

Paper shows
no 'sizing'.

Paper con-
firms early
date of
documents.

Scarcity of
paper frag-
ments on
Limes.

established is equally important for us also because it affords a striking confirmation for the above-quoted statement of the Later Han Annals that Ts'ai Lun, when he made his invention of paper, used as material for it old linen rags and fishing-nets, as well as the bark of trees and raw hemp.¹⁸ Considering the total absence of pure rag paper among the very numerous manuscripts from Chinese Turkestan, dating from the fifth to the eighth century A.D., which Professor von Wiesner had previously analysed,¹⁹ its appearance in the documents from T. XII. a may be accepted as a distinct proof of their far higher antiquity. In full agreement herewith is the fact—and Professor von Wiesner has duly emphasized the weight of its evidence—that the paper of these documents shows no trace of that 'sizing' with starch or other gelatinous matter which characterizes most of the later papers found in Chinese Turkestan, and which already appears in a Chinese document from the Lou-lan Site, L.A. VI. ii. 0230, *Doc.*, No. 912, dated A.D. 312.²⁰

Thus the results of Professor von Wiesner's important researches tend distinctly to support the conclusion as to the early date of these documents which may be inferred on archaeological grounds. Hence their discovery at an ancient watch-station of the Limes, which we may assume to have been abandoned about the middle of the second century A.D., can be fully reconciled with the known date of the invention of real paper, A.D. 105. Accepting this explanation of what at first sight might have appeared a chronological puzzle, we have no difficulty about accounting either for the discovery, among the remains of other stations on the Limes, of a few fragments of Chinese paper documents or for their extreme scarcity.²¹ They are only three in all, *Doc.* Nos. 706-8, and were found at T. XIV, T. XV. a, and T. XXIII. a respectively.²² The trifling number of these paper fragments as compared with the thousands of pieces of wooden stationery, inscribed or blank, found along the Limes is, in fact, striking evidence of the early abandonment of its stations. This is well brought out by comparison with the Chinese documents found at the Lou-lan Site, which was abandoned about two centuries later. There the number of documents on paper amounts to about 20 per cent. of the total of separate Chinese records found, the rest being on wood.²³ In judging of this much increased proportion, it must further be remembered that the Lou-lan Site was far more distant from the places of paper production in China and accessible to trade only by a difficult route then gradually passing out of use.

and its known dependence on the teaching of Chinese prisoners of war, see the publications on the papers of El-Faiyûm, *Papyrus Erzherzog Rainer* (1885-87), quoted by v. Wiesner, *loc. cit.*, p. 2.

¹⁸ See above, p. 650; Chavannes, *Les livres chinois*, p. 6. According to a Chinese authority quoted by M. Chavannes, p. 6, note 2, each one of the above substances was used by Ts'ai Lun separately for a different kind of paper. Prof. v. Wiesner, *loc. cit.*, p. 4, rejects this statement. But there does not seem to me as yet adequate evidence available to decide the matter.

¹⁹ See v. Wiesner, *Ein neuer Beitrag zur Geschichte des Papiers*, pp. 4 sqq., 24.

²⁰ Cf. v. Wiesner, *Über die ältesten . . . Hadernpapiere*, p. 13, with note 2 (the number 904 there printed is taken from a provisional numeration of M. Chavannes).

²¹ I need not take into consideration here the fragments of certain Chinese Buddhist texts on paper, *Doc.* Nos. 710-20, from T. XIV. v, for which see below, p. 687, because the place at which they were found was that of a shrine which had been built over far earlier remains and was proved by

textual and numismatic evidence to have been occupied during T'ang times. To these the fragments on paper undoubtedly belong, one being certainly that of a text translated after A.D. 650.

²² The last-named fragment is written on a tissue-like paper, so thin and soft that the thought has suggested itself to me of its possibly representing a relic of that earliest attempt to make paper which, as M. Chavannes has shown by a brilliant analysis of a passage of the *Shuo wên*, a text completed in A.D. 100, preceded Ts'ai Lun's invention (cf. Chavannes, *Les livres chinois*, pp. 8 sqq.). But this is a mere conjecture, of quasi-amateur nature, and, perhaps, might not need any mention at all if it were possible at present to submit a sample for Professor von Wiesner's expert examination.

²³ For convenience I have taken the figures for Lou-lan Site records on paper and wood respectively from those which M. Chavannes has included in his *Documents*. There are Nos. 894-939 on paper and Nos. 721-893 on wood. The proportion would not be affected if the uninscribed pieces were also taken into account.