


The Rockefeller Foundation's Involvement in China's Development of Modern Science in the 1920s

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The Rockefeller Foundation (RF) was a significant external force in China's development of modern science throughout the Republican Era (1912–1949). The most influential of its evolving programs in China was the funding and operation of the Peking Union Medical College (PUMC) via the China Medical Board (CMB). This took place mainly in the 1920s, for the PUMC's new campus did not start to function until 1921, and only after that did the RF's activities in China fully unveil. Meanwhile, after the RF's reorganization in 1927 the PUMC and CMB became independent, at least nominally, organizations, while the Foundation's own interest in China took a rather drastic turn in the 1930s, which was later hampered by the eruption of the Second Sino-Japanese War in 1937 and thus achieved much less than the PUMC and CMB.¹

The changing characters of the RF's programs during its three-decade involvement in China were shaped by its constant evaluation of how it might best help China, based on its keen observations of the developments taking place there. While the personal ambitions of the observer sent by the RF inevitably played significant roles in the several stages of developments, their observations nonetheless reveal invaluable insights as well as facts concerning the situation in China in that time. Thus, as far as understanding the development of modern science in China is concerned, the records collected by the Rockefeller Archive Center (RAC) exhibiting the RF's roles as both an observer and a participant serve as an invaluable source.

Despite the early connections between China and the Rockefeller enterprise, real philanthropic interest in China of the latter can be traced to its funding of the Oriental Educational Commission from the University of Chicago, which was conducted by two professors from the university, Ernest DeWitt Burton (1856–1925) and Thomas Chrowder Chamberlin (1843–1928). From late 1908 until mid-1909 the Commission was frequently travelling across China's vast territory, investigating the conditions concerning education in its various regions. Although the situations as recorded in the Commission's report differed from one

place to another, the overall impression described concerning education in China is that it was at that time of rather poor quality, which is perhaps why a considerable portion of the report was devoted to possible plans for its improvement.²

Whatever the impact the Oriental Educational Commission's report might have had on the shaping of the policies of the RF, which did not come into its organizational being until 1913, once the Foundation's China enterprise was launched, its concern was primarily a medical one. By obtaining and reorganizing the PUMC and through its training programs, the RF intended to introduce modern medical science to the country. While holding the image that medicine was probably the most effective way to start modernizing China, the RF was also acutely aware that the College could not function properly in and of itself, for the sort of students that could meet its level for enrollment would have to be secured from elsewhere. A pre-medical school was affiliated to the college for that purpose, but soon it became obvious that only one such school would not suffice. What followed was a program of larger scale to upgrade what the RF deemed as pre-medical education in China at large, a major part of which was the improvement of the level of education in natural sciences.

The funding of this program was channeled through the CMB, whose two officials deeply involved were Roger Sherman Greene and Nathaniel Gist Gee.³ Gee had been teaching biology at the South Methodist Soochow University since the late 1890s, and was hired in 1922 by the RF specifically for the job of surveying Chinese institutions to evaluate where the RF money might be put to good use. Greene, the very person who scouted Gee, was serving as the resident director of the CMB. The two were working in a manner in which Gee was the man in the field, constantly travelling and looking directly at the conditions in Chinese institutions, while Greene was the one who made final decisions, approving that money should be given to a certain institution based on the observations and suggestions sent by Gee. Despite the small personnel carrying out this work, in

the decade of 1920s they were able to cover most Chinese institutions, many of whom in one way or another benefitted from the Rockefeller money.⁴

Indeed, the scope of their work was so broad that it is almost impossible to trace in detail every project that the RF sponsored based on their efforts. This can be seen from number of institutions and persons listed in the lengthy catalogues of the relevant records at the RAC. Although not all these connections with the CMB were in financial terms, they nonetheless reflect the breadth of the work conducted by Gee and Greene. Such records are mainly scattered in the China Medical Board records (RG 4) at the RAC, while some are found in the China Medical Board, Inc. records and the series on China in the RF's project records (RG 1.1, series 601).⁵

Yet given the fact that only two CMB officials were carrying out the work, certainly not every institution that it had connections with was treated in the same way. Among the large number, there were several universities with which the CMB was much more conceivably involved than others, as could be told by the volume of the relevant records. These include Tsinghua University (College before 1925), the National Southeastern (Central after 1928) University, Nankai University, and Yenching University. Incidentally, the latter three represent the best of the three main categories of Chinese colleges, being national, private, and missionary respectively. Tsinghua, on the other hand, had been established in 1909 to prepare students enrolled to the Boxer Indemnity Scholarship Program before they set out to the United States. In other words, the CMB was essentially dealing with the best colleges available in China.

While the details of how each institution benefitted from the CMB call for a thorough examination of the materials, perhaps best in the context of the history of a particular college, overall the CMB's help came in three aspects: building, equipment, and personnel. The CMB provided money for a few institutions to build science buildings and purchase equipment so that experiments could also

be taught. Meanwhile, the RF's broad connections in the United States helped to bring American professors to Chinese colleges, where they would usually teach for one year, which could serve as examples for Chinese staff so that a high level of education might be kept after the foreign professor returned home. Together such efforts contributed to the betterment of the infrastructure for education in science in China.

Still, such work by the CMB in the milieu of science during the 1920s, directed by Greene and operated by Gee, was well confined within the capacity of serving the PUMC. Any effort made along the line of strengthening the teaching of natural sciences in Chinese colleges was to ultimately improve the competence of potential candidates to be enrolled in the PUMC. Although the purpose is rather focused on the part of the RF, what actually took place was to a great extent all that could be done with Chinese colleges at the time—whatever their own visions concerning education were—for the level of education there was still so low that any expectation beyond the improvement of education itself would have been unrealistic. Even in 1933, when two RF officials in Europe, Selskar M. Gunn and Wilbur E. Tisdale, visited China to investigate its development of science, according to Tisdale's report the number of Chinese colleges able to provide a satisfactory undergraduate program in natural sciences was still considerably small.⁶

The same can be said about another effort by the CMB. Other than aiding Chinese institutions, it was also active in offering fellowships to qualified Chinese and foreigners for studying in Europe or the U.S., in the hope that upon the completion of their study, they would contribute to the development of modern medical science in China. The majority of such fellowships went into the fields of medical study and nursing, and among the 350-odd fellowships granted between 1915 and 1928, less than 50 went into premedical studies altogether, all of which were given after 1922, after Gee joined the CMB.⁷ Whether for medical or premedical study, such fellowships did not seem to impose restrictions on the

degrees of which the candidates were in pursuit, but in focusing its goal on medicine, for those in natural sciences, the CMB's definite expectation was that the fellow would devote most of his/her efforts to teaching rather than conducting research upon returning.

This vision can be illustrated by the negotiations for a fellowship between a Chinese physicist and the CMB in mid-1920s. Wu Youxun (1897–1977), who obtained his Ph.D. in physics at the University of Chicago in 1925, was seeking to extend his stay for one year at the university to do some postdoctoral work. For financial support Wu approached the CMB in 1924. A subsequent series of correspondence involving RF officials and physicists at the University of Chicago quickly convinced Greene of Wu's capabilities as a physicist. However, in considering whether to offer him a fellowship, Greene was more concerned about the prospects of the sort of contributions Wu might make upon returning to China to the CMB's enterprise. In Greene's view, the conditions of Chinese colleges at the time would not allow Wu to continue his research in full capacity, and most of his time and energy would have to be given to teaching. Thus he raised two issues before a fellowship could be seriously considered: whether Wu had secured a position in a Chinese college and whether Wu's advisors at the University of Chicago would arrange for him to gain some teaching experience.

At one point both seemed to have been resolved, as Greene learned that Wu had an offer from Nankai University, and his advisor, Henry Gale, would arrange for him to serve as an assistant in a laboratory course. However, further correspondence in early 1925 from both Gee in China and Wu's more direct advisor at Chicago, Arthur H. Compton, generated confusion. Gee reported that Nankai had not officially offered Wu a position but would like to do so nonetheless. What followed was a prolonged sequence of communications, which must have felt frustrating to both Wu and RF officials. It took little time before Nankai came to terms in officially offering a position to Wu, but at some point the National Southeastern University came into the picture, and in the end it was

there that Wu secured his future job. On the other hand, Compton seemed to believe Wu was simply too talented to devote even a small portion of his time and efforts to obtaining experience in teaching, and his final year in the U.S. should be spent entirely in research. While the correspondence among Wu, the RF, and Chinese universities continued during the first half of 1925, in the University of Chicago it became settled that Wu would serve as a research assistant to Compton for the extra year, entitling him a salary of \$1000. Naturally, his application for a fellowship was dismissed.⁸

From Wu's case it is obvious that the CMB had a clear vision as to its mission in China and it stuck to that vision. Besides, it also reflects the good understanding of China's needs by both Gee and Greene based on their observations. While professors at Chicago sought to fully exploit Wu's talent, Gee and Greene saw the necessity of adaptation toward China's reality, which did not allow much room for Wu to employ his research capabilities. In the end it was the CMB's view that proved correct, for Wu did not take a position in the National Southeastern University immediately after his return to China in 1926, but somehow ended up on the Board of Education of Jiangxi Province. He would later join Southeastern though, and then Tsinghua University, but his research did not start to reappear in international journals until the 1930s.

Nevertheless, Wu had apparently made a strong impression upon Greene. In 1927, when Greene learned that Wu was serving in Jiangxi instead of teaching in any university, he wrote to Gee suggesting whether opportunities were available from the China Foundation for the Promotion of Education and Culture. This is an organization that the Greene and Gee duo served outside the Rockefeller enterprise during the second half of the 1920s. It was founded in 1925 to finance the second remittance by the United States of the Boxer Indemnity, where Greene was on the board of trustees from the Foundation's establishment in 1924 through 1947. According to the records kept at the RAC, Greene's main job seems

to have been evaluating petitions for funding submitted from all sorts of institutions in China.⁹

It is uncertain what exact roles Greene (and Gee) played in other functions of the China Foundation, but his colleagues on the board included some of the most prominent men of science at the time, of whom Greene was at least well acquainted with one, Ren Hongjun (1886–1961). It was to Ren that Greene was thinking of introducing Wu Youxun.¹⁰ Ren was an active promoter of scientific knowledge throughout the Republican Era, who served several key organizations that helped bring modern science stage by stage to China, such as the Science Society of China, the China Foundation, and the Academia Sinica. It was by interacting and cooperating with local Chinese like Ren that the CMB could direct its efforts to the areas where they were most effective, and thus make its contributions visible to China's elites.

Just like Greene's observations in the case of Wu Youxun's application for a fellowship suggest, the CMB's work was effective during the 1920s largely because its goals met the urgent needs of China's education in that specific period. On the part of Chinese institutions, without a unified government committed to the improvement of education, they had to heavily rely on other sources for their operation, and the RF and CMB came into the picture just in time. However, the situation in China, as in other places around the world, would inevitably change. It was probably in part to accommodate such changes that the RF reorganized itself in 1927. For China, in particular, precisely because of such efforts as by the RF, the development of science was set in such a vigor that things changed rapidly over the 1920s. Both factors contributed to the weakening of the CMB's role in China's overall development of science after 1928, when together with the PUMC, it became independent from the RF.

The change of the RF's position accompanying its reorganization is rather straightforward, whereas the evolvement of the situation in China was subtler. In

1928 the Kuomintang (Nationalist Party) established its regime in Nanking, which eventually brought most of China under a single power. The impact of the political event itself was probably not so significant regarding Chinese scientists, but together with the establishment of the regime, research in science came to be emphasized, which is symbolized by the founding of the Academia Sinica as sort of a national research council. On the one hand, this reflected the ambitions of influential intellectuals such as Cai Yuanpei (1868–1940), who had been stressing the importance of academic research in modernizing China; on the other, it also addressed the reality that with more and more competent scientists like Wu Youxun returning, it became ever more difficult to limit their activities only to teaching in China.

This is perhaps why after 1928, the RF money came to be spent under one more category in China. Small grants started to be given to institutions under the title of Research and Developmental Aid. Yet unlike the former CMB program in aiding premedical science, these grants were not distributed with a consistent goal. At first Gee was responsible in handling this money, but soon it was incorporated into Selskar M. Gunn's China Program, whose focus was on rural construction.¹¹ With the CMB independent, RF's interest in China directed elsewhere, and most of the work to support China's development of science necessarily taken over by the China Foundation, the Foundation's influence in this milieu gradually waned during the 1930s.

Thus, put into the big picture of the overall development of modern science in China throughout the Republican Era, the RF's influence mainly took place in the 1920s, when it helped to improve science education in Chinese institutions as part of its goal to introduce state-of-the-art medical science to China. Although this goal might not have been shared by Chinese institutions, it so happened that the efforts actually carried out were precisely what they were in desperate need of at the time. So, other than offering a glimpse at the big picture, records at the RAC also help to generate quite a few intriguing stories when put within the

context of the individual development of these institutions. As such, more work needs to be done to put the RAC materials to good use.

ENDNOTES

¹ A detailed history of the Peking Union Medical College is provided by Mary Brown Bullock, *An American Transplant: The Rockefeller Foundation and Peking Union Medical College* (University of California Press, 1980).

² Multiple copies of the report by the Commission can be found at the RAC. The part on China referenced here is found in “Report of the Oriental Educational Mission of the University of Chicago 1909, Part V. China,” Folder 128, Box 19, FA065, China Medical Board, Inc. records, Rockefeller Archive Center.

³ Deserving as Greene is, a biography of him is still in absence. A biography of Gee is available though, see William J. Haas, *China Voyager: Gist Gee’s Life in Science* (M. E. Sharpe, 1996).

⁴ Although the correspondence involved is scattered in related collections at the RAC, Gee’s reports offer an overview. They are found in Folders 38 to 41, Boxes 3 and 4, Series 601, RG 1.1, Projects, FA386, Rockefeller Foundation records (RF), Rockefeller Archive Center.

⁵ For a detailed guide through materials at the RAC on modern science in China, see Laurence A. Schneider, “Using the Rockefeller Archives for Research on Modern Chinese Natural Science,” *Chinese Science* 7 (1986), 25–31.

⁶ W. E. Tisdale, “Report of Visit to Scientific Institutions in China,” Folder 326, Box 40, Series 601.D, RG 1.1, Projects, FA386, Rockefeller Foundation records (RF), Rockefeller Archive Center.

⁷ “Names of Residents of China who Held Fellowships for Study in America or Europe, 1915 to 1928 Inclusive, under the Program of the China Medical Board,” Folder 346a, Box 42, Series 601.E, RG 1.1, Projects, FA386, Rockefeller Foundation records (RF), Rockefeller Archive Center.

⁸ Correspondence surrounding this case is found in Folder 643, Box 31, Series 1, RG 4, China Medical Board records, Rockefeller Archive Center.

⁹ The petitions submitted by Chinese institutions are found in Folders 842 to 846, Box 38, Series 1, RG 4, China Medical Board records, Rockefeller Archive Center.

¹⁰ Greene to Gee, February 28, Folder 643, Box 31, Series 1, RG 4, China Medical Board records, Rockefeller Archive Center.

¹¹ For Gunn’s China Program on rural construction in the 1930s, see, for example, Socrates Litsios, “Selskar Gunn and China: The Rockefeller Foundation’s ‘Other’ Approach to Public Health,” *Bulletin of the History of Medicine* 79, no. 2 (2005): 295–318.