

# Journal of Sedimentary Research

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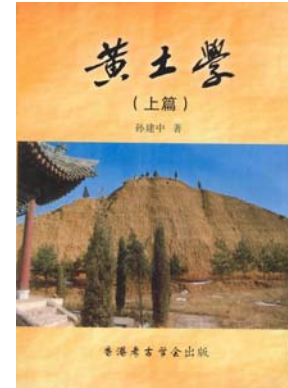
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*Loessology*, by Sun Jianzhong, 2005 [In Chinese, with English summary and figure captions]. Hong Kong Archaeological Society, Hong Kong. 521 pages + 24 plates. Price 65.00 yuan. ISBN 988-97436-4-7.



Karl Caesar von Leonhard named the “loess” in Heidelberg, about 180 years ago. This is the sediment which had been known to the Chinese for thousands of years as “Hwang tu” or yellow earth—the material which provided the basis for the Chinese civilization, and established the Imperial colour. The scientific investigation of this sediment began with Von Leonhard and his naming became our name. Sun Jianzhong now gives us a science based on loess.

This is a long and detailed book, copiously illustrated with line diagrams, and with a section of colour plates bound in at the back. The eleven chapters deal with: introduction; distribution, thickness and occurrence; geomorphology; stratigraphy; material composition; structure and texture; the pedogenic process; vegetation and environment during deposit formation; palaeoclimates and the environmental record; deposits outside the loess plateau in China and in other countries; and genesis of loess. In a second volume we are promised geotechnical studies and consideration of various technical problems.

There is a (not unreasonable) emphasis on the Loess Plateau, and there is a distinct focus on stratigraphical matters, but this is genuinely a study of loess as a sediment, with worldwide ambitions. Sun derives his term “Loessology” from V.A. Obruchev, and he claims to follow Obruchev in proposing the setting up of a specific scientific discipline relating to loess. Obruchev used the term “lessovedenie,” which could be translated as “loess science” in the same way that “pochvovedenie” is soil science, and “zemlevedenie” is land science. Presumably as soil science becomes pedology, and land science becomes geography, loess science becomes loessology. The study of sediments appears to have been subsumed into sedimentology; perhaps we should welcome loessology.

Another interesting Russian connection can be explored. Sun claims that his is the first book on loessology but there are other books which cover essentially the same ground that predate his 2005 volume. The one that springs to mind is “Loess Mantle of the Earth and its Properties” (2001) edited (and largely written) by V.T. Trofimov. In each book a close analysis of the bibliography indicates the relative world view of the authors. One of the great challenges in loess science is to take a world view; a lot of the controversies which have arisen in the world of loess have been due to scholars and investigators giving far too much emphasis to local deposits. Sun has a massive bibliography: 28 pages of Chinese references, 11 pages of English material, and one page Cyrillic. Trofimov has 13 pages of Russian references, 10 pages in English (and German and French etc.). In each book the “home” material is more than adequately covered; a

close study of the “English” material reveals approaches to the world literature and something of the facilities available to scholars in China and Russia.

“Awareness” needs to be judged. Chapters in books play a large part in the Sun reference list. This is something of a surprise; the received wisdom is that, for maximum impact, material should be published in high-profile journals, but it appears that, over the years, better penetration has been achieved in China by dedicated books. One of the most successful has been “Quaternary Dust Mantles of China, New Zealand and Australia”, edited by R.J. Wasson and published by the Australian National University in Canberra in 1982. This was the outcome of an INQUA Loess Commission meeting in Australia in 1980, and was a relatively modest volume with papers from Australian, New Zealand and Chinese authors, but it had good penetration in China, and has provided useful material for the Sun book. In fact, Sun has turned this into a major work; much of his Australian and New Zealand data come from this source. The Loess Commission connection has worked well; another work from the same Western Pacific project, *Loess: its Distribution, Geology and Soils* (1988), edited by D.N. Eden & R.J. Furkert, is prominently featured.

Two great problems in loess sedimentology are “how do deposits form?” and “how is the loess material produced?”. E.E. Free was speculating on these questions in 1911, but it was the “deposit” question that stayed at the forefront of loessology, and it is considered in some detail by Sun. But he neglects the materials problem. In the deposit discussion, there is some sign of the old Soviet influence, which long ago was strong in Chinese loess studies. There are other interesting omissions: there is a short section on loess history, but there is no reference to “Loess and Loess-like deposits,” the book by S.Z. Rozycki which is the best record of developing ideas on loess. This is not entirely Sun’s fault; one can imagine that—although the Rozycki book has been available in Polish since 1986 and in English since 1991—it has not made the journey from Wroclaw to Xian. The loessic information system has not worked as well as it should have done. It is referenced by Trofimov, but Wroclaw to Moscow is an easier trip.

All sorts of linkages and tempting connections occur. J. Fink was a major figure in European loess research, running the INQUA Loess Commission from 1961 to 1977; he published many papers and had great influence. He published mainly in German, but both Sun and Trofimov list a paper in Russian (the same paper); how did Fink in Russian make an impact in China? The map of world distribution (fig. 2-1) has a very similar style to the map in “Das Eiszeitalter” by P. Woldstedt (1961), which was itself derived from Grahmann’s 1934 work; but the Sun map has some neat additions: submarine loess is indicated off the west coast of Africa, and off the Arabian peninsula, and near the Phillipines; but none near Australia. Loess is shown in the southern part of the North Island of New Zealand, but not in the southern part of England. And the Nile is emphasized (as well as the Yellow River).

This is a valuable contribution to the loess literature. The text will present problems for non-readers of Chinese but the bi-lingual figure captions allow a useful resource to be accessed. The Loess Plateau is a logical home for “Loessology” and the long stratigraphical sections and associated climatic data make this a real addition to worldover loess studies.

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