may have been involved. Finally a chapter on Mongol revenues in Hangzhou, touching also on revenues in Quanzhou, precedes a survey of Marco's notions of administrative geography. But even after the brief section of overall conclusions that then finishes the main work we find eight appendices intervene before a very rich bibliography, most of them either about weights and coins or compilations of source materials or tabulated information on paper money or salt.

The amount of economic information retrieved from a very wide range of sources is of course impressive. But it is the wide range of other topics illuminated in passing that make this a work for anyone at all interested in Mongol East Asia and in East-West contacts. The manufacture of millions of paper notes through the technology then unknown in Europe of woodblock printing not unnaturally impressed the Venetian visitor, but here his observations are shown to have been far more systematic and precise than he has been given credit for. It is also pointed out for example in the scrupulously detailed survey given here that the blank space left on printing plates for a serial number to be added to each note was sometimes filled in by movable type (p. 136) – a feature that I believe has been discussed by Chinese scholars but which was only discovered too late to be recorded in standard works in English on Chinese printing such as those by Thomas Francis Carter and L. Carrington Goodrich and by Tsien Tsuin-hsuin. Even more intriguing is the news (p. 209, n. 306) that some Mongol notes were found in Buddhist reliquary deposits, perhaps placed there long after their date of manufacture, for Carter and Goodrich's work does reveal that Ming notes were found within a Buddhist image smashed during the Boxer rebellion. Given the frequent presence on Mongol notes of writing in the generally unintelligible Phags-pa script, it would not be surprising to find that these objects were treated, perhaps especially after their "working life", as it were, was over, as talismans. Yet more, since it is revealed that retrospectively at least paper money was considered appropriate to the *yin* origins of the Mongols (p. 94), its popularity as an offering to the yin world of spirits, which seems to have established itself in the early twentieth century well ahead of the eventual retreat of silver from general use, can be equally well appreciated.

No doubt this is not the last word on Europe's most famous traveller in China, for there is still surely something more still to be said about the gap between the way he saw and described things and the way we see things now and try to read his work in the light of that knowledge. But such a meditation is unlikely to be equipped with such a formidable apparatus of economic analysis as is provided by the work under review. In our long journey of discovery about our earliest direct European witness to China we seem to have reached some sort of milestone.

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JERRY NORMAN (with the assistance of KEITH DEDE and DAVID PRAGER BRANNER):

A Comprehensive Manchu–English Dictionary. (Harvard-Yenching Institute Monograph Series 85.) xxvi, 418 pp. Cambridge, MA and London: Harvard University Asia Center (distributed by Harvard University Press), 2013. £33.95. ISBN 978 0 674 07213 8. doi:10.1017/S0041977X14000299

Not many academic endeavours are sufficiently significant to merit the epithet of a "lifetime's work", and even amongst such meritorious exceptions, only a few stand the test of time. The lexicographic work of Professor Jerry Norman is one such example. Based on his own *Concise Manchu–English Lexicon*, providing solace to an entire generation of Manchu learners, Norman's *Comprehensive Dictionary* is the revised and significantly expanded version of its predecessor.

Jerry Norman's early life was characterized by an insatiable appetite for learning languages, despite very concrete social, geographical and financial obstacles. His linguistic expertise would soon prove to be a big bonus, since there was no single authoritative Manchu–English dictionary at the time. When Norman found himself on a Fulbright study visit to Taiwan din the mid-1960s, learning Manchu alongside the local Min dialect (閩南話) as well as standard Chinese, he created a card index, which would in due course become available in print. Based on a fusion of the Manchu–Japanese dictionary 滿和辭典 / Manju ži-ben gisun kamcibuha bithe by Haneda Toru 羽田亨 (1937) and of Erich Hauer's Handwörterbuch der Mandschusprache (1952), Norman began to pursue the ambition of his lifetime.

Most preceding lexica were based on the early encounters between Westerners and Qing officials, stretching back to early Jesuit glossaries and the *Dictionnaire tartare—mantchou françois* by Joseph Marie Amiot (1790). These, in turn, were usually translations of Manchu—Chinese dictionaries, such as the seminal 音漢清文鑑—*Nikan hergen i ubaliyambuha manju gisun i buleku bithe* ("A translator's Chinese—Manchu dictionary") by Dongjia Mingduo 董佳明鐸 (1735), the ensuing 御製五體清文鑒 ("Imperially ordained Qing dictionary in five languages" (Manchu, Chinese, Mongolian, Tibetan and Chagatai—the last two also featuring Manchu transliteration)], published in 1794) or the 御製增訂清文鑑—*Han i araha nonggime toktobuha manju gisun i buleku bithe* ("Imperially ordained improved Manchu dictionary", 1772), compiled by Fu Heng 傅恒 and his colleagues, and much appreciated by Amiot. Since much of the Qing translation effort was aimed at translating Chinese literature into the major languages of the empire, the equivalents for Mongolian (and even Korean) can also be traced back to the eighteenth century.

Of all Western powers, it was Tsarist Russia which took a natural interest in acquiring Manchu, since related Tungusic languages were being spoken over vast areas of the recently conquered Siberian east. The glossaries produced by A. L. Leontiev (Алексей Леонтьевич Леонтьев), residing in Beijing during the eighteenth century, pay homage to the close relationship between Saint Petersburg and Beijing. Leontiev's trilingual dictionary was deemed to be of such use that it was translated into Latin (Vocabularium sinici-mantshuico--ruthenicum) and German (Chinesisch-mandschu-russisch-lateinisches Vokabular mit deutscher Übersetzung von G. Mertens). Due to the prominent role of German noblemen, scholars and traders in the services of the Tsar, such insight easily travelled West, notably to German-speaking territories. A translation of three Confucian classics accompanied by a Manchu-German dictionary (Sse-schu, Schu-king, Schi-king in mandschuischer Uebersetzung: mit einem mandschu-deutschen Wörterbuch), translated and compiled by H.C. von der Gabelentz in 1864, exemplifies the intense interest in Qing studies. Generations of German scholars would be inspired by this work, from Wilhelm Grube and Erich Haenisch to Martin Gimm and Hartmut Walravens. In neighbouring France, the early Jesuit correspondence generated considerable interest, expressed in Antoine Isaac Silvestre de Sacy's plans for language courses in Manchu and Chinese, as well as Julius von Klaproth's Manchu reader (Chrestomathie mandchou; ou, Recueil de textes mandchou, destiné aux personnes qui veulent s'occuper de l'étude de cette langue), printed in 1828. Since this early period, however, not much had moved. Protestant missionaries had produced translations of the gospels, but the falling levels of spoken Manchu in China, alongside the ever more tenuous position of the imperial dynasty during the latter nineteenth century, reduced Western fascination with the learning of Manchu. By the early twentieth century, even dictionaries in Chinese were hard to come by. Republican scholars relied largely on relics from the Qing period.

Norman's Comprehensive Dictionary is a no-nonsense tool for translating romanized (Möllendorff) Manchu into English, prefaced by Mark Elliott, David Prager Branner (in his function as editor) and Norman himself, and completed by the author's guide to written Manchu. The lexical section is organized according to the Latin alphabet, with glyphs of Manchu script (in their initial, medial and final position variants, if extant) next to the relevant letter. Some 40 per cent of the dictionary's entries contain extended explanations, in particular if customs specific to the Jürchen or Qing institutions are concerned. An example for the former is forontu kara - "black horse with curly hair on the belly", or takciha filan - "wooden bow without a horn covering", ufuhu wehe - "pumice, a very porous stone found in streams and that can be used for dressing sable hides", heheri madaha - "'the palate has swollen' (a sign of sickness in cattle)"', faksikan i forgošome fiyelembi "to do a skilful turn at trick riding" - in addition to a host of other terms denoting the features of horsemanship and Manchurian nature. Laudably, Norman paid particular attention to entries relating to fauna and flora, almost always translated into both English and Linné's Latin nomenclature. As to the latter, administrative Qing terms such as tacikūi baita be kadalara hafan i yamun - "office of the provincial director for education" are provided with the concomitant Chinese characters (here: 學政衙門), where possible with a reference to Brunnert and Hagelström's post-mortem (1912) classification of Qing offices. Less bureaucratic dynastic rituals, such as the "closing of the gates of the Forbidden City" - fancabumbi are also recorded with an eye for minute detail. In many other instances, Norman's grasp of human nature shines through, e.g. in fiyanggūšambi - "to behave like a spoiled child", yadan - "sapped of enthusiasm, lacking in confidence" or in nerebumbi - "to blame an innocent party". The "New Norman" has, despite its significantly increased volume, occasional lacunae, and should therefore be used in conjunction with recently published Chinese dictionaries, e.g. 新滿漢大詞典 / Iche manju-nikan gisun kamchibuha buleku bithe (New Comprehensive Manchu-Chinese Dictionary, 1994), ed. Hu Zengyi 胡增益, if an in-depth analysis of certain terms is required.

To sum up, Norman's lifetime work is a valuable addition to the already existing Manchu language tools, which will be greatly appreciated both by the Manchu veteran as well as by new generations of students. The only sour aftertaste that remains is that Jerry Norman, a mere five days following the final proofing of the *Dictionary*'s manuscript, passed away. Norman's honorific Manchu name was *Elbihe – "Nyctereutes procynoides*: raccoon dog" (cf. page 93).

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DAVID W. PANKENIER:

Astrology and Cosmology in Early China: Conforming Earth to Heaven. xxvi, 589 pp. Cambridge and New York: Cambridge University Press, 2013. £85. ISBN 978 1 107 00672 0. doi:10.1017/S0041977X14000305