



People's Peking Man: Popular Science and Human Identity in Twentieth-Century China

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This book is less convincing—or at least less clear—when addressing the consequences of its findings for our understanding of Enlightenment science and European colonial science. For example, each case masterfully illuminates the problems of extrapolating epistemology from identity and ideology and encourages greater attention to the individual idiosyncrasies that shape the production and consumption of texts. To this reader, at least, this argument presents a significant challenge to one of the central tenets of the study of early modern science, especially in imperial contexts: that it is socially and culturally constituted. Is *Measuring the New World* suggesting that we should cease to read the products of European imperial and colonial science as constituting and constituted by imperial ideologies and colonial visions? This is one of the most interesting and provocative aspects of this book; it would have been useful to have additional guidance on some of the implications of the book's findings and claims. For example, the emphasis on the contingencies of production and idiosyncrasies of interpretation seem to lead us to the conclusion that, since scientific knowledge often emerged from many different social and material contexts, no coherent or unified interpretation of the final products (from pyramids to encyclopaedias) is possible. Does this, then, preclude the possibility of any social analysis of (Enlightenment) science? In short, this book raises some troubling questions.

Still, there is much to be commended here. *Measuring the New World* is path breaking in its attention to the influence of the protocols of European print culture on the transformation of empirical observations and other information into seamless texts, images and objects. Few, if any, works on science in the Atlantic have provided the kind of transimperial stories that Safier meticulously pieces together for us. In addition, the prose achieves a fine balance between clarity and erudition, which is nicely complemented by several illustrations including twenty colour plates. *Measuring the New World* is an excellent addition to the growing scholarship on the history of European sciences in imperial and colonial contexts. From the Andean peaks to the ateliers of Paris, this book rewards readers with many new and thought-provoking perspectives on Enlightenment science. One waits to see where Safier will take us next.

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Social Aspects of Science

SIGRID SCHMALZER, *People's Peking Man: Popular Science and Human Identity in Twentieth-Century China*. Chicago and London: The University of Chicago Press, 2008. xix + 346 pp. £18.00. ISBN 0-226-73860-4.

The excavation of the Peking Man fossils in the 1920s was to become one of the most celebrated scientific achievements in modern China. The discovery turned the focus of international paleoanthropological research to China. The mysterious disappearance of the specimen in 1941 during the Sino-Japanese War not only further piqued the Chinese people's interest in the fossils but also aroused strong nationalist

sentiment, as they were widely considered both national treasures and ancestral relics lost in the midst of imperialist aggression. The theory of evolution with a strong social Darwinist slant was introduced to China in the late Qing period to provide a 'scientific' explanation of China's decline and plight. Many Chinese intellectuals, moreover, promoted science as a crucial means to strengthen the nation. During the Republican period the discovery of Peking Man and its implications for understanding human evolution, however, neither received intensive official promotion nor stirred up popular enthusiasm. It was only after the founding of the socialist regime in 1949 that Peking achieved its iconic status. In exploring the changing Chinese attitudes towards Peking Man and the multiple meanings attached to it, this book provides us with a rich and stimulating study of paleoanthropology, politics, nationalism and popular science in twentieth-century China.

Many Chinese intellectuals engaging in efforts to popularise science, the author claims, were hostile to Chiang Kai-shek's conservative regime and hence were sympathetic to the Communists. The later were keen to use top-down 'science dissemination' to enlighten and to mobilise the 'masses'. The CCP assigned paleoanthropology a prominent educational and propagandistic role in the struggle against the 'superstition' of 'feudal society'. As with other communist parties, the CCP claimed that it was Engels who had provided a true materialist theory of human evolution in his article 'The Part Played by Labour in the Transition from Ape to Human'. 'Labour created humanity' became the central principle that paleoanthropological research in the Mao era had to adhere to and was repeatedly emphasized in efforts to disseminate science. Paleoanthropology was used as a weapon to wage an ideological war against religion and 'idealism'. The Chinese government sponsored Peking Man exhibitions in several cities and organized popular lectures on paleoanthropology in factories, barracks and communes to instil a materialist understanding of human identity into 'the masses'.

As the author points out, the top-down science dissemination that regarded the masses as superstitious contradicted another view of science, also espoused and promoted by Mao, that regarded scientists as members of the elite who needed to learn from the masses, as the masses had privileged access to true knowledge through their manual labor. The book provides us with insightful investigation of the inherent tension between 'science dissemination' and 'mass science' through detailed and penetrating exploration of several telling episodes in which 'mass science' was gaining an upper hand when Mao launched radical political campaigns. The push for 'mass science' reached its climax in the Cultural Revolution when representatives of 'workers, peasants and soldiers' were invited into scientific institutions to join the research and to offer criticism of scientists' work. The result of the experiment was generally deemed dismal. Many Chinese scientists felt that they were humiliated, their precious time and resources squandered; their grievances have been amply documented after the Cultural Revolution. It is to the author's credit that she takes the unusual step of investigating the other side of the story and shows that laypeople whose aspiration to participate in scientific research was aroused by the opportunity offered by the Cultural Revolution were often sorely let down in the end. The book contains a cogent exploration of the prospect offered by 'mass science' and gives a convincing analysis of the experiment's shortcomings.

A great merit of the book is that while being justifiably critical of the CCP's blatant political use of paleoanthropology it nevertheless gives a sympathetic and balanced assessment of the unique way in which the discipline has been practised in

China. This is particularly evident in the chapter that deals with Chinese paleoanthropologists' responses to the 'recent out of Africa theory' which claims that 'today's humans all share a common ancestor who lived in Africa as recently as 100,000 years ago' and whose descendents displaced other hominoid species, including Peking Man, after they immigrated to the rest of the globe (p. 11). The Chinese government and many Chinese paleoanthropologists reject this theory and uphold instead the 'multi-regional theory', also known as 'continuity theory', which claims that 'humans evolved from *Homo erectus* to anatomically modern *Homo sapiens* in Africa, Asia and Europe'. 'Modern population', according to the multi-regional theory, 'retained a detectable degree of morphological continuity with the fossil human in their areas' (p. 248). Chinese paleoanthropology has been criticized for promoting the 'multi-regional theory', which some scientists claim to be racist, out of nationalist motives of preserving the ancestral status of Peking Man and other hominoid fossils discovered in China. Schmalzer agrees that nationalism is a significant factor in the Chinese support of the 'multi-regional theory'; however a more symmetrical analysis reveals that important scientific issues were also involved. The recent out of Africa theory takes its strongest evidence from population genetics while supporters of the 'multi-regional theory' have recourse to morphological research. The controversy over the 'recent out of Africa theory' is also a dispute over the relevance of different approaches and scientific expertise such as morphology and genetics in paleoanthropology. Moreover, some Chinese laypeople find it difficult to accept that their 'ancestors' were violent invaders who committed genocide against indigenous populations that caused the extinction of the latter.

Another major strength of the book is its brilliant analysis of 'popular science' and Chinese laypeople's reception of paleoanthropology. It has a wonderful chapter dealing with the research on *yeren* (the wild man), a legendary creature equivalent to Bigfoot and yeti, conducted both by elite scientists and enthusiastic amateurs. Despite all efforts, the existence of *yeren* has not been proven, but its research blurred the boundary between orthodox and popular science. In post-Mao China, *yeren* has also become a symbol of innocence and Nature's harmony, and appears in fictions, plays and poems that indict the cruelty of the Cultural Revolution or criticise the corruption in current Chinese society. Through fascinating case studies, the book demonstrates that the Communist state has been promoting an unabashed nationalist view on hominoid fossils discovered in China, but that amateur fossil collectors and enthusiasts often demonstrate more cosmopolitan and broad-minded visions of the history of human evolution. The residents around the area where the fossils were discovered, moreover, often endow them with peculiar, sometimes idiosyncratic local and personal meanings. Some have incorporated the discovered 'ancestors' into legend and folklore. Some local people even perform rituals of ancestral worship at the excavation site. Through careful comparison, the book also demonstrates the striking similarities between such worship and Chinese scientists' commemoration of the discovery of Peking Man and reveals the interpenetration between science and popular culture.

In this wonderful book Schmalzer demonstrates remarkable scholarship that moves with felicity from perceptive analysis of novels and popular science to picking apart seemingly arcane debates in contemporary paleoanthropology. This reviewer is particularly impressed by the author's sure grasp of the nuanced variation of meanings of several key Chinese terms and their significance for understanding both popular and academic discourses on human evolution. The book has drawn on a

wealth of materials. The extensive use of interviews, correspondence and visitors' messages left on exhibition guest books enable Schmalzer to provide us with vivid descriptions and subtle analysis of Chinese laypeople's understanding of and responses to the efforts to disseminate science by scientists and the state. The supplement of tone marks to the *pinyin* system of romanizing Chinese is commendable. The inclusion of original Chinese characters of names and keywords in the text and the excellent index is to be welcomed not only by specialists but also by anyone who can read Chinese. Schmalzer has written a book that is of great originality and is highly readable. This excellent work deserves to be read by anyone who is interested in science, politics and society in twentieth-century China.

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Instruments and Measurement

DAVID PINGREE, *Eastern Astrolabes, Historic Scientific Instruments of the Adler Planetarium and Astronomy Museum*, 2 vols. Chicago, IL: Adler Planetarium and Astronomy Museum, 2009. Vol. II. xxi+268 pp. \$75.00. ISBN: 1891220020.

This is the second volume of a series of catalogues describing the collections of the Adler Planetarium and Astronomy Museum in Chicago. It was prepared by David Pingree, over a period of 40 years, and copy-edited after his untimely death in November 2005, by Elaheh Kheirandish, Sonam Velani and Clemency Williams. It was one of the last texts that David Pingree was engaged on. It might appear to mark a departure from his usual research, which was on texts rather than instruments. But Pingree's vast experience of astronomical and astrological writings in a wide range of Oriental languages fitted him well for the task of interpreting the script on the astrolabes and placing them in their historical context. He begins the catalogue with a brief history of authors of astrolabe treatises and manufacturers of the artefacts themselves. This is followed by biographies of the 28 makers named on the astrolabes (ranging from the twelfth to the nineteenth century). Then follow the instruments themselves, each of their parts as well as their fronts and backs illustrated with very good quality photographs. The astrolabe, as is well known, consists of a circular body ('the mother') within which revolves a schematic map of the heavens with the positions of prominent fixed stars indicated on it (the rete or 'spider's web'). Immediately underneath the rete is placed the plate ('tympan') representing the coordinates of the locality in which the astrolabe is being used. So that the instrument can be used at different latitudes it is common to include several tympan, each engraved for a different locality. The recto and verso of each tympan is prepared for a different latitude. Pingree gives the latitudes of each tympan, and the identification of all the fixed stars marked on the rete. Other information appearing with more or less frequency on the astrolabes described here are Roman months (for the few Western astrolabes that are included), lunar mansions, the cities for which the tympan are appropriate, shadow squares (for measuring altitude), the longitude and latitude of cities and regions, (planetary) lords of the terms, decans and triplicities,