date of the first use of paper in Holland.

A.D. 1348. Under this date it is recorded that a paper mill was established in the Saint-Julien region near Troyes, perhaps the earliest mill in France.

A.D. 1390. The King of Korea ordered the establishment of a type-foundry.

First paper mill in Germany, established by Ulman Stromer, Nurnberg. A woodcut of this mill is given in Schedel's *Nurnberg Chronicle*, 1493. Before the commencement of this mill the paper used in Germany was imported from Italy.

A.D. 1403. Movable type produced in the royal type foundry, Korea. Specimens of this type are in the museum in Seoul.

A.D. 1409. **Earliest known book printed in Korea from movable type.**

A.D. 1420-70. Papermaking introduced into Kashmir, India, from Samarkand, by King Zanulabin, popularly known as Budshah.

A.D. 1423. The beginning of block printing in Europe, by use of the ancient Chinese technique. Image prints and playing cards were printed from wood-blocks and colored by hand.

A.D. 1450-5. Johann Gutenberg's Bible produced. The beginning of book-printing in Europe and the commencement of the use of paper on a comparatively large scale. The paper used in the printing of this Bible has never been excelled for durability and remains to this day a monument to the papermaking craft. [Hunter expounds on the paper in his text (p.268).] No matter in what locality it was made, or in what particular mill, this paper shows technical skill and workmanship that is seldom encountered in modern times; the texture, strength, and tone have remained unchanged over almost five hundred years. Through the employment of bleach and chemicals, much of the machine-made paper and some of the handmade paper of our own time, even with the nearly five-hundred-year handicap, will no doubt suffer by comparison with that of the Gutenberg Bible in another such period, or about the year 2446. [Gutenberg's Bible produced 1340 years after the discovery of true paper in China in A.D. 105, and still employing hemp rags, along with flax and cotton.]

A.D. 1470. A bookseller's advertisement issued by Peter Schoffer is considered to be the first printed poster upon paper to be produced in Europe.

A.D. 1480. Anthony Koberger, printer of Nurnberg, **distributed a printed circular** to his customers, **probably the first use of this form of advertising.**

A.D. 1487. By this year almost every country of Europe had adopted printing, and large quantities of paper were consumed in the printing of books.

A.D. 1491. The first paper mill in Poland.

A.D. 1493. *Nurnberg Chronicle*, issued by Schedel, a pictorial history of the world embracing 645 woodcuts of 1,809 subjects...[including] the first picture of a paper mill to be used in a European book.

A.D. 1495. First paper mill established in England, by John Tate, in Hertfordshire. The first printer to make use of Tate paper was Wynke de Worde in the English edition of *Bartholomaeus De proprietatibus rerum*, 1496.

A.D. 1535. The first complete Bible in English, Myles Coverdale's translation, probably printed in Zurich by Christopher Froschover.

The first Bible to be actually printed in England dates from 1537.

A.D. 1549. The Spanish missionary Diego de Landa, of the Monastery of Izamal, Yucatan, burned the library of the Mayas in Mani. According to Dr. Victor Wolfgang von Hagen (*The Aztec and Maya Papermakers*, New York, 1944), the Mayas were making a sort of bark paper as early as the ninth century of our era.

A.D. 1550. **Wallpaper introduced into Europe** direct from China by Spanish and Dutch traders.

Probable date of the origin and use of marbled papers, a Persian invention.

A.D. 1575-80. **The first paper mill in Mexico** was established in Culhuacan.

A.D. 1576. The first paper mill in Russia was probably established in Moscow this year.

A.D. 1580. First commercial pasteboard manufactured in Europe. In China and Persia board of this kind had been made centuries earlier.

A.D. 1586. The earliest mention of national papermaking in Holland.

A.D. 1589. European printing introduced into China by Jesuit priests. In 1591 Japan received printing from the West for the first time.

A.D. 1609. The earliest newspaper with regular publication dates, *Avisa Relation oder Zeitung*, published in Germany. The first English newspaper was issued in London in 1622. The earliest Russian newspaper appeared in 1703.

A.D. 1630. **Paper cartridges [for guns] first used** by Gustavus Adolphus (1594-1632), King of Sweden from 1611 to 1632.

[A small book, *Good Order Established in New Jersey and Pennsylvania*, by Thomas Budd, proposed an economy for the region based on growing hemp and flax for the production of linen cloth to be sold in England. Store houses

for the crops were to act as banks. Taxes could be paid in hemp and flax. Budd also proposed public schools and student labor spinning the linen. A modern copy of this tract is in the U.S.A. Hemp Museum Library.]

A.D. 1636. E. and R. Greenbury granted the first English patent for the decorating of **A**aper for hanging **@**r wallpaper.

England visited by a plague thought to have been brought into the country through linen and cotton rags imported by the papermakers. [Yes, hemp was there too.]

A.D. 1638-9. First printing press set up in North America by Stephen Daye, at Cambridge, Massachusetts. The first printing executed was a broadside on paper: *The Freeman's Oath*; first thing in book form, *Peirce's Almanack for 1639*; earliest existing specimen of Cambridge printing: *John Eliot's Bay Psalm Book*, dated 1640.

A.D. 1661. First New Testament printed in America, John Eliot's translation into Algonquin, printed at Cambridge, Massachusetts, by Samuel Green and Marmaduke Johnson. The Old Testament was issued in 1663, the two making the first Bible printed in this country. The paper was of European manufacture.

A.D. 1666. To save linen and cotton for the papermakers a decree was issued in England prohibiting the use of these materials for the burial of the dead; only wool could be used for this purpose. In England at this time 200,000 pounds of linen and cotton were saved annually in this manner.

A.D. 1680. The **A**ollander, **@**r beater, used in the maceration of materials for making into paper, invented in the Netherlands.

A.D. 1683. The earliest treatise on type founding, *Mechanick Exercises*, by Joseph Moxon (1627-1700), published in London.

A.D. 1687. The earliest use of ochre, umbers, and vermilion in the coloring of European paper.

A.D. 1690. First paper money in the colonies, issued by Massachusetts Bay Colony.

William Rittenhouse established the **first paper mill in British America**, near Germantown, Philadelphia, Pennsylvania.

A.D. 1704. *The Boston News Letter* established in Boston by John Cambell, the earliest permanent newspaper in America.

A.D. 1710. The second paper mill in the colonies set up by William DeWees, Pennsylvania.

A.D. 1714. Invention and patent of a typewriter for **A**ranscribing of letters, one

after another, as in writing on paper. The patent was issued in England, January 7, to Henry Mill.

A.D. 1718. First colored printing (red and black) accomplished in America, by Andrew Bradford, Philadelphia.

A.D. 1719. Establishment of *American Weekly Mercury*, Philadelphia, the first newspaper in Pennsylvania.

First suggested use of wood as a papermaking fiber. French scientist Rene Reaumur's observations were made after a study of the wasp in making its nest, a form of paper.

A.D. 1726. The beginning of papermaking in the state of New Jersey.

A.D. 1729. Third paper mill in Pennsylvania established in Chester County by Thomas Willcox.

A.D. 1736. The fourth paper mill in Pennsylvania, established by a branch of the Pietists of Germany, at Ephrata, Lancaster County.

A.D. 1737. The earliest advertisement for foreign wallpaper to appear in America...In 1763 decorated wallpaper of domestic manufacture was presented...In 1789 Philadelphia was making 10,000 pieces a month.

A.D. 1743. **America's earliest complete Bible** in a European language published in German by Christopher Sauer, Germantown, Pennsylvania. Some of the paper from the Ephrata mill.

A.D. 1744. The date of the establishment of the first paper mill in the state of Virginia.

A.D. 1758. First forgery of English bank-notes.

A.D. 1764. First paper mill in Rhode Island.

A.D. 1767. First paper mill in Connecticut was in operation.

A.D. 1769-73. The precise commencement of the actual making of paper within the state of New York is a subject of controversy [but around this time].

A.D. 1770. About this time came into use the first machine for the ruling of music paper and paper for account-books. An English patent was granted John Tetlow on June 15 of this year. Previous to this time all music and account-book paper was ruled by hand.

A.D. 1772. **First use of paper in Europe for building coaches, sedan chairs, cabinets, bookcases,** screens, etc.

A.D. 1773. An act was passed in England that decreed the death penalty for copying or imitating the watermarks in English bank-notes.

A.D. 1774. Karl Wilhelm Scheele (1742-86), a **Swedish chemist discovered chlorine**, which was in later years used in the bleaching of paper stock.

A.D. 1776. [From Hunter's text p.16: **A**thomas Jefferson's rough draft of the Declaration of Independence is written on four pages of Dutch paper...and may have been from any of a dozen mills...The original Declaration was adopted on July 4, 1776...The officially signed Declaration of Independence was engrossed upon parchment [animal skin] by order of the Congress of July 19, 1776.

A.D. 1782. First Bible printed in America in the English language, by Robert Aitken, Philadelphia. The volume embraces more than 1400 unnumbered pages, the page size being 3 2 by 6 inches.

A.D. 1783. Joseph Michel Montgolfier (1740-1810), famed papermaker of France, invented **first practical balloon**. [Want to bet hemp was there?]

A.D. 1793. The earliest mention of a Kentucky paper mill that actually materialized. The mill was erected in Georgetown in what is now Scott County.

A.D. 1798. **The paper-machine invented by Nicholas-Louis Robert, a Frenchman.**

A.D. 1800. Connecticut had sixteen paper mills in operation.

Matthias Koops, living in London, began his experiments in the use of wood, straw, and the de-inking of paper. The greater part of the present-day paper industry is founded upon the pioneer work of Koops.

Germany operated 500 paper mills, producing 1,250 tons of paper a year; Spain had 200 mills, Sweden 24, and Russia 26.

A.D. 1801. John Gamble on April 20 received the earliest English patent pertaining to the paper-machine. The title of this patent is: **A**n invention of making paper in single sheets without seams or joining, from one to 12 feet and upwards wide & from one to 45 feet and upwards in length.

A.D. 1802. Probably the earliest use of bleached wood-pulp paper in English book production. The book, and edition of The Mathematical and Philosophical Works, to which is prefixed the author's life, by the Right Rev. John Wilkins, was printed in London by C. Whittingham.

A.D. 1803. First paper produced in Lower Canada.

A.D. 1806. The date of the earliest known paper mill in South Carolina. The

first letter relative to the paper mill is from Benj. Waring to Richard Waring. The letter reads: **A**.I suppose you have heard of my erecting a Paper-Mill. Let me know if it would be convenient for you to purchase or receive old Rags and send up here by boat. **O**n this letter is set forth the importance of rags to a paper mill, a plea that is ever present all through the history of pioneer American papermaking.

A.D. 1810. The total number of paper mills in the United States is estimated to be 185, with Pennsylvania (60) and Massachusetts (48) the leading states.

A.D. 1816. By act of Congress of April 26 a thirty-per-cent duty was placed on all imports of paper into the United States. By 1820 there was being made in this country \$3,000,000 worth of paper; by 1830 the volume had risen to \$7,000,000.

Bishop records that the **first steam paper mill in the United States** was put in operation in Pittsburgh, Pennsylvania.

A.D. 1817. First **paper-machine erected in America**, a cylinder machine operated in the mill of Thomas Gilpin, near Philadelphia. The original machine did the work of ten vats of the handmade mills.

A.D. 1822. The completion of *ReeRee's Cyclopedia*, Philadelphia, up to that time the largest work in the English language. The printing of this 41-volume work with 147 engravings required 30,000 reams of paper.

A.D. 1824. **The first machine for pasting sheets of paper together, forming cardboard.** The patent was granted to John Dickinson, the inventor of the cylinder machine.

A.D. 1829. Of the sixty paper mills in Massachusetts, only six had paper-machines. The rest were handmade-paper mills. By this time many of the rags were imported from Germany and Italy.

A.D. 1830. **Commercially made sandpaper** produced about this time, one side of the paper being brushed with glue, and sand, ground glass, or emery dusted upon the paper. Previous to this date most workers made their own abrasives by coating ordinary canvas or heavy paper with glue and sprinkling sand upon the surface.

Bleach, invented by Scheele in 1774, first used by American papermakers in bleaching rags for making paper.

A.D. 1834. The earliest papermaking in the state of Missouri. Printing, however, was accomplished in this state as early as 1808 by Joseph Charless, but the paper used came from Georgetown, Kentucky. [Missouri became part of the United States through the Louisiana Purchase of 1803. And was admitted to the Union as a slave state in 1821. Missouri stayed with the Union during the Civil War.] The Missouri Gazette, established by Charless, had no

end of difficulty in procuring paper for publication, and in March 1809 the newspaper was printed on letter paper; in the publication of January 1814 the editor complained that there was no regular trade with Kentucky, where funds has been sent and the paper awaited a trader bound for Missouri. As early as January 1834 the newly established Missouri mill advertised for rags: **A**ood, clean linen and cotton rags 3 cents per pound, for woolen 10 cents, and jean rags 1 cent per pound. **@**But apparently it was not until the latter part of the year that the mill was actually in operation, when the Missouri Intelligencer, December 27, 1934, announced the event in the following manner: **A**he paper on which this number of the Missouri Intelligencer was printed, was made at the paper mill of Messrs. Lamme, Keiser & Company, in this county (Rock Bridge, near Columbia, Boone County). It is a fair specimen of what may be expected when the mill has been longer in operation. This is the only establishment of the kind in Missouri or Illinois, and the worthy and enterprising proprietors, who have expended a large sum in the undertaking, merit, and we sincerely hope, will receive a liberal and general support from the printers and merchants of the two states, -particularly Missouri. The machinery is entirely new, and the whole establishment is on an extensive scale...We are sorry to see that the new Journal at Fayette, only 25 or 30 miles from the mill in Boone, is printed on something probably called paper, but possessing neither soul or body, of which we understand, the editor procured a large supply from Cincinnati! We hope we will not have occasion hereafter to say the same in reference to any other editor in Boone **=** Lick. **@**The first paper manufactured in Missouri was made on a paper-machine [of unknown type].

A.D. 1837. The first use of old manila rope as a papermaking fiber in the United States. Owing to the depression Lyman Hollingsworth, South Braintree, Massachusetts, was forced to use this material as a substitute for linen and cotton rags, and a new source of material was inaugurated.

A.D. 1841. Charles Fenerty, a Nova Scotian, produced in Halifax **the first ground-wood paper made in the Western Hemisphere.**

A.D. 1842. Will Egley, an English artist, produced the **original Christmas card**, an idea that was eventually to consume prodigious quantities of paper and cardboard in all countries where Christmas is celebrated.

A.D. 1844. **The first commercial paper boxes made in America**, by Colonel Andrew Dennison, a cobbler, at his home in Brunswick, Maine. This was the commencement of the Dennison Manufacturing Company.

A.D. !845. Massachusetts had 89 paper mills producing 600,000 reams of paper a year...By this year only two handmade-paper mills remained in America; all other mills were operating paper-machines. Germany was operating 1,043 vats for forming paper by hand.

A.D. 1847. First postage stamps used in the United States, founded on the George Plitt report on the **A**enny black **@**f England, used in 1840.

A.D. 1850. **Paper bags** made for the first time, entirely by hand. The earliest automatic paper-bag machine was built in 1876. (In the United States during the year 1941, 50,000,000,000 paper bags of all sizes were consumed.) [U.S. population has doubled since 1941.]

A.D. 1851. **First useful paper made from chemical wood fiber** originated by Hugh Burgess and Charles Watt. The process was patented in the United States in 1854.

A.D. 1854. The earliest paper to be made in Utah was formed by hand by Thomas Howard, an English Mormon, assisted by Thomas Hollis. The small beginning was sponsored by Brigham Young (1801-77) and the Mormon Church...The first sheets of paper were produced on June 27, 1854 and probably found their original use in the printing of the Deseret News, Brigham Young's newspaper, which began publication in Great Salt Lake City, June 15, 1850...this notice appeared in his newspaper: **Rags! Rags! Rags! Save your rags, everybody in Deseret, save your rags; old wagon covers [hemp], tents [hemp], quilts [hemp and flax], shirts [hemp], etc., are wanted for paper. [First mill opened in the Far West.]**

A.D. 1856. By this year the consumption of paper in the United States had reached a point where it equaled that of England and France combined.

A.D. 1856-7. The first paper-mill to be established in California and the second in the Far West.

A.D. 1860. **As late as this date rags formed 88 per cent of the total papermaking material.**

It is claimed that I. Augustus Stanwood and William Tower produced ground-wood paper in their mill in Gardiner, Maine, in January of this year.

[Birth of George Washington Carver, Circa 1860. Born the slave of Missouri landowner Moses Carver, George became the foremost agricultural scientist America has ever seen.]

A.D. 1865. Between this date and 1885 a larger number of patents relating to papermaking were issued by the United States Patent Office than had ever been known in the history of any country.

A.D. 1867. Albrecht Pagenstecher, Curtisville, Massachusetts, established the first ground-wood mill in the United States.

A.D. 1868. **By this time paper was being converted into articles for almost every conceivable purpose: boxes, cups, plates, wash-bowls, barrels, table tops, window blinds, roofing, collars, vests, cuffs, aprons, towels, napkins, shirt bosoms, buttons, hats, handkerchiefs, raincoats, corsets, slippers, petticoats, curtains, carpets, machine belts, etc...** song entitled The Age of Paper was popular in London music halls.

The New Yorker Staats-Zeitung ...was printed on American newsprint made from ground-wood pulp, the first New York City newspaper to use paper made of this material.

The making of fine paper for printing and writing began near Melbourne, Australia.

Previous to this time the supply was imported from the United States and Europe.

A.D. 1871. **The earliest use in America of toilet paper in roll form**, a United States patent issued to Seth Wheeler this year. [Toilet paper first seen in China A.D. 875.] The use of toilet paper did not progress rapidly, but by 1899 it was used universally. In 1940 there were consumed in the United States 300,000 tons of toilet paper.

Building paper was first extensively used in America directly after the Chicago fire, when the Western Paper Company made the paper for lining 10,000 houses to accommodate those made homeless by the conflagration.

A.D. 1880. At this time there were about 350,000 tons of rags used yearly in the United States in the making of paper; of this amount approximately 85,000 tons were imported from foreign countries.

The first ground-wood pulp produced on the Pacific coast was made by R. M. Brayne on Young River, about 12 miles south of Astoria, Oregon...later the Willamette Pulp and paper Company.

A.D. 1882. Sulphite pulp first made in the United States on a commercial scale, by C .S. Wheelwright, Providence, Rhode Island.

[According to Hunter: **This sulphite pulp is made by a chemical acid process** which ...embodied the application of sulphurous acid to wood to effect the dissolution of the intercellular matter, leaving a fiber sufficiently strong to felt properly in sheet form...

THE EFFECT OF WOOD PULP ON THE INDUSTRY (P.393)

Wood as a raw material made possible the phenomenal growth of the paper industry and furnished a material that conserved the supply of rags for use in making fine papers. Wood now serves not so much as a substitute for rags, as originally intended, but as a more important material for increasing the scope and variety of papers to meet an ever growing demand for new uses for paper...

At present there are comparatively few plants and a limited number of trees that will yield cellulose economically for quantity production. The plants are those containing vegetable fibers in the form of cotton, flax, **hemp**, jute, sugar cane, straw, esparto, and corn stalks. Of the trees there are spruce, balsam, fir, jack pine, hemlock, southern pine, poplar, and cottonwood.

A.D. 1888. Sulphite pulp produced in Canada, by Charles Riordon, Merritton, Ontario.

A.D. 1889. For the first time in the **United States** paper-production exceeded **1,000,000 tons per annum.**

A.D. 1891. Paper as insulation in telephone cables used by the Bell System; The paper was .0025 inch in thickness.

A.D. 1894. About this time automatic machines for the making of paper boxes were in general use, the beginning of the packaging era.

[George Washington Carver, agricultural scientist, made paper from Southern Pine, almost 25 years before it was made on a commercial scale.]

A.D. 1895. According to the Worlds Paper Trade Review, London, a **church made of paper** was built in England this year. The building material was made of compressed brown paper reinforced with wire. The edifice, the Church of St. Owen, is located in the village of Downham-in-the-Isle. From the account it may be assumed that the building is serving its purpose at the present time and from all indications it is sufficiently durable to withstand the rigors of the English climate for another half century.

Plain and decorated paper napkins first brought to this country from Japan on a large commercial scale. (In 1940 the United States used 40,000,000,000 paper napkins of all types and from all parts of the world.)

A.D. 1899. **Production of paper in the United States was 2,167,593 tons.**

[A.D. 1900. According to Jack Frazier, by this year all newspapers and most books and magazines were printed on chemical acid tree-pulp paper (Conrad, p.116.)]

A.D. 1901. In England at this time compressed paper had become a standard material for the construction of hansom cabs, interiors of railway carriages, drain pipes, oil drums, and military hospital buildings. In America the use of paper in heavy construction had begun earlier.

A.D. 1903. First use of corrugated fiber containers, replacing wood boxes to a great extent. The use of fiber boxes was authorized by the railroads of the United States in 1906.

A.D. 1906. The first paper milk-bottles made this year by G. W. Maxwell, San Francisco, California.

A.D. 1907. By this date medicated papers were in universal use. These antiseptic papers included gout papers, Christy's chrome-gelatine for bandaging, East Indian paper plaster for slight flesh wounds, mustard paper, Ricou's anti-asthma paper, blister paper, Gautier's nascent iodine paper,

hygienic paper handkerchiefs, towels, etc.

A.D. 1910. About this time the wrapping of bread in printed paper became universal in America. Also the wrapping of fruit in paper had its beginning.

A.D. 1915. The earliest use in California of paper trays for the drying of raisins. In 1940 more than 80 per cent of the raisin-drying trays were made of paper [wood-pulp]. Previously they were fabricated from wood.

[A.D. 1916. United States Department of Agriculture Bulletin 404, **Hemp Hurds as Paper Making Material**, by Lyster Dewey and Jason Merrill, gave a dire warning about the dangers of using tree pulp for paper. **Our** forests are being cut three times as fast as they grow. Our forests are being cut three times as fast as they grow. ...It is advisable to investigate the paper-making value of the more promising plant materials before a critical situation arises. **Bulletin 404** proved the value of hemp hurd or pulp for paper. The report noted that hemp produces a new crop every season, while trees took 20 years to be ready for cutting, and hemp yielded more than four times as much pulp per acre as timber, making it a cheaper and more sustainable source for all grades of paper. It also declared that hemp is easy to produce, treat, and transport and is fully adequate to the task: **The** permanency of the supply of hemp seems assured. **Bulletin 404** noted that **Hemp** hurd (pulp) stock acts similarly to soda-poplar stock, but will produce a somewhat harsher and stronger sheet and one of higher folding endurance....In fact, the hurd stock might very possibly meet with favor as a book-stock furnish. **@**

The conclusions of USDA Bulletin 404, 1916, are timely today and bear repeating:

There appears to be little doubt that under the present system of forest use and consumption the present supply can not withstand the demands placed upon it. By the time improved methods of forestry have established an equilibrium between production and consumption, the price of pulp wood may be such that a knowledge of other available raw materials may be imperative.

Mechanical Engineering magazine declared hemp **the most profitable and desirable crop that can be grown.** **@**(Conrad, ibid.)]

[A.D. 1938. Popular Mechanics magazine dubbed hemp the **New Billion Dollar Crop** **and** predicted a bonanza for farmers and industry alike, in a report prepared in 1937. With its 25,000 viable uses, hemp will provide thousands of jobs for American workers throughout the land, reported the magazine.]

A.D. 1940. Production of paper in the United States, 14,372,000 tons. About this time newsprint to the amount of 8,971,000 tons produced in the world, Canada making two fifths of this. In the Northwest of the U.S. at this time 350 carloads of paper consumed each season in wrapping fruit and 57 carloads for paper twine used in the tying of wool. The U.S. used 40,000,000,000 paper

napkins this year and 300,000 tons of toilet paper. During the year 1941, 50,000,000,000 paper bags of all sizes were consumed. In 1942, the Christmas card industry in the U.S. produced three billion cards. In 1945, it stated that there are 14,000 different paper products.

The chronology of Dard Hunter ends here. As can be seen here paper consumption in the United States went from one million tons per year in 1889 to over 14 million tons per year in 1940. According to Conrad, 93 per cent of the worlds paper is made from timber and only 29 per cent of that is recycled. Worldwide, 226 million tons of trees were pulped for paper in 1988, and at current growth rates the demand will triple by the year 2020.

The idea of this chronology was to make you believe there was hemp, since we were not taught about this incredible plant in school, and to educate you about the relation of hemp, paper, and timber.

Today, hemp is being produced around the world, with major manufacturers in Canada and Europe. Hemp paper is now reaching mainstream office supply companies, such as Staples and is being used in consumer products such as [CD inserts](#)

Maybe we do need to consider options for clearfelling of virgin, old-growth forests that are still being logged today in South America, Australia and other places 'we might not notice'.

Our children will notice what choices we make today.

more hemp at www.hemp.co.uk