USING THE ROCKEFELLER ARCHIVES FOR RESEARCH
ON MODERN CHINESE NATURAL SCIENCE

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The Rockefeller Archive Center (RAC) is now located permanently in a splendid facility in Tarrytown, New York. It was established there in 1975, two years after the Rockefeller Foundation first opened its archives to researchers. These archives contain rich, unique data on the development of natural science education and research in China from 1913 to 1949. A few scholars have already used these archival sources to some extent in their studies of modern medical education and clinical practice in China, and of the growth of health care policy and practice during the Republican period (1911-1949). Others interested in that period are just beginning to exploit the archives for what they reveal about the natural sciences and their institutions. In this description and evaluation of the archives, I want to give the reader a practical sense of what they contain for the student of the history of science or of China, how they have thus far been used, and how they might be used in the future.

It is essential first to consider the institutions and historical situations which generated the materials in the archives. These situations evoke the larger cultural processes for which the archives provide fragmentary evidence, and suggest questions one might ask of the archival materials.

Why and How Did the Rockefeller Foundation Become Involved in Modern Chinese Science and Medicine? The Foundation, in hand in hand with the China Foundation for the Promotion of Education and Culture, was a central force in the development of the natural sciences in Republican China. This was in addition to the leading role the Rockefeller Foundation played in shaping modern medicine in China.¹

By 1917, four years after its birth, the Rockefeller Foundation had defined its original mission in China. In the wake of the Flexnerian medical reforms in America, the Foundation wanted to evaluate and reform medical missionary schools and hospitals in China. In general, it found the missionary work seriously below standards, and so the Foundation’s goals became even more ambitious. It would build two model medical schools and teaching hospitals to show the missionaries how their work should be done and to supplant some of their medical activities altogether. These model institutions were to begin training Chinese as well as influencing the growth of new Chinese medical institutions. Only one model was actually built, the luxurious Peking Union Medical College (PUMC). The Foundation created the China Medical Board (CMB) for its administration.

¹ For a fuller narrative and analysis of the events described below, with detailed references, see my “The Rockefeller Foundation, The China Foundation, and the Development of Modern Science in China,” Social Science and Medicine, 1982, 16: 1217-1221.
For our understanding of the archives, there now occurs an important turning point in the story. PUMC was imagined by its creators as a "Johns Hopkins for China." Accordingly, its standards for the admission of students were very demanding; so demanding, in fact, that at the outset Chinese applicants were generally found deficient in their college training in biology, physics, and chemistry. Rather than compromise their American-derived standards, in 1917 the CMB created a stop-gap remedy, a two-year preparatory school to aid college graduates to satisfy the natural sciences requirements. What was meant to be a permanent remedy was initiated as well. The CMB decided that—after appropriate survey studies were made—it would attempt to raise the quality of natural science education in Chinese higher educational institutions (both public and private) as well as in missionary colleges. Here is the source of the CMB's direct involvement in the development of natural science education in dozens of higher educational institutions throughout China from 1917 onward. By 1924, the CMB had arranged for its preparatory school program to be incorporated into Yenching University, an outstanding missionary school. For this purpose, the CMB turned over to Yenching both physical plant and teaching personnel, and endowed the University with sizable sums in US dollars. Mary Bullock's excellent 1980 study of PUMC was the first to recognize that from this point onward, virtually everyone accepted into PUMC was a graduate of Yenching.²

Among the Chinese schools that received CMB grants for natural science education were Nankai University, a private school in Tientsin, and Chung-yang (National Central) University in Nanking, the largest school in the national university system. Recipients of CMB funding for science development were largely singled out by Roger Greene (1887-1947), head of the CMB in China during its crucial years of growth, and by the CMB's science education coordinator, N. Gist Gee (1876-1937), an American biologist who taught at Soochow University. Gee was assigned the duty of making detailed studies of schools which were being considered for CMB grants to aid the development of physical plant, laboratories, equipment, and special teaching personnel. After grants were allocated to schools, they were regularly evaluated by Gee as well as ad hoc inspectors general who reported to the Rockefeller Foundation board of directors in New York. These studies and reports are the most important sources in the Rockefeller archives for the study of natural science education and research in Chinese university centers and in research institutes as well. The funding and evaluating activities of the CMB were quite distinct from its role in the administration of PUMC; this is reflected in the archival sources.

The CMB and the China Foundation. My research in the RAC revealed a critical point that enhances the value of the archives and our understanding of their significance. This is the intimate relationship between the CMB's science program and that of the China Foundation. Two key members of the CMB also sat on the governing board of the China Foundation: Roger Greene and Professor Paul

²See Mary B. Bullock, An American Transplant: The Rockefeller Foundation and Peking Union Medical College (Berkeley, 1980).
Monroe (1869-1947) of Columbia Teachers’ College were instrumental in coordinating the similar objectives of the two well-endowed foundations so that they complemented one another. The China Foundation was created in the mid-1920’s to allocate the 12.5 million dollars of the second American Boxer Indemnity remittance. (It also administered the funding of the Chi’ing-hua University, a legacy of the first American Boxer Indemnity remittance in 1909). The charter of the China Foundation clearly charged it to encourage the development of natural science education and research in China. To fulfill this charge, it regularly contributed to the same causes as the CMB, and indeed Roger Greene’s papers in the CMB archives reveal him wearing the two hats of the respective foundations as he formulates policies for allocating funds to science in China. Additionally, the China Foundation worked closely with the CMB science education coordinator to allocate large sums for a special set of projects which included science libraries, translations of science texts, the National Geological Survey, and distinguished science chairs in universities. The China Foundation is most famous for the 400 post-graduate science research travelling fellowships it awarded between 1929 and 1949. Its most significant project independent from the CMB was to improve instruction in natural sciences in the secondary schools of China.

Between 1925 and 1949, these complementary efforts of the two foundations resulted in the allocation of US $25 million directly to natural science education and research. Indirectly, the Rockefeller archives show, the foundations raised more millions for science from Chinese government and business sources, using matching grants and other devices. In this way both foundations hoped to create precedents for the future, self-sustained growth of natural science in China, and to provide models and criteria for this growth. Jointly, their comprehensive approach to science is comparable to that of the later United States National Science Foundation—with the important difference, of course, that the NSF is not controlled by foreigners who decide what is best for American culture. It will be important to ask later how the archival materials, with their distinctly Western points of view, might be supplemented, balanced, and corroborated by Chinese sources.

3 Peter Buck’s study of science in modern China is seriously weakened by (among other things) its failure to explore the nature and effect of this joint effort of the two foundations. See his American Science and Modern China, 1876-1936 (Cambridge, 1980). He has published a number of articles extracted from it without additional research or useful analyses. For example, see his “Science and Modern Chinese Culture,” pp. 133-160, in Sciences and Cultures (eds. Everett Mendelsohn and Yehuda Elkan; Dordrecht, 1981). This did not prevent him from making weighty judgments about the role of the Rockefeller and China foundations in China. See reviews of Buck’s book by myself in Isis, 1981, 72; by N. Svin in the Journal of Asian Studies, 1981, 41; and by D. Hollinger in the Journal of American History, 1982, 69.

4 E. Richard Brown has become a prominent critic of Rockefeller Foundation “imperialism.” In his latest attempt to analyze the Foundation’s work, particularly in China, he does not even cite the work of Bullock, much less the RAC data that are essential to his argument. He has apparently worked with RAC data, but somehow he did not learn about the relationship between the Rockefeller and China foundations. Surely, this relationship would be critical in any attempt to prove (as in Brown’s project) the covert, imperialist motivation beneath all the foreign philanthropic activities in China. See his “Rockefeller Medicine in China: Professionalism and Imperialism,” pp. 123-140, in Philanthropy and Cultural Imperialism (ed. Robert F. Arnow; London, 1982).
The Rockefeller Foundation Archives

To facilitate research, the RAC has arranged China-related data into some broad categories. The first is “China Medical Board” and is catalogued as “Record Group Four.” It includes material dating from 1913 to 1960. The second access category, which I will discuss momentarily, is “Projects: Series 601 China.”

Altogether, the CMB archives occupy 40 cubic feet of space, but only two feet relate directly to PUMC. The rest of the material deals with subjects I have described above, and are essential to any study of the history of modern medical education and practice in China, as well as of the bio-medical sciences. Within these records there is detailed information about the kind of medicine taught and practiced in the missionary schools and hospitals, including many stunning photographic studies of these missionary institutions. There is also material on the problems attending the transition from missionary medicine to “Rockefeller medicine.”

The development of modern nursing in China is similarly documented in these archives, reflecting the central role that the CMB had in the growth of all areas related to medicine. A cognate area that has begun to be well researched from these archives is public health in China. Bullock’s book and the work of Ka-che Yip have made exemplary use of the archives for this subject, a very controversial one in CMB policy formation.

From the inception of the CMB, there was a running controversy about whether the training of the “Johns Hopkins ideal” clinician-scientist could be further expanded to include the M. D. interested in public health. It is clear from the records that sophisticated bio-medical laboratory research and not public health was the primary goal of PUMC. Indeed, PUMC did lead the way in all such research in China. The archives must be used to supplement the scientific journals of the 1920’s through 1940’s by those who wish to plot the development of fields such as physiology, biochemistry, or experimental biology. Both the CMB and the China Foundation provided fellowships for research scientists from all over China to spend extended periods at PUMC, working with outstanding staff scientists (usually Americans) in these and other areas of biomedical research. In this way, PUMC had significant influence beyond its training of M. D.’s. The details of this influence can be culled from the archives.

Projects: Series 601 China

This category of the RAC collection contains 21 feet of material in 53 boxes and spans the period from 1913 to 1960. It is the main body of data for documenting the growth of the natural sciences under the guidance of the Rockefeller and China foundations. (Thanks to Roger Greene’s position with the two foundations, this collection also contains valuable unpublished materials about the China Foundation.) The RAC has broken this huge body of material into subcategories, as follows, but the researcher is well advised to expect data on a particular subject

\(^5\)For an example of the use of these documents, see Peter New and W. Y. Cheung, “Harvard Medical School in China, 1911-1916,” Social Science and Medicine, 1982, 16: 1207-1215.

\(^6\)See Bullock, op. cit. Also see Ka-che Yip’s study of the growth of health care policies under the Nationalist government during the 1930s, “Science, Medicine, and Public Health,” Social Science and Medicine, 1982, 16: 1197-1205.
to crop up in any one of a number of units:

601: an unwieldy, 23-box general category (containing, among other
things, extremely valuable reports on the development of natural science educa-
tion in key Chinese universities).

601A, "Medical Sciences": contains materials relevant to the operations,
especially in medical research, of virtually every medical school—missionary and
Chinese—in China.

601D, "Natural Sciences and Agriculture": the six boxes in this category are
the core data for the foundation’s activities in assessing and developing natural
science education and research throughout Chinese and missionary institutions.

601E, "Fellowships, Scholarships, Training Awards"

601 I/J/L/T: Public Health issues

601 R/S: has data on the relatively little and late involvement of the Rocke-
feller Foundation in the support of humanities and social science research and
education.

For this 601 category the RAC has made a most useful fifteen-page inventory
by box and file-folder numbers. Similar inventory catalogues made for the other
CMB material provide a necessary and useful point of departure. The RAC staff
have often taken the pains to cross-reference important materials; for example,
in the 601D data on Nankai University, one might find a RAC note referring the
reader to other relevant documents which have been filed under Roger Greene's
name in the "CMB Group Four" category.

Records of the China Medical Board of New York, Inc.

In 1928, the Rockefeller Foundation established the CMB as an independent
corporation, the CMB of New York, Inc. Its records have been deposited in the
RAC and are catalogued under the CMB's corporate name. Comprising 82 cubic
feet of material, they cover the period 1929-1973. Those interested in Chinese
science will find the most relevant materials of this collection filed under the
category "PUMC, Accession No. 32." Thus far, these have been the most fully
exploited of the RAC materials related to China. Books by M. Ferguson,
J. Bowers, and M. Bullock have used them to recreate the inner, institutional
history of PUMC; but only Bullock has managed to place this history into larger
Chinese cultural contexts. Although these studies have used the records skillfully,
there is much more information that can be used to answer the kinds of questions
I have raised above.7

Some Approaches to the RAC Data

A researcher may get at data on science in these archives primarily via four
routes. The most obvious is institutional, by way of the schools and research
institutes which were the usual recipients of funding. More convenient are the

7 See Bullock, op. cit.; and John Z. Bowers, Western Medicine in a Chinese Palace. Peking
Union Medical College, 1917-1951 (Philadelphia, 1972); and Mary E. Ferguson, China Medical
Board and Peking Union Medical College: A Chronicle of Fruitful Collaboration 1914-1951
periodic formal reports on the state of the natural sciences in China. The third route follows specific individuals who are cited in the inventory name lists. The last and least accessible route is through the pertinent discipline.

For example, a historian interested in chemistry in Republican China could cull and collate information from the many descriptions of chemistry education and research at specific schools and research institutes. If one were interested in charting the development of chemistry at one institution, Yenching for example, the inventory lists would make the work easier than the other approach—but the data on Yenching would have to be sought out in many subcategories of the archives. Additionally, the subject of chemistry could be approached through the careers of individual chemists such as Wu Hsiuem 张其ourn (1893-1959), about whom the archives provide a good deal of detailed information.

The CMB’s on-site reports on science warrant the researcher’s special attention. Made by CMB consultants, they were compiled periodically and based on evaluations of science teaching and research. They deal with dozens of institutions ranging from public and private colleges to the research institutes of the Academia Sinica, the Science Society, and the Fan Memorial Biological Research Institute. They often contain statistical data alongside personal judgments. The three major reports are: (1) The 1923-1928 series made by N. Gist Gec; (2) S. S. Gumm’s 1931 report; and most comprehensive of all, (3) W. E. Tisdale’s 1933 report. The first two are housed in the series 601 general category; the third will be found in 601D.

Data from these reports along with other “601 China” data make it possible, for example, to reconstruct the science faculties of important schools, and to learn the educational backgrounds of individuals, the subjects they taught, the research they pursued, and the salaries they received. These data further detail enrollments and curricula of science classes, including the texts used and the forms of laboratory training. Departmental budgets are often provided. The nature and quality of equipment and buildings for science education and research are described.

In sum, the archives contain abundant and detailed data on the development of the natural and biomedical sciences in China, especially from the early 1920’s to the early years of the Japanese occupation. The RAC inventory lists, reflecting the institutional orientation of the CMB, are not sensitive enough always to reveal just where all such data are filed. The researcher is well advised to survey the data.

Complementary Data

It is not likely that there will be substantial opportunities to corroborate or supplement the RAC data until researchers have access to institutional archives in China, and can interview Chinese scientists who were trained and who practiced their scientific métier during the Republican period.\(^{8}\) For a few very prominent

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\(^{8}\) I have begun to interview Chinese scholars and scientists—outside the PRC, so far. Among them are Professor Chang Chi-yun 张其ourn (b. 1901) and Kuo Ting-yee 郭廷以 (1903-1975) regarding National Central University; Wu Ta-yu 吴大猷 (b. 1900) on physics; Lu Gwei-Djen 卢桂珍 (b. 1904) on biochemistry, and in cooperation with Professor John Israel, the Nobel
institutions, I have been able to find in various libraries such sources as course
catalogues, year books, and anniversary histories which are most helpful for reconst-
structing the growth of science in higher education. The Nationalist government
also published useful statistics on all aspects of education. None of these make it
possible to assess the quality of the natural science education and research they
describe, nor do they provide as much detail as the RAC data. A hopeful portent
is the 1981 publication by Chung-hua shu-chu in Beijing of a draft history of
Ch'ing-hua University (Ch'ing-hua ta-hsueh hsiao shih kao 清华大学校史稿) in
499 pages. It obviously draws extensively on the Ch'ing-hua archives. Rumor
has it that similar histories are forthcoming for other major universities.

The RAC data is best complemented for the moment by the extensive material
published from the mid-1920's to the late 1930's in research bulletins and the
professional science journals of the universities and research institutes. These
provide a useful balance for the predominantly educational interests of the CMB.
Such science periodicals are represented in the major American Chinese libraries;
one would do well to start at the Library of Congress. Its comprehensive col-
collection of Chinese periodicals related to science has been made accessible through
Wang Chi's bibliography, Chinese Scientific and Technical Serial Publications in

Conclusion
In addition to the RAC materials I have discussed, researchers of Chinese
science may also want to examine the Center's separately catalogued collections
of private papers and diaries (which include those of Simon Flexner and Frederick
T. Gates). The diaries and papers of Roger Greene at the RAC are filed within the
CMB categories described above. One might also wish to consult the Roger Greene
papers at the Harvard University Archives, and the William Henry Welch Papers
at Johns Hopkins University.10

The RAC is administered by Rockefeller University, which provides generous
grants for those who wish to work in the archives for extended periods of time.
I received such a grant for the summer of 1980, and found the Center to be an
efficient and comfortable place to work. In addition to rapid access to desired ma-
materials, the RAC also provides readers with expert advice on the use of the archives,
as well as excellent services for reproducing materials. The RAC is one hour by
train from midtown Manhatten. For information, write to: Mr. William Hess,
Rockefeller Archive Center, Hillcrest, Pocantico Hills, North Tarrytown, NY 10591.

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9See the Ministry of Education's huge Chung-kuo chiao-yü nien chien 中國教育年鑑
(China Education Yearbook; Nanking, 1948).

10Information about the use of the Welch papers for East Asian studies can be obtained from
Dr. Harold Kanarek, Project Archivist, The Cheaney Medical Archives, 35 Turner Auditorium,
The Johns Hopkins School of Medicine, 720 Rutland Ave., Baltimore, MD 21205.