Pascal Crozet and Annick Horiuchi (eds.), *Traduire, transposer, naturaliser: La formation d'une langue scientifique moderne hors des frontières de l'Europe au XIX^e siècle* (Translating, Transposing, Naturalizing: On the Formation of Non-European Modern Scientific Languages in the 19th Century), Paris: L'Harmattan, 2004, 264 pp.

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The nineteenth century was an epoch of rapid mutual epistemic approaches between civilisations of the Orient and Occident which at previous stages had enjoyed a more or less undisturbed autochthonous development. The process of their eventually moving closer together was motivated by a variety of factors, most crucially by the imbalance of power relations in the colonial age. The strength of colonial powers was increasingly associated with their sciences. In order to confront this strength on an equal basis, it was therefore necessary to determine the exact reasons for the absence of equal scientific methods in the Orient, to eliminate obstacles in the way of constructing knowledge systems compatible with those of the Occident, and to ascertain what elements of the indigenous traditions should be discarded or maintained in the self-strengthening process.[3]

It was not only the colonized Orient that was in search of answers to these questions. For various reasons, the Occident was—and continues to be—just as intensely preoccupied with these problems as well: to the most influential early works on epistemic paradigms characteristic of Oriental/Occidental civilisations belong Max Weber's studies on different ways of rationalizing the world (*Wirtschaftsethik der Weltreligionen*, 1915-1919); to the

[3] For detailed critical discussions of the relationships between self-strengthening movements and translation processes in the Far East, see James St. André's/Peng Hsiao-yen's "Introduction" to *China and Its Others: Knowledge Transfer through Translation, 1829-2010* (2012, pp. 11-25), Lydia H. Liu's *Translingual Practice: Literature, National Culture, and Translated Modernity. China, 1900-1937* (1995, esp. pp. 20-25, "Traveling Theory and the Postcolonial Critique"), Michael Lackner et al. (eds.), *New Terms for New Ideas: Western Knowledge and Lexical Change in Late Imperial China* (2001).

most recent ones belong works of authors (e.g. Hans Lenk and Gregor Paul (eds.), *Epistemological issues in classical Chinese philosophy* (1993); Joachim Kurtz' *The Discovery of Chinese Logic* (2011)) who, being largely inspired by Michel Foucault and Edward Said, stress the necessity of a politically correct treatment of non-Occidental epistemic systems and of cautiously qualifying the exact extent of their 'otherness.'

The title under review is a collection of essays on epistemic shifts in the Far and Near East in the nineteenth century. The focus is on the development of modern scientific terminologies in Japan (Annick Horiuchi's "Langues mathématiques de Meiji: à la recherche du consensus?"[Meiji languages of mathematics: in search of a consensus?], pp. 43-70; Mieko Macé's "La création d'une terminologie médicale dans le Japon du XIXe siècle: l'example de la physiologie" [Creating a terminology of medicine in 19th century Japan], pp. 71-98; etc.), China (Andrea Bréard's and David Wright's contributions, which are discussed below), and the world of Islam (Pascal Crozet's "Entre science et art: la géométrie descriptive et ses applications à l'épreuve de la traduction (Egypte, XIXe siècle)" [Between science and art: descriptive geometry and its applicability in the light of translation (Egypt, 19th c.)], pp. 171-200; Feza Günergun's "Chemical Nomenclature in Nineteenth-Century Turkey," pp. 201-235; and S. Irfan Habib's "Transmission of Science through Translation: A Study of Urdu in 19th and early 20th Century India," pp. 237-250.)

The creation of new terminologies under the influence of Western sciences is viewed as a complex process, in which indigenous traditions often played a significant intermediary role. A detailed investigation of these traditional elements against the background of epistemic changes is the central point of discussion in most of the articles contained in the volume.

In his article on the Japanese language of botany "Traduire Dodoens ou les premiers pas de la botanique européenne en japonais" (Translating Dodoens, or: the first steps of European botany in Japanese, pp. 9-25), Georges Métailié raises the question, how the science of botany could gain so much ground in the relatively short period between 1822 and 1834. The year 1834 when Udagawa Yōan's 宇田川榕菴 (1798-1846) *Sources of botany* (*Shokugaku keigen* 植学啓原) appeared is generally regarded as the date of the birth of Japanese botany. Between 1822 and 1834, two other works had been published in which a new modern scientific terminology was minted to fit the Western standards of botanical knowledge: Udagawa Yōan's *Canon of botany* (*Botanika kyō* 菩多尼訶経, 1822) and Itō Keisuke's 伊藤圭介 (1803-1901) *Nomenclature of plants in the Far East* (*Taisei honzō meiso* 泰西本草名疏, 1829.) To answer his question, Métailié turns to an earlier period of scientific transfer between Japan and the West, i.e. to the translations of Rembert Dodoens' *Cruydt-Boeck* (The Book of Plants) into Japanese since

the late eighteenth century. Dodoens' voluminous work that consisted of 1,492 pages and 2,000 illustration plates had been published in Dutch in 1554 and presented to a Japanese shōgun in 1659. Systematic translations of this work into Japanese had begun only in the late eighteenth century, after Ishii Shōsuke 石井庄助 (1743-?) received the order to translate it in 1792. Ishii did not produce a complete translation, however, and his work was continued by a number of other Japanese scholars, who completed it in 1823. For Métailié the curious fact that needs to be elucidated is why these scholars devoted themselves to translating a scientific work that was over two hundred years old, and did not correspond to the actual scientific standards of Linnean classification of plants. According to Métailié, these scholars were aware of the fact that the Dutch text represented a synthesis of traditional Occidental botany dating back to the antiquity. In order to render this foreign tradition accessible to Japanese readers, the translators had to resort to some elements of the indigenous Sino-Japanese tradition, primarily to Li Shizhen's 李時珍 (1518-1593) *Bencao gangmu* 本草綱目 (Classified Materia Medica, 1596). The convergence of both traditions in the act of translation effected the entire terminology of the final Japanese text version as well as the commentaries to it - a major part of the translated terms was rendered by Chinese characters which were given revised meaning, while Latin and Dutch plant names were also given *katakana* and *hiragana* transcriptions. In Métailié's view, it is remarkable that no reference is made to the Linnean method in general, or to the difference of sexual organs which in particular is crucial for the Linnean classification of plants. Métailié's article thus provides a good illustration of the participation of the Sino-Japanese tradition as well as of the pre-modern Western botanical tradition in the development of radically new scientific terminologies.

A similar investigation is made into the rise of chemical terminologies in China by David Wright in his "'Changing and Uniting:' The Translation of Terms and Concepts for Chemical Combination into Chinese (1840-1900)," pp. 147-167. The unification of modern Chinese chemical terminologies of elements and compounds remained a highly problematic issue until well into the twentieth century. Wright presents a number of methods applied to the rendering of Western terms in Chinese: using existing terms for elements (e.g. *tie* 鐵 (iron), *yin* 銀 (silver), *jin* 金 (gold)), transliteration of Western names (e.g. *ailumini'en* 哀盧彌尼恩 for aluminium), reviving obsolete characters (e.g. *xin* 鋅 for zinc), etc. The unification turned out to be difficult not because of the presence of these various possibilities as such, but was rather conditioned by the slow adaptation of traditional Chinese perceptions of chemical substances to the concept of chemical elements as provided by Antoine Lavoisier (1743-1794), i.e. to the idea of elements as "substances into which we are capable of, by any means, to reduce bodies by decomposition" (Wright, p. 150). The main difficulty for Chinese schol-

ars was the distinction of thing (substance), concept and word. To illustrate this problem, Wright cites questions of Chinese readers sent in to John Fryer's science journal *Gezhi huibian* 格致彙編 (Scientific Magazine), for example: "How can something as obviously solid, opaque and black as carbon possibly be hidden inside something as white as sugar, or be contained in something as insubstantial as air? Can liquid water really be made of two gases?" (p. 161). Wright's article may be regarded as supporting the thesis of previous works on the differences between traditional Chinese and traditional Western modes of producing definitions and classifications of things, for example Roel Stercks' *The Animal and the Daemon in Early China* (2002, especially the Chapter 'Problems of Definition,' pp. 16-21) and Artjom Kobzev's *On symbols and numbers in classical Chinese philosophy* (*Učenije o simvolach i čislach v kitajskoj klassičeskoj filosofii*, 1994.)

However, it was not only the difference of philosophical methods of observing the natural world and producing scientific abstractions which made the process of scientific transfers difficult. Another point of confrontation between indigenous traditions and Western scientific methodology was the problem of choosing a suitable literary style for scientific translations. For Oriental scholars, it was often a matter of extreme importance to make the newly created scientific terminologies meet the standards of traditional literary forms and refined tastes. This issue is reflected upon by Andrea Bréard in her "La traduction d'ouvrages de mathématique en Chine à la fin du XIX^{e} siècle: un processus d'introduction et d'intégration" (Translations of mathematical works in China at the end of the 19th century: a process of introduction and integration, pp. 123-146) and by Feza Günergun in her "Chemical nomenclature in nineteenth-century Turkey" (pp. 201-235). In Bréard's analysis, prominent attention is given to the concept of *elegance* (*ya* 雅) in nineteenth century Chinese translations. Whereas Yan Fu 嚴復 (1853-1921), who was one of the most influential Chinese theorists of translation, appealed for elegance as an indispensable criterion of good scholarly translations,[4] Hua Hengfang 華蘅芳 (1833-1902) remonstrated in his *Xuesuan bitan* 學算筆談 (Essays on Learning Mathematics, 1882) against literary elegance, because trying to be elegant could induce violations of mathematical logic (A. Bréard, op. cit., p. 132.) On her part, Feza Günergun analyses the competition of Turkish and Arabic in the scientific translations of nineteenth-century Turkey, where conservative literary taste made it necessary that new terms for chemical compounds be given in Arabic—the highly respected language of Islam—and not in everyday Turkish (Feza Günergun, p. 212.)

[4] Yan Fu, Preface to *Tian yan lun* 天演論 (On Evolution, 1898), Beijing: Shangwu yinshuguan, 1981, p. xi.

In his contribution "La traduction scientifique à l'ère Meiji: la fabrication des manuels de santé japonais" (Scientifique translation in the Meiji era: the fabrication of Japanese manuals of health, pp. 99-119), Beat Ringger turns to a field of knowledge which is in many ways different from all the rest of the sciences (botany, mathematics, chemistry etc.) covered in the volume. His topic is *hygiene* (*yōjō* 養生) and *manuals of hygiene care* (*eisei ron* 衛生論), a genre which had come to be popular in Japan in the nineteenth century.

In contrast to other branches of knowledge, hygiene presented a specific case, as it allowed the perceptions of body care as they had been traditionally channelled through Daoist and Confucian classics to merge harmoniously with modern Western hygiene discourse. Ringger explicates this phenomenon through the material of Uratani Yoshiharu's 浦谷義春 (nineteenth century), *Yōjō no susume* 養生のすすめ (Recommendations for hygiene, 1876). Uratani pays attention to the importance of body care in the following words:

> Endowed with an intelligence which enables him to understand all things of the world perfectly, man should also know what is harmful to his body (*mi* 身). This knowledge is nothing else than the knowledge of *yōjō* (*hygiene*, 養生).*Yōjō* is the origin of *health* (*kenkō* 健康) and health is the fundament of energetic effort, endurance, happiness and longevity (*benrei nintai fukuun chōju* 勉励忍耐福運長寿, p. 103).

In his text, Uratani appears not merely as a propagator of a healthy way of life, but as a participant in the creation of a generally accessible new terminology of health: every time he has to deal with some terms which might confront his readers with difficulties of comprehension, he is careful to introduce them in as simple a way as possible. For example, when introducing the Western concept of "rheumatism," he renders it first in *kanji* 僂麻質斯 (*ru ma chi su*), *katakana* and *hiragana*, and then provides a short Japanese definition: "It is a disease causing pain which is usually called 'the disease of shoulders' or 'the arm disease of the fifty-year old.'" (p. 111)

A further important theme which Ringger discusses in connection with the formation of new body care terminology is that of nationalist rhetoric: in Meiji Japan, the concept of a healthy body transcended the private sphere and was understood as a matter of national priority (*priorité nationale*, p. 114.) Making this observation, Ringger touches upon a subject which since the nineteenth century has been crucial not only for Japanese self-strengthening programs, but for the whole field of creating scientific terminologies in the global context. The implementation of this *purity and*

health rhetoric in scientific taxonomies remains a wide-spread means of academic communication even up to the present day.[5]

Another contribution which is methodologically different from the rest of the articles in the discussed volume, is Shigehisa Kuriyama's "Translation and the history of Japanese irritability," pp. 27-41. Kuriyama's analysis is concentrated on the fate of a medical concept (*shaku* 癪, *irritability*), which up to the Meiji had been part of a commonly understood lexicon, and which fell out of use completely after the introduction of the latest Western medical knowledge in the late nineteenth century. Kuriyama reconstructs the original Sino-Japanese semantic components of this concept, and illustrates deep correspondences between the constitution of scientific terminologies and scientific methods: the fact that *shaku* has virtually disappeared from contemporary Japanese is due to Japan's conversion to an anatomically-based nosology and the fading of haptic consciousness.

The volume under discussion provides not only valuable information on the formation of modern non-European scientific terminologies, it also displays a variety of perspectives—philosophy, rhetoric, language worldview, stylistics—to approach these processes. For anyone interested in the modern transfers of knowledge between East and West it will be a helpful and instructive reading.

[5] For further details see my article "Zur Dekonstruktion des Un/Gesunden in philologischen Taxonomien: Westlich-Chinesischer Renaissance-Diskurs" (Deconstructing Good and Poor Health in Philological Taxonomies: the Renaissance-Discourse in China and in the West, *Oriens Extremus* 2012, pp. 231-268), where health and purity are discussed as an indispensable part of the politics of language propagated by such ideologically different characters as Xu Zhimo 徐志摩, Liang Qichao 梁啟超, Hu Shi 胡適, and Mao Zedong 毛澤東, among others. For a more recent remarkable example of using health rhetoric in academic discourse, see Brent Nongbri's *Before Religion* (2013), where the "unhealthy practice" (cf. op. cit., p. 159) of using the term "religion" in religious studies is criticized, and where the reader is admonished to purge his/her vocabulary of words designating nonexistent things.