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Animal, Vegetable and Mineral: Writing Materials Through the Ages

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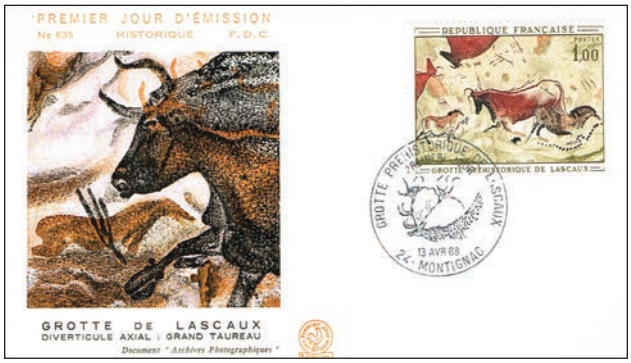
Today all our written or printed communication is produced on paper, a cheap, lightweight and very convenient material. But paper was invented only 2,000 years ago, and man has been recording things since the Palaeolithic period. A wide variety of raw material has been used, as this article illustrates.

There were two major considerations in choosing what to write on. One was availability: Stone Age people for instance painted and incised rocks, producing spectacular cave paintings and carvings still admired to this day (fig 1). In the Middle East, where clay was plentiful, clay tablets were used, and Asian



1. France, 1968 [Sc1204]. Cave painting, Lascaux, around 15,000BC.

cultures made use of large, smooth leaves, particularly palm. The other consideration was the stage of technological development reached by a society, since some raw materials such as metal, papyrus or vellum needed various processes applied to turn them into writing materials.

The oldest material was stone. It requires little or no preparation and is easily available in many parts of the world. Carving into stone is skilled hard work but produces something which will not perish, making it the material of choice for sacred texts and official pronouncements such as laws and heroic deeds of rulers (fig 2). Traditionally the Biblical Ten Commandments were on stone; other examples include the Indian Emperor Ashoka who had edicts inscribed on stone pillars in the 3rd century BC (fig 3). Similarly the Chinese Emperor Qin Shi Huang (259-210 BC) had his feats recorded on stone tablets. Much of our knowledge of ancient Egypt comes from stone inscriptions; indeed the decipherment of hieroglyphics started with the translation of the Rosetta Stone (figs 4-5), a decree of Ptolemy V from 196 BC written in ancient Greek, Egyptian demotic, and Egyptian hieroglyphs.

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2. Croatia, 2000 [Sc436]. Baška Tablet, Glagolitic script, c.1100AD.

3. Nepal, 1996 [Sc592]. Ashoka Pillar.

4. Left. Egypt, 1972 [ScC153]. Rosetta Stone.
5. Right. Egypt, 1999 [ScC237]. Rosetta Stone.

THIS ISSUE

Cont. from pg 37 We still use stone today when we need something permanent, such as gravestones, memorials and plaques. And some of us still remember school blackboards which were originally slabs of slate mounted on a wooden frame.

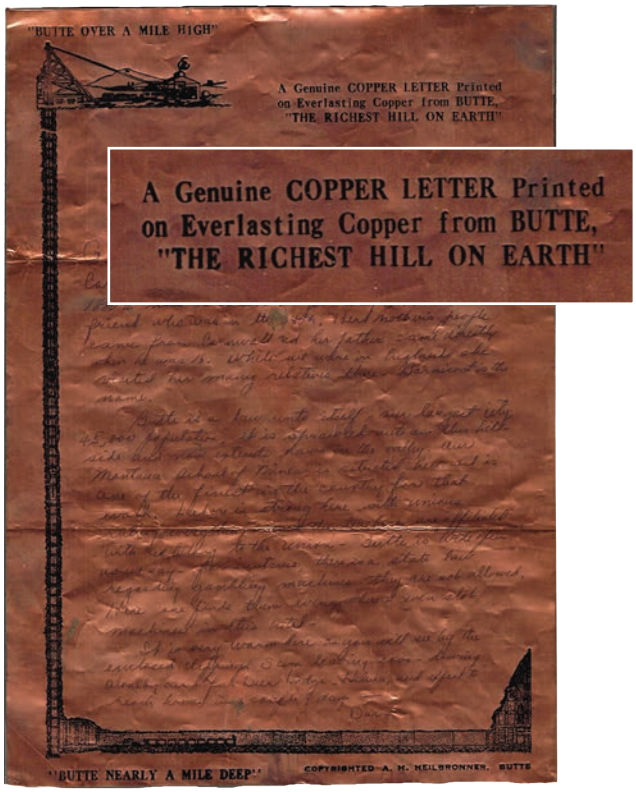
Whilst the very earliest human records are cave paintings, writing—the use of signs and symbols to represent language—began in the Middle East. As sophisticated societies developed, so did the need to record things including laws and trade records (not to mention tax returns). Clay tablets, the writing material of ancient Mesopotamia, were the first reliable form of writing material produced by artificial means (figs 6-8). Symbols were inscribed with a reed pen into wet clay and the tablets then dried in the sun, or, if the text was sufficiently important, baked in a kiln. Examples still survive from the 4th century BC. The texture of the material influenced the development of the script: it was rather difficult to draw circles, curves and fine lines on wet clay, and in consequence the early symbols developed into wedge shaped strokes. This writing is known as cuneiform, a word which means "wedge-shaped". Clay is not only a soft writing material, it can even be used to make envelopes. Important documents were written, dried, then enclosed in clay 'envelopes' to be baked; thus the recipient received a sealed tablet which had not been read by anybody else. At the other end of the scale, casual, ephemeral notes were sometimes scratched on to broken pottery pieces – an early form of recycling! These shards are known as ostraca (fig 9). (Incidentally our word "ostracize" comes from the Athenian practice of choosing whether to exile a citizen by scratching the name of the person on a piece of pottery which acted as a voting form. The votes were counted, and if unfavorable the person would be exiled from Athens for ten years.)

6. Top left, Austria, 1965 [ScB316]. Clay tablet.
7. Top right, Israel, 2008 [Sc1757]. Clay tablet. Letter from Ugarit, 1230BC.
8. Bottom, Iran, 2005 [Sc2908d]. Cyprus Cylinder, c.530BC.

9. Israel, 2008 [Sc1756]. Ostraca. Lachish letter, 589BC.

Various metals have been used for writing, including iron, bronze, copper and tin (figs 10-13). Lead was popular because it is quite soft and could be easily beaten into thin sheets, inscribed and then rolled up for storage; Pliny refers to lead sheets being used for writing. The Roman laws are supposed to have been kept on the Capitol, inscribed in bronze. Precious metals

10. Above left, China, 1996 [Sc2719]. Iron scroll, Ming Dynasty.
11. Above right, Cyprus, 1976 [Sc457]. Bronze tablet, 6th century BC.
12. Right, Jordan, 1974 [Sc790]. Copper scrolls.



13. Letter dated July 22, 1946, written on a sheet of copper produced at Butte Copper Mines, Montana. Inset, enlarged statement about copper letter from top right of letterhead.

14. Austria, 1965 [ScB317]. Wooden tablet with slightly hollowed-out surface filled with black wax, from a mural at Pompeii.

were sometimes used to stress the value of a religious text or to announce the wealth and importance of the person sending the message.

Stone and clay in particular have the advantage of permanence, and texts written many centuries ago still survive. This, of course, is not true for most records using vegetable fibers. In many places wood was as readily available as stone, and since it required no metal tools to work it, it was somewhat easier to use, but far less has survived. Wooden tablets could be fashioned in various shapes and sizes; they could be covered with chalk, mud, brick-dust or wax (fig 14), lacquered, varnished or polished, or simply left in their original state. The ink could be applied by pen or brush, or incised with a sharp instrument. Wood was used in many civilizations in both the West and the East. Bamboo was an obvious choice in China, where it could be fashioned into small slips, tablets or long canes. If necessary, several bamboo canes could be tied together with a silk cord (figs 15-18). Birch bark was used in Asia and in Europe, particularly Scandinavia and Russia (figs 19-20), and cork (the bark of the cork oak) could also be used. In 1973 archaeologists working at Hadrian's Wall discovered what they at first thought were wood shavings, but were later identified as letters on thin postcard-size pieces of birch, alder and oak. These Vindolanda tablets are the oldest surviving handwritten documents in Britain.

15. Left, China, 1996 [Sc2718]. Bamboo slip, Han Dynasty.
16. Right, China, 2012 [Sc4047a-b]. Bamboo slips, Qing Dynasty.

17. Top, China, 2001. Strips of bamboo sewn together. Postal stationery card, front.
18. Back of postal stationery card.
19, Below left, Russia, 1978 [Sc4716]. Birch bark letter.
20, Below right, Belarus, 2008 [Sc653]. Birch bark letter.

The easy availability of wood still renders it useful if there is a shortage of paper. Postcards have been used in the twentieth century written on wood (fig 21), and this Swedish example from 1912 (fig 22) shows both the envelope and enclosed letter written on birch bark. Postal authorities have not missed the opportunity to produce *cont.on next page*

21. Left, Wooden postcard sent Warsaw to London, 26 Nov 1907 (Julian calendar).
22. Below, Brich bark letter and envelope from Sweden to USA.

23. Top left, Switzerland, 2004 [Sc1188]. Wood veneer.
24. Top right, Spanish Andorra, 2011. Cork.
25. Bottom left, Ecuador, 2009 [Sc1973]. Cork.

gimmicky stamps printed on wood or cork as a way of promoting sustainable wood industries (figs 23-25).

In India and parts of Asia, palm leaves were a standard writing material. Because they are fragile and easily destroyed by damp and insects, few very early examples survive, but according to tradition Buddhists had committed their scriptures to palm leaves by the 6th century BC. Three species of palm provided suitable writing material: the talipat palm, one of the largest palms in the world; the palmyra palm and the lontar palm. To prepare palm leaves for writing, each leaf was separated from its central rib, cut to size, then soaked, boiled and dried, and then rubbed smooth with a cowrie shell or stone. The strips were then secured between wooden boards (figs 26-28).

Vegetable fibers such as flax or cotton are also used to make cloth, and some have been (and still are) used for writing. In China, silk was being used for letters, literary composition and official documents by the time of the Eastern Han (25 – 220 AD). Thai silk is still produced to a high quality today (figs 29-30). Cotton was first used in India, treated with a paste made of wheat or rice powder, dried and then

26. Left, Laos, 2003 [Sc1595]. Palm leaves.
27. Left, Laos, 2003 [Sc1594]. Monk writing on palm leaves.
28, Right, Ceylon, 1970 [Sc451]. Palm leaf manuscript bound with boards.

29. Left, Thailand, 2000 [15b, Sc2519; 25b, Sc2522]. Stamps printed on silk.
30. Above, Poland, 2008 [Sc3927]. Silk-screen printing on silk.

rubbed smooth with a cowrie shell or a stone, producing a firm yet flexible material well suited to writing letters and whole manuscripts. Linen was used in ancient Egypt where mummy wrappings dating from the 6th dynasty have been found inscribed with passages from the Book of the Dead.

Lastly in the 'vegetable' group we have the wetland sedge plant papyrus (figs 31-32), once abundant in the Nile Delta. Papyrus was one of the most successful writing materials of all time with earliest surviving examples dating back to 3,300 BC.

Pieces were cut from the inner stem of the plant; laid cross-wise one layer on top of the other; pressed or beaten together; then dried in the sun. Rolls were made by gluing sheets together, and it was produced in a wide variety of different qualities from fine thin pale sheets to thick brown sheets (fig 33). Because papyrus was brittle, important documents were sometimes stored in earthenware pots, glass containers or parchment envelopes (fig 34).

Production was a state monopoly first of Egypt, and then of Rome and Byzantium. In its heyday large

plantations flourished around manufacturing centers including Alexandria, Memphis and Sais. It was the ideal writing material, being smooth, light and pliable, and it was used throughout the Mediterranean world, being the

31. Left, Israel, 1953 [ScC15]. Papyrus plant.
32. Middle, United Arab Republic, 1966 [ScCB1]. Papyrus plant.
33. Right, Germany (East), 1981 [Sc2207]. Ebers papyrus.

34. Russia, 1979. Papyrus scrolls in a jar.

main writing material in the Roman Empire until the fourth century AD.

Finally we come to the skin and bones of animals. Tortoiseshell was rare and precious and used mainly in ancient China (fig 35). In the Shang period in China (1766 – 1122 BC), bones were used for divination. A question was carved into the bone and a heated bronze poker then applied to the back of the bone, causing cracks which were interpreted by a diviner (fig 36). Another precious material was elephant tusk ivory, used in Southeast Asia. Lengthy parts of the Buddhist canon were written on large, thin sheets of ivory by means of raised lacquer letters.

35. China, 1996 [Sc2717]. Tortoiseshell, Shang Dynasty.

36. China (Taiwan), 1979 [Sc2139]. Tortoiseshell oracle bones, Yen Dynasty.

More common than bone was the use of skin, normally of sheep, cattle or goats. It will decay quickly if not treated, but by smoking/curing then treating it with oil to turn it into leather it becomes durable and flexible. However leather is quite bulky and heavy, and the leather side is smoother to write on than the suede side, though that did not deter the vogue for leather postcards in the early twentieth century (figs 37-38).

Experiments to improve leather resulted in parchment and vellum. Credit for the invention of parchment traditionally goes to Eumenes II of Pergamum (197 – 158 BC). Though parchment does take its

37. Top. Leather front of a USA postcard.
38. Bottom. Suede back of postcard above, Sewickley to Ledbury, 14 January 1907. Franked 3-cents, so underpaid by 1-cent, endorsed circled 'T' to pay, and '2D I.S.G.' postage due payment (double deficiency).

name from the city of Pergamum (Greek Pergamene; Latin Pergamina; French Parchemin), it was actually the result of gradual development. While the words parchment and vellum are often used interchangeably these days, strictly speaking vellum (the finest material) is made from calf skin and parchment from sheep or goats. In both cases the manufacturing process was the same. Firstly the skin was soaked in quicklime allowing the hair and flesh on both sides to be scraped off. After a second soaking and scraping it was stretched tightly on a frame to stretch the fibers (the thinner the parchment the finer the quality), dried and finally rubbed with pumice (fig 39).

Fragments of parchment survive from the 2nd century BC, and its use together with papyrus is illustrated by the Dead Sea Scrolls which are primarily written on parchment (fig 40) but with some on papyrus (and a few on metal). By the 2nd century AD it rivaled papyrus in the *cont.on next page*

39. Above. Commemorative cancel for "Levroux: Son Cuirs et son Parchemin", 27 October 1987. Levroux is a center of production for both leather and parchment. There is a museum on the subject in the town.

Roman world, and later in Europe it became the favored writing material until the late Middle Ages (fig 41).

The invention of parchment led to the book as we know it. Historically most writing materials used one side only, with long documents glued end to end and rolled up to make scrolls. (The Master of the Rolls, one of England and Wales' most senior judges, gets his name from his antecedents being responsible for keeping the rolls of the Court of Chancery.) Parchment consisted of single skins, broadly rectangular in shape after trimming, which could be written on both sides. These could be bound together and each page turned over. The 'codex', or book, was born. Parchment wasn't cheap. A large lectern Bible such the wonderful Book of Kells or Lindisfarne Bible required around 150 skins, literally a flock of animals. But it was very durable, and even after paper started to be produced in Europe, many documents were still written (and printed) on parchment. It is still used by some artists today.

40. Above, Yemen, 1969. Dead Sea Scrolls, parchment.

41. The Declaration of Arbroath, 1320. Pane from the Scots Connection *prestige booklet, 1989.*

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This article first appeared in the April 2014 issue of the UK's Stamp Magazine.

Martha Jane Zachert sends the above 2009 FDC commemorating the 100th anniversary of the founding of the National Library of China. Stamp on left [Sc3758] features the Ancient Books Library building. Stamp on right [Sc3759] shows the modern library building, one of the largest and most modern-equipped in the world, which is also featured on the cachet.

[Editor's comment: Martha Jane, I'm feeling *déjà vu*!]