“Hygiene and Residence” (Juzhai weisheng lun, 1880) and the Transition of Weisheng in Urban China

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Abstract:

This paper explores how the meaning of weisheng (hygiene) shifted away from Chinese cosmology of nurturing one’s life and moved to encompass scientific standards of collective environment and efficiency of urban infrastructure. The translated treatise “Hygiene and Residence” (Juzhai weisheng lun) interpreted by John Fryer (Fu Lanya), which elaborates spatial configuration and constructional details on optimizing built environment, marks the emergence of modern architectural and urban design principle in contemporary China.

Key Words: Modern hygiene, Fu Lanya (John Fryer), Interpretive translation, Built environment, Urban China

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Weisheng was once a confident Chinese “way of guarding life”, a set of advanced hygiene techniques rooted in culture and tradition. However, by the early twentieth century, weisheng was deployed as a discourse of Chinese deficiency. In the writings about weisheng by the reform-minded of the time, there was an explicit understanding that Chinese were not as clean as an imagined West. What resulted in this change in mind?

Nowadays the Chinese weisheng can be translated with no dispute into hygiene, sanitary, health, or public health in English. Yet before the nineteenth century, weisheng was associated with a variety of regiments of diet and self-medication that were practiced by the individual in order to guard fragile internal vitalities. How the meaning shifted away from Chinese cosmology of a robust individual and moved to encompass scientific standards of collective environments and efficiency of urban infrastructure?

1. THE BEGINNING OF THE TRANSFORMATION OF CHINESE WEISHENG

The late nineteenth century witnessed the emergence of a totalizing “hygienic modernity”\(^1\). In the discussion of the traceability of the concept of "hygiene", a large number of scholars believe that "hygiene" in modern China came from Japan\(^2\). It is regarded as a typical example of “the return of overseas Chinese words”\(^3\), that is, the word was originated in China, then used in a foreign country in recent times and given new content, and then transmitted back. Around the seventh year of Meiji period (1874), Nagayo Sensai translated "hygiene" into weisheng, thus forming the earliest modern version of hygiene in the East Asia\(^4\). After the Sino-Japanese War of 1894, Japanese weisheng began to spread widely in China as its influence in China expanded. The direct use of Chinese characters in the Japanese weisheng facilitated easy recognition and acceptance. After that, China was driven by the huge national crisis to take the initiative to learn the modern Japanese hygiene system with the aim of “strengthening the race and protecting the country” (Qiangzhong baoguo). However, before this, as this study will argue, weisheng in China had already taken on new significance. Until the late nineteenth century, the transformation and development of Chinese weisheng, the formation of the Japanese weisheng and the improvement of Japanese national hygiene system were all arising independently by the influence of the West.

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4. Liu, Shiyong. The Characteristics of Taiwan Medicine in the Period of Japanese Administration before the 1930s [J]. Research on the History of Taiwan (Taiwan shi yanjiu), 4:1,100-102.
The word *weisheng* originated very early in China. Master Zhuang of the pre-Qin period recorded "Bible of Weisheng"⁵, and later generations mostly interpreted it with the meaning of "nurturing life". *Weisheng* in Chinese literally means “protecting one’s life” and in this sense, the concept covers a broad range of behaviors and measures including preventing disasters, quelling riots, etc⁶. In related medical theories such as "Sun Siwei Hygiene Song", *weisheng* is often associated with "medicine". In the earliest Chinese-English dictionary *Wuche yun fu* (1820), the English interpretation of *weisheng* is "to take care of one’s hygiene and life"⁷. It can be seen that for a long time in China, whether it is "nurturing", "protecting" or "medical", the subject of *weisheng* is "human" and is centred on human body, health and life.

It was not until the late Qing Dynasty, that is the end of the nineteenth century, that *weisheng* changed its meaning. This transformation is closely related to a series of translated treatises that introduce the modern hygiene knowledge in treaty ports, such as *Huaxue weisheng lun* (Chemistry and Hygiene, 1878-1882), *Juzhai weisheng lun* (Hygiene of residences, 1890), *Haitong weisheng bian* (Hygiene for children, 1893) and *Youtong weisheng bian* (Hygiene for young children, 1894). The modern western hygiene is a world far removed from correlative cosmology, the interiorized “Yin and Yang”, or “Hot and Cold”, in which air, soil, water, and food are composed of specific combinations of discrete chemical elements. The emergence of these translations marks the beginning of the transition of *weisheng* in China.

### 2. FU LANYA (JOHN FRYER) AND THE WEISHENG TRANSLATION SERIES

The author of the *weisheng* translation series is a British missionary who lived in China for more than thirty years, John Fryer (1839-1928), Chinese moniker Fu Lanya. Fryer was born in a poor pastor family in Kent, England. At the age of 21, he was appointed the Dean of the St. Paul's College in Hong Kong. Later in 1863 to 1865, he worked as an English teacher at the Jingshi Tongwen Library and Shanghai Yinghua School. In 1868, he transferred to the Translation Division of the Jiangnan Arsenal, one of the Qing government’s major centers for military modernization in the late nineteenth century and a major site of intellectual collaboration between Chinese and foreigners in Shanghai. In here he published thirty-three copies of translations based on English and American popular scientific textbooks, encyclopedias or technical works⁸. However, for the ordinary Chinese people, these translations were too esoteric. Also, these books were not easily available or affordable, therefore very

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⁸ The Chinese Recorder.8.1877.243-244.
difficult to circulate\textsuperscript{9}. It was necessary to create an accessible publication with simplified terminology for the general public. In 1874, Fryer participated in the establishment of \textit{Shanghai Gezhi Academy}, which original intention was to disseminate scientific knowledge. In 1875, he edited the earliest modern Chinese science magazine - \textit{Gezhi huibian} (literally Compilation for the Investigations of Things, English name “Chinese Science Magazine”), a position for introducing Western scientific knowledge\textsuperscript{10}. With these translations, Fryer sought to establish Western knowledge as the guiding principle for the preservation of health and the organization of daily life. The compilations were widely circulated in the late Qing Dynasty and made important contributions to the dissemination of modern scientific and technological knowledge in China\textsuperscript{11}.

\begin{figure}
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\includegraphics[width=0.5\textwidth]{fig1.png}
\caption{The cover of \textit{Gezhi huibian} (literally Compilation for the Investigations of Things)}
\end{figure}

It is worth mentioning that these compilations were translated in a unique way, more like localized interpretive translation. That was, the foreigners who are familiar with the Chinese language read and understand the required articles first, then interpret the text in their own expression, the Chinese scholars with relevant expertise and excellent writing skills record the

\textsuperscript{9} Fu, Lanya. Jiangnan Manufacturing Administration translated the Western Book Briefing, Gezhi Compilation (\textit{Gezhi huibian}), Volume 3 of the 3rd Year (July 1880) Xu Shou. Introduction, Gezhi Compilation, First Year Volume 1 (February 1876)

\textsuperscript{10} Wang, Yangzong. The Gezhi Compilation and the Spread of Western Modern Science and Technology Knowledge in the Late Qing Dynasty. Chinese Science and Technology Historical Materials. 27(1)1996: 36-47.

\textsuperscript{11} Wang, Zhihao, Yang, Gen. Gezhi Academy and "Gezhi Compilation". Chinese Science and Technology Historical Materials. 5 (3) 1984.59-64.
transcripts and eventually compile them into books\textsuperscript{12}. It can be seen that the process consists of two rounds of digestion and expression, incorporating the context of the era and the translators’ own knowledge system. Fu Lanya is the main interpreter of the translations, yet Fryer’s limited education in both Western science and Chinese language made it impossible for him to act independently. Chinese scholars and practicing scientists such as Xu Shou, Zhao Yuanyi and Xu Jianwei were responsible for the written duties. Thus, a Fu Lanya translation was never solely the product of one British mind, but always produced in concert with his Chinese colleagues. However, many of Fryer’s works, including all translations bearing weisheng in the title, did not credit a single Chinese co-translator\textsuperscript{13}.

This way of translation can be understood as “translingual practice”\textsuperscript{14} in the Colonial Period. In the early study of Western modern knowledge in China, translation itself played an important role. “There is often only a metaphorical correspondence between the translation and the original text, and the rest of the meaning is subject to the practical needs of the translated language user.” In the process, new ideas and new concepts gradually gained legitimacy and recreation through new words as well as old words in the local language.

Fu Lanya’s earliest hygiene-related translation was *Rumen yixue* (Confucian Medicine, 1876), which was translated with Zhao Yuanyi. Here, Fu Lanya intends to explain Western hygiene knowledge in a traditional Chinese way, which not only facilitates local understanding and acceptance, but also paves the way for the later alliance between Chinese traditional weisheng and Western modern hygiene. Although it is an introduction to Western hygiene, it is not named after “hygiene” but continued to use concepts such as "protecting life", "nurturing body" and "preventing disease" instead. For instance, in the first part titled "On the theory of body-building", it says "This book is on the law of preservation, hence on the important matters in life: light, heat, air, water and diet. The law of preservation is related to these five. The five are indispensable, with no particular order."\textsuperscript{15}

Later, Fu Lanya’s *Huaxue weisheng lun* (Chemistry and Hygiene, 1878-82) explained the Western chemistry knowledge also from the perspective of "nurturing the body". The book is the earliest known material that is on modern hygiene and entitled with it. The title of the original text is “The Chemistry of Common Life”\textsuperscript{16}. The work was serialized in *Gezhi huibian* in 24 issues from February to July 1878, then from August 1880 to January 1882. It is the

\textsuperscript{12} Fu, Lanya. Jiangnan Manufacturing Administration translated the Western Book Briefing, Gezhi Compilation, Volume 3, Volume 3 (July 1880)


\textsuperscript{14} Liu, Lydia He. Translingual practice: literature,national culture,and translated modernity--China,1900-1937 [M] Beijing: Sanlian Bookstore, 2008, p.88

\textsuperscript{15} Hai, Delan, Fu Lanya (Interpretation), Zhao Yuanyi (record), "Confucian Medicine" volume 1, Guangxu second year publication, p. 2a-3b

\textsuperscript{16} "Reviewing New Books, Re-enacting Chemistry and Health", in "German Compilation", Guangxu, 17th Spring, Page 44b
longest translation work in the magazine. This series discusses the external environment on which people depend, such as air, water and soil, and substances of which human body intakes, such as grains, meat, drinks, cigarettes, opium, rosin, musk and spices, as well as the mechanism of human body such as digestion, breathing and metabolism. It seemed that the knowledge demonstrated here could explain everything in the world in terms of chemical composition and reaction. So it made the Chinese readers believe that the Western science had the ability to "protect" and "nurture" human body. Although the book is entitled with the word "hygiene", it does not have much to do with "hygiene" or "sanitary" so strictly speaking. It is not a true hygienic work. The later Haitong weisheng bian (Hygiene for children, 1893) and Youtong weisheng bian (Hygiene for young children, 1894) were more explicit in this matter. However, it is undeniable that "Chemistry and Hygiene" unites the Western modern concept of "chemistry" with the Chinese traditional concept of "protecting one’s life". It re-establishes the Chinese ancient theory based on modern chemical science and suggests achieving hygiene through exploration of chemistry.

In the following Juzhai weisheng lun (Hygiene of residences, 1890), the focus on external environmental conditions is even more distinct. It was serialized into four episodes in Gezhi huibian. The title of the original text is "Sanitary engineering to cure the poor". The hygienic environment in China during the late Qing Dynasty, when Juzhai weisheng lun was compiled, was really worrying. At the beginning of the text there is such a description: "The Chinese towns are crowded, and people are densely populated... The raging summer plague of infectious diseases is causing high mortality rate". In coping with this phenomenon, at the beginning of the twentieth century, a series of measures took place in the treaty ports like Hong Kong and Shanghai. Public hygiene system gradually took in shape. However, the contrast between the inside and outside of the concession remained huge. This made the Chinese intellectual elite realize that "a strong country must first have a strong race, and a strong race must first be hygienic". A national campaign then commenced, calling for rejuvenation of the country's prosperous and strong nationalities by means of total hygiene. The dismal environmental status together with the change in ideology pushed the hygiene issue of the urban built environment to a critical juncture.

The following study will focus on “Hygiene of residences” to explore how the Chinese term of weisheng was enriched from tradition and completed its modern transformation. From "Confucian Medicine" to "Chemistry and Hygiene" then to "Hygiene of residence", Fu Lanya links weisheng of personal hygiene regimes with Western scientific knowledge and extends to the external environment. It is a process that gradually approaches modern hygiene. While he translates hygiene with weisheng, he unites the common life and the sanitary engineering in the original work and implies a transition of concept from the individual to the public. "Confucian

17 Xia, Jing. The change and circulation of the concept of "health" in modern East Asia. Historical and Cultural Semantics, 289-297.
Medicine” paves a common ground of understanding. “Chemistry and Hygiene” explains the principles of health, shifting from the internal cosmos of human beings to the external environment in which people habitat. "Hygiene of residence" goes one step further, in which human beings become the "audience" of the external environmental conditions, and the external built environment becomes the "subject" of hygiene.

3. JUZHAI WEISHENG LUN AND THE ‘TRANSLATION’ OF WEISHENG IN BUILT ENVIRONMENT

*Juzhai weisheng lun* received less attention compared to other publications in the *weisheng* series, partly because it was only issued in the magazine, never published in full as a booklet. This does not reduce its significance though. The author of the original text remains unknown, which hints that it is not a famous work originally. With its frequent allusions to London and its brief suggestion of the possibility of a germ theory of disease, it is most likely a British work from the 1870s. Having in mind the delicacy of the translation process, the intellectual value that the translators infused in it might be considerable.

*Juzhai weisheng lun* presents an image of hygiene knowledge based on building technology. The first half of the work elaborates chemical science principles to discuss the site selection, dehumidification, lighting, ventilation, heat generation, etc., and provides practical guidance. The second half moves on to discuss problems and solutions of public hygiene in big cities, focusing on the anatomy and construction of the urban sewer system. *Weisheng* or “clean” emphasized here have surpassed the conventional personal regime of “protecting one’s life”. It is linked to “state” and “government behavior” and thus takes a big step toward publicity. Although a translation and only published in magazine, it is the first time in China to discuss modern hygiene knowledge in the residential context.

**Strategy 1. Moisture-free:** The article begins with site selection of a house and its foundation construction. It is believed that the primary consideration for grounding a house is to avoid moisture. Suggestions include lifting the ground beam, covering the foundation with moisture-proof materials and building with moisture-proof materials. All of these could keep away the invisible micro-organisms, therefore, it would be good for living. “If you can make the floor one or two feet above the ground, referring to the first illustration, you can ventilate the joist. Under the joist, the soil will be constantly dry, the wood will not decay. The cost may be high, yet the reward will be huge. Ventilation under the joist can not only keep away bacteria, but also avoid the source of decay, as those extremely small bacteria is often born in a humid, dark and windless place.”

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Strategy 2. Daylighting and ventilation: It then discuss the purpose and principles of daylighting and ventilation. One of the purposes of daylighting is that adequate light can highlight dust and other pollutions, so that people will try hard to keep clean. Ventilation is also aimed at cleaning. Definitive and credible data is listed to discuss the relationship between population density and air cleanliness, which is closely related to health. Listed also are accurate calculations of the number of people in the house and the required space, the wind rate and temperature control. It then visualizes, through a clear and vivid graphical language, how to translate these principles in buildings. Construction methods and building techniques are illustrated in details ranging from structural components to interior decorations.
Strategy 3. Urban sewage system: Juzhai weisheng lun suggests that it is very important to have clean water supply in the house. Bacteriology science is referred to argue that the human eye cannot distinguish whether the water is clean or not, which can only be identified by physical or chemical examination. Water quality has a great impact on human body, as water is the most prone to breed bacteria and absorb pollutions. The outbreak of most infectious diseases is related to unclean water sources. Urban residential water supply must undergo a series of measures to guarantee water quality, which inevitably involve municipal engineering projects. In addition, Juzhai weisheng lun also proposes solutions to the problems of manure and sewage discharge. In consideration of the social and technological status at that time, it suggests that manure could be disinfected, sterilized and re-used as fertilizer. It is hoped that under governmental supervision, entrepreneurs responsible for sewage treatment and manure field can take initiative and share benefits with the government. This proposal is highly advanced and forward-looking.
New urban building type:

In addition to the establishment of urban sewage system, there is another focus on urban public buildings: “Where meat, fish, vegetables and fruits are sold, there should be a specialized marketplace, which is ventilated on its four sides, surrounded with a gutter to discharge pollutions and a canopy to keep out rainwater.” With an emphasis on hygiene, a new building type began to emerge. Here the evaluation criterion leans towards cleanliness rather than visual impact. Here the concern of hygiene in the built environment is not restricted to private residential scale but extended to collective urban domain.
The lighting and ventilation strategies discussed in *Juzhai weisheng lun* are still aimed at "distancing disease, clearing mind, prolonging life" as pursued by conventional *weisheng* concept, but attention is shifted from hygienic care of an individual body to the technical considerations of a building. The boundary of *weisheng* has been extended from human body, to the residence, then to the city. It has been realized that there is no guarantee in personal health without architectural and urban sanitation standards. Fu Lanya has a very clear recognition of how to realize household as well as urban sanitation. He pins his hope on the rich and elite in the society, people with capital and benevolence, more than the government at the time. He does not completely ignore the role of state organs though. In his opinion it is, however, not the initiator or promoter, but the monitor and facilitator. What the ordinary people could do is to try their best to keep their residence neat and tidy.

One of the driven forces of modern architecture is the urgent need that “medical body” imposed on architectural and urban environment \(^{20}\). Through such a spatial and constructional “translation”, *Juzhai weisheng lun* brings about a change in the ideology of residence. Different from conventional Chinese concept of residence as a metaphor of patriarchal clan and interpersonal hierarchy, people began to understand and accept a different value system towards decent living condition based on the requirements of modern hygiene.

4. SOCIAL IMPACT AND LEGACY EFFECT OF JUZHAI WEISHENG LUN

A renewed concept of *weisheng* of modernity and advancement had a great impact on the Chinese intellectual elites at the end of the nineteenth century. Together with the deep national crisis, the worrying living condition of the general public and the contrast between China and the West (visibly inside and outside the concessions), it stimulated these reform-minded Chinese. Being hygienic as an individual and as a nation was not only regarded as a representation of modernity, but also viewed as a means to save the country.

The most prominent figure among the reformers is the influential political thinker Liang Qichao. He had read almost all the translations in *Gezhi huibian* before included "Chemistry and Hygiene" and "Hygiene in residence" in his far-reaching publication *Xixue shumu biao* (Western Academic Bibliography). He assorted these two in the category of “Medicine” and praised their exposition of the scientific Western approach to nurturing life. Here Liang used the term *yangsheng* instead of *weisheng*. Then in the attached *Du xixue shu fa* (On Reading Books of Western Learning, 1897), Liang praise Fu Lanya for putting this Western hygiene knowledge for the purpose of defending life in the context of saving China out of the poor status. Later he urged the Chinese to develop good personal hygiene habits, stating that the problem is national, yet the solution is individual.

\(^{20}\) Dou, Pingping. From Medical Body to a Notion of Environment Resorted to Structure, Architectural Journal, 2017-7: 15-22
In 1934, Chinese architect Guo Yuanxi wrote in "Discussions on New China Architecture": "The mission of a building is for the purpose of living and working, that is to say, protecting lives and enhancing society.... Housing needs to be improved: Old style dwellings, sultry and humid, lack of light. No ventilation in summer, no heating in winter. Not to mention sanitary equipment in kitchens or toilets. It is the source of diseases … undesirable phenomenon in the city: streets are narrow, lanes are crooked. Public toilets everywhere yet excretion is reckless."21 Guo did not associate these hygiene problems with the contrast between “Chinese and Western”, like architects and scholars in the previous period would do, but with “new and old”. This is one of the most common architectural discourses of the 1930s. The critique of “hygiene” in Chinese cities and buildings directly led to the pursuit of new type of architecture that met new standards, among which “hygiene” was undoubtably the foremost important.

Fig.5. Wide and clean streets of Shanghai British and French concession, 1860s

Fig.6. Yangshupu Water Plant serving Shanghai British and French concession, completed in 1883

21 Architecture Monthly, Vol. 2, No. 6 (1934.6), 15-16
In the study of vernacular industrial buildings of the 1930s, it was found that the Nanjing Government of the Republic of China promulgated laws and established government regulatory agencies to supervise “inappropriate” factories. Here “appropriate” means fulfilling "disinfection, ventilation, insulation, hydration, operation, illumination and other necessary conditions". Inappropriate factories received financial sanctions and even got banned. Those factory buildings converted from old buildings, mainly residential, were more difficult to meet audit requirements, so the number of specially built factories increased rapidly. It is hard to say this was a direct consequence of Juzhai weisheng lun or Gezhi huibian, but it is undoubtably an inspiring beginning. Juzhai weisheng lun enlightened the Chinese intellectual elites in a specific historical juncture, through which it then benefited the public.

5. CONCLUSION: THE HISTORY AND CULTURAL VALUE AND SIGNIFICANCE IN ARCHITECTURE

The emergence of the very first Chinese translations of western hygiene theories reflects a specific moment in the recent history of science and culture in China. The subsequent reception clearly shows that the Chinese at that time already had the awareness of modern hygiene, its importance and mechanism. This awakening moment may be much earlier than the occurrence of the New Culture Movement and the New Life Movement, as generally accepted by previous studies. Although at the time most of the influence was among the intellectual elites of the society, it was tantamount to a morning star in the dim.

The weisheng series represent the beginning of an important shift in meanings of hygiene in China. Step by step in the process of interpretive translation, the centuries-old Chinese concept of weisheng was enriched to a full spectrum of meanings from preventing disease and guarding vitality to environmental engineering and public health. The meanings went far beyond anything ever associated with the word before the late nineteenth century. These translations that appeared in 1880s called upon the Chinese to use laboratory science as a guide for daily existence. They suggested that the basic rules for guarding life come not from the “inner canon” of the Yellow Emperor (Huangdi Nei Jing) or the works of Master Zhuang, but from the scientific laboratories.

Juzhai weisheng lun, the lesser known compared to Fryer’s other weisheng translations, also the only one that points to governmental responsibility and collective action, takes the built environment as the main focus of concern. Divergent from the individual-centered models of weisheng, its belief in the power of urban engineering to eliminate disease and governmental surveillance to integrate resources, is radically distanced from a Qing understanding of statecraft. Illustrations reveal not the internal anatomy of the human body, but of a well-

insulated wall or an efficient sewer system. Engineering, and not medicine or chemistry, is the science that provides answers to the problems. Guarding vitality is therefore achieved through an optimized built environment. Different from traditional Chinese concept of residence that centered on interpersonal relationships, it emphasizes residential sanitation as the value system behind all spatial configuration and building tectonics. Whether it is daylight and air interchange, or water supply and discharge, “people” is still the starting point of certain. The humanistic care, which puts human survival and living condition in the first place of all actions, also implies equality in society. This people-oriented architectural design principle, as opposed to spatial hierarchy system, has become a manifestation of progress and modernity.