

CHINESE BOOKS BEFORE THE INVENTION OF
PAPER.*

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IT is known that the Chinese are the inventors of paper. The idea occurred to a certain Ts'ai Lün in the year 105 of our era, to manufacture out of waste materials a substance both light and economical which could replace with advantage those that had been used for writing purposes previous to that time. The passage of the *Hou Han Shu* (XVIII) which relates this memorable discovery tells also of the methods to which the people had recourse before the existence of paper:

"Since antiquity, written documents consisted mostly of bundles of bamboo strips; when silk tissues were used instead, the name *chih* was given to them. The silk was expensive and the bamboo strips were heavy; both were inconvenient. So Ts'ai Lün conceived the idea of utilizing the bark of trees and hemp, as well as old rags and fishing-nets to make *chih*. The first year of *Yuan-hing* (105 A. D.) he offered his invention to the Emperor, who praised his cleverness. From that time every one adopted the use of his paper, and that is why all over the empire it was called the '*chih* of the honorable Ts'ai.'

The expression "bamboo and silk" meaning "writings," confirms the evidence of the *Hou Han Shu* that those two materials were both used before the invention of paper. Tung-Fang So, in a literary work which he wrote in the year 100 B. C., says that innumerable dissertations of his contemporaries "are displayed on bamboo and on silk."

* Translated from the French by Amélie Sérafon. For a more detailed account, and for quotations in the original Chinese, see the author's monograph "Les livres chinois avant l'invention du papier," republished from the *Journal asiatique*, Jan.-Feb., 1905.

WRITINGS ON SILK.

Of the two materials bamboo was more frequently used. Silk, on account of its costliness, was rarely made use of and only at a later period. My impression is, that it was not employed until after the invention of paint brushes in the time of Ts'in Shih-Huang-Ti (220-210 B. C.); at least I have not found any text that alludes to writings on silk before that date.

According to Text No. 1 we might conclude that the word *chih* which nowadays means paper, was formerly applied to the silk material on which they wrote. Paper was first known under the name of "the *chih* of the honorable Ts'ai," to distinguish it from the real silk, *chih*. I believe, however, that the *Hou Han Shu* text is not rigorously exact, and that a distinction should be made between the *chih* which, before Ts'ai Lün, was real paper made out of silk refuse, and *po* which was a silk fabric.

The refuse from the cocoons was beaten in water until it was reduced to a paste, and the cruder parts floating on the surface of the water were eliminated. Then they used a mat to separate the purer silk which clung to its surface, and which after being dried formed a sheet of paper. So, according to the texts, it seems that Ts'ai Lün, like most inventors, only improved upon former processes. His chief merit appears to have consisted in substituting for the expensive silk refuse, materials of no value which at the same time gave better results; for even before his time the principles of manufacturing paper had been known.

Concerning the silk papers previous to Ts'ai Lün's, we have no documents; it is thought, however, a similar paper may be recognized as referred to in a writing on *hsi-t'i* mentioned in the *Ch'ien Han Shu*, in the year 12 B. C.

If the existence of silk paper is proved by the *Shuo Wen*, we must not identify it (as is done in Text No. 1) with the silk fabric which was used for writing. In 119 B. C., when the imposter Shao-Wang pretended that a wonderful manuscript would be miraculously found in the abdomen of an ox, he had first made the animal swallow a writing on silk; considering the vicissitudes to which such a writing would be exposed, we must suppose that it had been traced on silk fabric, and not on paper, which would have been reduced to a pulp.

In 82 B. C. a Chinese envoy to the Hsiung Nu invented a stratagem in order to have the ambassador Su Wu whom he knew to be living, restored to him, in spite of the denials of the barbarous

sovereign. He told how the Emperor, while hunting, had captured a wild duck, to the foot of which was tied a writing on silk in which Su Wu indicated exactly the spot where he was. Here again, the writing on silk (which moreover was imaginary) could only have been a strip of cloth.

We may feel sure, then, that when they tell us of writings on silk, writings on silk cloth are meant in the majority of cases. As to the writings on silk paper, they are hardly ever mentioned, so we are led to suppose that such a material had but a very short existence before Ts'ai Lün's invention.

The use of silk, which could be rolled up, seems to be the origin of the word "roll" as applied to books or writings. It is by a similar metaphor that the Latin word *volumen* acquired the meaning of "book" or "volume." The word "roll" continued to have the same meaning after the use of paper had become general, for, until printing became common, that is, until the tenth century of our era, books written on paper were rolled, as the manuscripts on silk had formerly been.

WOODEN TABLETS.

Let us consider now the processes employed by the ancient Chinese even before they used silk. Most of the texts were written on bamboo strips, but reliable evidence reveals to us the existence of wooden tablets differing widely from the former both in form and use.

With regard to the messages that mandarins sent to each other the *Yi Li* states: "[When a message] had more than a hundred words it was written on a *ts'ê* [a bunch of bamboo strips]; when it had less than a hundred words it was written on a *fang* [wooden tablet]."

A later commentator of ancient texts says that the *fang* was very like the prayer-tablets of the period of the T'ang dynasty. This is very instructive to us, as the prayer-tablets alluded to are still to be found. I had the good fortune to see two of them fifteen years ago in Peking. They belonged to Dr. Dudgeon who received them from a court eunuch who had been one of his patients. One of the tablets was painted red and the other blue, and the prayer was written in the Manchu language. The tablets were intended to be burned with the sacrifice so that the prayer might rise to heaven. It is very likely that this comparison is quite accurate since religion in every country is a principle which is preservative of ancient customs.

Since only texts not exceeding one hundred words could be written on a tablet, and since it was not the custom to fasten two or more together, it is evident that they could not take the place of books. Only short documents, such as royal messages and official prayers, could be written on them, as we have previously seen. In fact it seems that these slabs were reserved for acts of public authority. In the *Lün Yü* we read that when Confucius was on his chariot, he bowed as a sign of respect when he passed by a man carrying the tablets. "The man who carried the tablets," says the *Cheng Hsuan* (122-200), "held in his hands the official acts of the principality."

THE BAMBOO STRIPS.

In order to know how a Chinese book was usually made before the invention of paper, we must study the bamboo strips, the importance of which has been already revealed to us by the *Hou Han Shu* text concerning Ts'ai Lün (No. 1).

The question is: What were the dimensions of these strips? The length appears to vary according to the period in which they were written and also to the importance and dignity of the writings. According to the records they varied from one to three feet. The great classics were written on strips two feet and four inches long, whereas works of lesser importance were entitled to strips only half the size. The laws seem to have been indited on strips two feet four inches long, with exception of the penal code for which strips three feet long were used. There is no exact evidence as to the length of those feet and inches compared to a modern measure—what we assert is only conjectural.

The width of the strips must have varied from one eighth to one sixth of an inch (English measure) and was usually filled by one line of characters, but in some texts strips bearing a double line are mentioned. As only one side of the strip was written on, we may conclude that, even in the exceptional cases when two rows of characters were painted side by side, a considerable number of strips must have been required for a complete work, thirty words being the utmost one strip could hold.

Books written on bamboo strips fastened together with silk or leather were exposed to many causes of destruction. But very few have been handed down from antiquity. Among those still in existence we must mention those which have been buried in the sands of Turkestan since the third century of our era and were

dug up only quite recently, some by M. A. Stein, some by Sven Hedin.

Since the strips are narrow some may very easily have been lost,—or their order may have been changed in case the tie which held them together broke. In controversies of textual criticism this fact should never be lost sight of.

Another disadvantage of the bamboo books was their weight. In 212 B. C. two men summing up their complaints against the Emperor Ts'in Shih Huang Ti, say that he carried the love of personal authority to such a degree that he gave himself the task of examining a *shih* (120 pounds) of writings every day.

CONTRACTS BY MEANS OF NOTCHES.

How did they write on strips of bamboo and wooden tablets? Before answering this question let us say a few words about more ancient methods of notations. The *Hi Tz'ü* appendix of the *Yih King* says: "In remote antiquity business was carried on by means of knotted cords for which later generations substituted written contracts." The great preface of the *Shu King* attributes this innovation to the mythical sovereign *Fuh Hi*. There is no doubt whatever as to the knotted cords,—a similar mode of record has been found among the Peruvians whose *quippos* are well known. In the south of China, among native tribes the use of knotted cords lasted till the twelfth century. Chu-Hi (1130-1200) informs us that "as to the knotted cords, the various barbarian tribes Ch'i T'ung still have this custom nowadays, while others make notches in boards. All that which concerns dates in years, months and days, as well as numbers of men, horses, grain, forage, is set down by means of notches cut in boards and there is no confusion whatever."

So we may wonder whether *Hi Tz'ü* does not omit to mention an intermediate system, which would be the notches still in use among the Ch'i T'ung when he tells about written contracts being substituted for knotted strings.

Even after writing had come into general use contracts by means of notches were still made in very simple transactions. Those contracts were made on two boards, the creditor keeping the left and the debtor the right.

A special knife was used for this; it was a foot long and an inch wide; its shape was bent so that six of them could form a circle called *hsiao*. At a later period this knife was used as an eraser. Hence the expression "officer of the *pi* (brush) and *hsiao*" used in the time of the Han dynasty to designate a scribe.

The invention of the brush is attributed to Mêng T'ien who died about 210 B. C. Still in texts dating further back we find the word *pi* mentioned, and some Chinese scholars assert that before the brush, a wooden stick or small bamboo, also called *pi*, was dipped in ink or varnish and used to trace characters with.