MODERN EDUCATION IN CHINA

By Charles K. Edmunds, President of Canton Christian College

American friends often ask: "How do you find the Chinese students? How do they compare with American students?" My answer after fifteen years in China is that the distinction between the Oriental and the Occidental lies in technique and in knowledge, not in intellectual calibre. While there are differences in point of view and in method of approach, there is no fundamental difference in intellectual character. The Chinese conception of life's values is so different from that of Western peoples, that they have failed to develop modern technique and scientific knowledge. Now that they have come to see the value of these, rapid and fundamental changes are taking place. When modern scientific knowledge is added to the skill which the Chinese already have, results will be achieved on the basis of their physical stamina and moral qualities, which will remove the ignorance, indifference and prejudice of the Western world.

Religion, government and reverence for antiquity have been the dominant influences in shaping the course of Chinese education, sometimes hastening and sometimes checking its progress. Confucianism, Buddhism, Taoism, and for the last century Christianity, have directly influenced considerably the development of the educational system. Undue respect for the ancient sages has prevented radical reforms until they were imposed by the necessities of modern intercourse with the rest of the world. Religion, government and reverence for antiquity have been the dominant influences in shaping the course of Chinese education, sometimes hastening and sometimes checking its progress. Confucianism, Buddhism, Taoism, and for the last century Christianity, have directly influenced considerably the development of the educational system. Undue respect for the ancient sages has prevented radical reforms until they were imposed by the necessities of modern intercourse with the rest of the world. Religion, government and reverence for antiquity have been the dominant influences in shaping the course of Chinese education, sometimes hastening and sometimes checking its progress. Confucianism, Buddhism, Taoism, and for the last century Christianity, have directly influenced considerably the development of the educational system. Undue respect for the ancient sages has prevented radical reforms until they were imposed by the necessities of modern intercourse with the rest of the world.

The policy of providing modern education upon a national basis was adopted only a few years ago. Allowing for this, China compares favorably with the educational history of the Western world.

Education has always been regarded as of supreme importance. Formerly cherishing solely the literary and ethical excellencies of ancient Chinese classics, she now extends her admiration to the practical realities of western science, because in them she recognizes the instruments for the realization of new national and economic ideals.

Fortunately the people of China have long been democratic in spirit and so has been their educational system. To develop the individual into a man of virtue and culture, and to secure social control through raising up leaders with ability and character to influence the lives of others, have been the main motives of Chinese education throughout many centuries; and may well continue even with altered content of the curricula. For China today is more in need of true men than she is of merely modern methods.

The Change from the Old to the New

The ancient system of education and its content have been fully described elsewhere. The gradual decadence of the schools themselves and the growth of the system of literary examinations as the means of providing candidates for government positions, followed in more recent times by modifications in the subject matter of the examinations and finally by the abolition of the examination system in toto—these fill the period from the really old to the really new education in China.

The last stages of this long period have been three, the changes becoming more and more rapid as we approach the present, the changes in education being concurrent with fundamental alterations in the political life of the nation. The transition from traditional to modern education began with the forced opening of the first five ports to foreign trade in 1842 and ended with the abolition of the ancient system of literary examinations in 1905.
to 1911 marks the construction period in which a modern educational system was actually applied with more or less success and frequent alterations. 1911 marks the end of the Manchu Dynasty and the beginning of the attempt to establish a republican form of government involving necessarily also a reorganization of education as far as government auspices are concerned.

The Simultaneous Development of Representative Government and of General Education

Either of these tasks taken separately would constitute a gigantic problem, whereas the fact is that they are so closely related and one so dependent on the other, that the attempt to establish a democracy before adequate public education is had, or the attempt to establish an adequate system of schools before the government is itself sufficiently stable to handle the financial burden thus involved, may well be regarded, especially when the size of China and her peculiar history are noted, as the greatest educational problem of all time, and one which will necessarily require several decades yet for its solution.

The time limits of the three periods just described apply to mission schools and colleges as well as to government institutions, but with different characteristics. Missionaries were the pioneers of the first period and their schools were practically unmatched by government effort. Their work, however, did not have the scope and character which it assumed during the second period. There was no well-established educational policy; schools were opened as necessity arose and funds permitted and many were they who were “called” to educational work who would have “chosen” some other form of missionary effort with better adjustment and greater efficiency, had the demand not been so imperative. Only toward the end of the first period did the mission boards realize the tremendous importance of offering sound education under Christian auspices to the youth of awakening China. In the second period several fairly strong mission colleges and numerous high and lower schools were developed which have not only served as models and stimulators of government effort but have provided some of the large number of teachers demanded for the government’s own program. The third period has been one of coordination and affiliation between mission institutions both locally and in large associations, while their opportunity for service is even greater today than it was in 1911 because the political uncertainty which has prevailed since then to date has greatly handicapped government institutions with but few exceptions, chiefly through reduced revenue.

The Government’s First Steps (1862–1897)

We shall note briefly the main points of progress during these three stages of transition, construction and reorganization. Naturally the first step of the government after the opening of the treaty ports was to inaugurate schools for the training of the interpreters which this sudden increase in foreign intercourse demanded. Naturally also the first of these was established in the national capital, 1862, which in 1866 was raised to a so-called college grade by the addition of a scientific department. In 1868 Dr. W. A. P. Martin, an American missionary who had specialized somewhat in international law, was appointed to the staff and in 1869 became the first president of what is now known as the Government University of Peking (the American Methodist Mission having already taken for its school the name of “Peking University”). Reorganized in 1898 this institution in 1917 included besides a preparatory department of some 600 boarding students with a teaching and administrative staff of 6 foreigners and 47 Chinese, a normal school and four collegiate departments: Letters, law, science and engineering, with a total staff of 56 Chinese and 11 foreigners, and some 1100 students. The preparatory school has just been abolished and a two years’ preparatory course incorporated in each of the collegiate departments. Most of the Chinese instructors in the collegiate departments
have been trained abroad, many of them having previously studied in mission schools.

Language schools were started also in Shanghai and Canton immediately after this Peking school. The government next inaugurated technical and professional schools of various sorts and of varying excellence and fortune.

1869 Mechanical school ........................................ Shanghai
1869 Naval schools ........................................ Foochow
1879 Telegraph college ........................................ Tientsin
1887 Peiyang University ........................................ Tientsin
1890 Naval College ........................................ Naanking
1890 Mining and Engineering College ....................... Wuchang
1893 Army Medical College .................................... Tientsin
1897 Nanyang College ........................................ Shanghai

Of these the two survivors most worthy of more detailed notice are Peiyang University and Nanyang College, now called the Government Institute of Technology. Both of these are national schools and are supported in part with funds from the Telegraph Administration, the China Merchants Steamship Navigation Company, and the Superintendent of Customs.

Although Peiyang University was inaugurated in 1887 when Dr. Charles D. Tenney was made president, organization was not effected until after the war with Japan (1894–95). Located in a suburb of Tientsin this is now the best established government school in China, comprising departments of general arts and sciences, law and engineering, with about 300 boarding students and a staff of some 16 Chinese and 13 Europeans under the presidency of T. L. Chao.

The Government Institute of Technology located in a suburb of Shanghai (the New York of China) was reorganized in 1897 by Dr. John C. Ferguson. It now has 600 students and a faculty of 14 Chinese and 6 Europeans.

All three of these government institutions of first rank were inaugurated under American presidents who had previously been Christian missionaries, while today the president of each is a Chinese.

Concomitant with the development of these schools attempts were made to introduce reforms in the time-honored examination system itself. In 1869 mathematics was introduced, in 1875 the Viceroy Li Hung Chang advocated the physical sciences but failed to receive royal sanction. War with France in 1887 aroused the government somewhat and natural sciences were introduced in the examination system to a limited extent while mathematics received increased attention. The literary chancellors themselves were of course unfamiliar with the new subjects and very little was actually accomplished. Again the shock of a foreign conflict (Chinese-Japanese War, 1894–95) aroused not only the scholars of the realm but the Manchu emperor himself, who forthwith became an ardent student of Western arts and sciences. The demand for the new learning became so great that within eighteen months of the close of the war with Japan all modern schools throughout the land whether under government or mission auspices or private control were overcrowded, and such in fact has been the condition ever since. There is no possibility of overstating the eagerness of the Chinese for modern education.

The greatest advocate and active promoter of these educational reforms was the illustrious Viceroy Chang Chih Tung, who not only inaugurated an ambitious university scheme at Wuchang, engaging many experts from America and several European countries, but by his remarkable book Learn of which millions of copies were distributed, prepared the minds of the people throughout the land for the sweeping reforms that were so soon to be launched. He outlined a complete system of schools and indicated the curricula from primary grades to university courses, embracing a mixture of Chinese classics and the modern learning of the West. He courageously advocated the abolishing of the "eight-legged essay" and

1 These initial efforts were however not properly followed up and today yield only a memory.
2 The precise Chinese title is Ch'un Hsiéh Chi'en or An Exhortation to Learning; the English translation is known as China's Only Hope.
its stilted confrères and suggested that Buddhist and Taoist temples be converted into schools and the temple lands and incomes used for educational purposes; which has been very largely done, though not until the unfortunate reactionary movement had culminated in the Boxer outbreak of 1900.

Educational History and Foreign Conflicts

The decade 1895 to 1905 was crowded with rapid developments and reactions, the widest extremes being reached on either side. It is indeed curious that the educational history of so peace-loving a people as the Chinese should not only be punctuated but even definitely articulated with foreign conflicts. Perhaps one may take some comfort from this and hope that in connection with the settlements to be effected by the present peace conference involving both Eastern and Western powers a still newer day may dawn in China and her national integrity become so guaranteed that she may steadily progress in that internal development so sorely needed on her own account as well as in behalf of the continued peace of the world.

Be that as it may, the decade referred to is certainly of intense interest alike to the student of China's educational development and of her international relations.

Ushered in by her war with Japan it closed with the Russo-Japanese War which involved the territory of her chief dependency and effected tremendously her whole future as a nation.

Aroused by the first of these conflicts the emperor rapidly passed from a student to an ardent advocate of modern education, issuing in 1898 a series of most remarkable decrees, calling for the immediate inauguration of all the reforms suggested by Chang Chih Tung and even others. This action literally shook the empire and would doubtless have been successful but for the treachery of Yuan Shih Kai, then Viceroy of Chihli and the most powerful military leader of the day. Warned by Yuan the empress dowager turned the tables, imprisoned the emperor and decapitated most of his progressive advisors. His edicts were annulled, newspapers were suppressed, the proposed schools were held in abeyance, the right to use temples was revoked, the eight-legged essay and the old order of examinations were restored.

This retrograde policy lasted till 1900, when the Boxer outbreak caused the temporary abandonment of all modern schools and colleges in northern China. Some of them, including the Peiyang University, were even completely destroyed. The ultimate effect was helpful; for after China had been humbled, the program of educational reform was again adopted and the empress dowager herself advocated the very measures she had so vigorously resisted only a short time before. Her decrees were even more far-reaching than those of 1898. Modern education progressed by leaps and bounds and in the midst of reform came the Russo-Japanese War which induced even greater efforts. The cry of the time was: What Japan has done, China can and will do. Students poured into the island empire, as many as 15,000. Returning from Japan these became active in the cause of progress and reform, editing magazines and translating books, till a veritable flood of literature, much of it immature and violent swept the reading-public out of their lethargy.

Phases of the Constructive Period

While the earlier decrees provided for the official recognition of the graduates of modern schools, and for the modernization of the traditional schools, those of 1905 abolished the old system of examinations and the old style school as well, and provided that larger numbers of students be sent to Europe and America.

In 1905 a commission was appointed to devise a detailed plan for a national school system, and from 1905 till the end of the Manchu dynasty in 1911 there was an abundant issue of memorials, edicts, regulations, etc.; enough to fill twelve volumes. While many of these became im-
mediately and truly effective, many others were never fully realized and one must read reports based on these documents with a questioning eye focused on accomplishments in contrast with proposals. Even so the actual results appear remarkable considering the difficulties and the size of the problem.

These regulations and plans have undergone such frequent and even radical changes that it suffices for present purposes to indicate only the main features that have survived, and then to present in more detail the educational system now in force.

A Ministry of Education was created as one of the eleven great executive departments of the state. This assumed the educational functions previously assigned to the Ministry of Rites, and organized divisions to deal with general supervision, technical or special education, publication, industrial education, finance. Educational administration in the provinces and in smaller local areas was developed in great theoretical completeness but has fallen short in practice.

In connection with the old examination system an elaborate scheme of inspection and control had been established and naturally this same element has received considerable attention in all the new proposals.

The system prior to 1906 provided for a Literary Chancellor in each province, who acting for the Ministry of Rites, controlled the competitive examinations in his province. He was assisted by a director of studies in each prefecture and a supervisor in each district.

The scheme of 1906 provided for each province a Commissioner of Education appointed by the throne on the recommendation of the Ministry of Education, a local board of education appointed by the commissioner, and six inspectors, appointed by the governor on the nomination of the commissioner. This plan was altered in 1909 and again in 1912, and finally in 1913 a new scheme of national inspection divided the country into eight inspectorial divisions: 1, Chihli, Fengtien, Kirin, Heilungkiang; 2, Shantung, Shansi, Honan; 3, Kiangsu, Anhui, Chekiang; 4, Hupeh, Hunan, Kiangsi; 5, Shensi, Kwangsi, Szechwan; 6, Kansu, Sinkiang; 7, Fukien, Kwangtung, 8, Yunnan, Kwei-chow; each territorial division to have two inspectors. Mongolia and Tibet temporarily subject to special regulations.

The office of inspector was made merely advisory in character in recognition that under the new government the central authority has become less arbitrary, while local authorities have assumed more power of self-government. This system of provincial and local administration of education was meant to be provisional in character and the practice in the various provinces has been far from uniform. In most of the provinces a department of education is an integral part of the provincial administration, the chief of the department being appointed by the president of the republic while there are also provincial inspectors appointed by the governor of the province.

In the summer of 1911 over one hundred delegates from the provinces attended in Peking the first conference of the Central Educational Council, created as an advisory body. Recommendations were officially adopted, but the revolution prevented their immediate application.

Along with the development of modern education there was a movement toward the adoption of a representative government which an imperial decree of 1908 had promised. The Ministry of Education prepared a special educational program hastening the development of popular education as the foundation for such a form of government. 1916 was the time appointed for its establishment. But the imposing program was never realized, for first the throne brought down date of adopting the constitutional government from 1917 to 1913 and at the beginning of 1911 an-
other program for the following two years was submitted and sanctioned only in turn to be cast aside in the political upheaval which resulted in the downfall of the Manchu dynasty at the end of that very year. The schools and colleges of China contributed a great share to the revolutionary movement.

Beginning with October 10, 1911 attention became focused on the struggle for liberty. Funds intended for educational institutions were used for armies. School buildings became soldiers' quarters; in not a few cases the entire school plant was destroyed by mobs. Students volunteered for service in the field, and large numbers of students organized for securing war funds. The students of Canton Christian College raised $55,000 Chinese currency. The disorganization incident to this revolution gave the cause of national education a setback from which it has not yet fully recovered; though mission schools were relatively little affected.

**Phases of the Reorganization**

The Ministry of Education of the provisional government, organized in Nanking (January 9, 1912) issued a policy and curriculum for temporary guidance. The most important and significant measures urged were, first, to permit boys and girls to attend the same lower primary school; and, second, to eliminate the classics entirely from the curriculum of primary schools. The rapid and general diffusion of knowledge through public lectures, newspapers, libraries and moving pictures was strongly urged, with a fair measure of success.

When Yuan Shih Kai was elected President of China (April 1, 1912) a new Ministry of Education was organized. It endeavored to secure the return of all properties temporarily loaned to the military. It decreed that all text books should be submitted to the Ministry and it called an Emergency Central Educational Conference which met in Peking July 10 to August 10, 1912.

The Present Status of Government Education

The school system established on the inauguration of the Republic is indicated by the following outline:

<table>
<thead>
<tr>
<th>Age</th>
<th>Schools</th>
<th>Length of Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>I 7-10</td>
<td>Lower primary</td>
<td>4 years meant to be compulsory</td>
</tr>
<tr>
<td>II 11-13</td>
<td>Higher primary or Industrial of class B</td>
<td>3 years</td>
</tr>
<tr>
<td>III 14-17</td>
<td>Middle or Normal or Industrial of class A</td>
<td>4 years (1 year preparatory)</td>
</tr>
<tr>
<td></td>
<td>University</td>
<td>3 years preparatory—3 or 4 years collegiate</td>
</tr>
<tr>
<td>IV 18-24</td>
<td>Higher normal</td>
<td>1 year preparatory—3 or 4 years collegiate</td>
</tr>
<tr>
<td></td>
<td>Professional school</td>
<td>1 year preparatory—3 or 4 years collegiate</td>
</tr>
</tbody>
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Supplementary courses offering continuation of work for two years are provided for those graduates of both the lower and the higher primary schools who for one reason or another cannot go to the school of a higher grade.

Industrial schools of class A offer general industrial education while those of class B provide elementary industrial education or training in special trades.

Whereas before the revolution the responsibility of establishing primary schools was not placed upon any specific authority, the new administration definitely assigns this duty to cities, towns, and villages. The establishment of middle schools is left to the provincial authorities; and for the first time in Chinese history, middle schools for girls are specifically provided for, on the same basis as those for the boys.

The normal schools aim to train elementary school teachers; the higher normal schools, teachers for middle and normal schools. Normal schools are established by the provinces; while provincial higher normal schools
are supported from the national treasury. An elementary school is attached to each normal school, and each higher normal school has one elementary school and one middle school attached to it. Normal schools for girls have kindergartens attached.

Curricula changes have included the elimination of Chinese classics as a subject in itself and the introduction of new subjects of study having a social and industrial significance.

The dominance of the classics in the modern schools of China has lasted for a very short time compared with the struggle against classics in the educational history of other nations.

The preparatory department of the University has three groups of studies covering a three years' course; the first is for those wishing to enter the faculties of art, law or commerce; the second prepares for science, applied science, agriculture or pharmacy; and the third prepares for the study of medicine.

There are five educational institutions of higher grade under the Government that are worthy of note. The work at the Government University of Peking, at Peiyang University near Tientsin, and at the Government Institute of Technology near Shanghai has already been mentioned. Of Tsing Hua College near Peking and of the Teachers College at Nanking we shall presently give some detail. Government universities are said to be contemplated at Nanking, Wuchang, and Canton, but have not been organized as yet.

PROBLEMS BEING SOLVED

Among present problems that are being solved we note: the more adequate use of the school in the development of moral character, the strengthening of school discipline, the more effective adjustment of education to the life of the pupil and the needs of the community, and most important of all, the provision of a more adequate corps of qualified teachers through whom alone can these other problems be satisfactorily handled.

ADJUSTMENT OF EDUCATION TO LIFE-NEEDS

The effective relating of education to the life of those who receive it has yet to be accomplished in China. The conflict between book learning and the newer and more practical forms of education is now on in China just as it was not long ago in western countries, in which it is not even yet fully settled. The deeper questions of content and of method, such as have been raised by the necessities of war training in America, apply in a peculiar way also to China. Until very recently there was on the part of mission schools and colleges and also on the part of government institutions too much of a tendency to import a foreign cap for the Chinese pate, and while the error of this way is now fully realized the questions of curricula are still largely unsolved. Many experiments are being tried and much progress is being made, especially in the institutions where educational traditions are not over-emphasized, and where there is a genuine desire to make education the real threshold to an efficient and happy life on the part of each pupil.

In the first place the former conception of education as preparation for official life, though greatly diminished has not yet been completely replaced in the Chinese public mind by the broader idea of education as a training of each man for all phases of the life he is to live.

Secondly in importing content and even method bodily from America (for the importation of educational ideas has been chiefly from America) there has been too little regard for the modifications that should be determined in view of the peculiar history of the pupils, racially and as individuals, and of the present day status of their community in all phases of its life and of the need for an approximate but vital adjustment and solution of the many problems China faces which only her own citizens properly trained and inspired can solve.
SUPPLY OF TEACHERS

The greatest impediment to the progress of modern education in China has been and still is the small supply of competent teachers. It has been impossible to recruit teachers from the old schools to any extent because of the peculiar nature of both the content and the method of the old learning and also because of the conservatism of the old style teacher.

The most available source of able teachers has been found among the graduates of the mission schools, but this supply is far below the demand which naturally is constantly rising both in numbers and as to quality.

The next most immediate source was in the first decade found among those literati who attempted to prepare themselves as modern teachers by special short-cut study. Their chief recommendation was their earnestness, but even so they could hardly be depended on except as a temporary makeshift.

The use of foreign teachers has been confined to the higher institutions beginning with the middle and normal schools. The number of such, however, has never been very large. In 1911 the total number of foreign teachers (this includes Japanese, of course, as well as Europeans and Americans) was but 545; in 1917, probably not more than 600.

At one time the number of Japanese instructors engaged in provincial middle and normal schools was quite large, but for a combination of reasons their employment has for the last decade almost entirely ceased.

The number of teachers recruited from students returned from abroad has been relatively small. Even those who have found positions in the schools rarely expect to devote their lives to teaching. There is great need that a larger number of Chinese students trained in America and Europe should respond definitely to the call of their country for well-trained native teachers and educational administrators.

In more recent years some of the ablest of the returned students have gone into school work, but there is still an urgent need for a more adequate response in the right spirit. Too many of even the relatively small number who have entered educational work have failed to realize their obligations and opportunities and the necessity of a gradual development of their own capacities for the higher positions.

The Ministry of Education reports for 1918 a total of 150,000 teachers as against 89,766 for 1910 and 63,566 for 1908. While the largest number of teachers in the lower schools is found among the graduates of Chinese normal schools and training institutes, until quite recently the material attracted to the normal schools has been of relatively poor quality. The increase in numbers has, however, been very rapid.

The total number of students in normal schools and training institutes has grown as follows: 1903, 80; 1904, 2400; 1905, 5321; 1910, 28,572; 1918, 29,500.

One of the hopeful signs of the times with reference to the teacher problem in China is the very effective and rapidly growing Teachers College which has been inaugurated at Nanking under Dr. P. W. Kuo, a graduate of Columbia University. This institution founded in 1914, had in 1917 a faculty of 14 returned students from America, 8 Chinese instructors without modern degrees, and 2 Americans. The college is for men only, the average age of its 283 students being 22. A vocational middle school was opened in 1917 with 95 pupils. There is a primary practice school in connection with the college. This institution is serving as a model and its influence is being strongly felt. There is great need for more and better normal schools of this higher type to train teachers for the secondary schools.

UNSOLVED PROBLEMS

Some of the most important general problems remain unsolved; namely, the financing of the public school system, the provision of universal education, and the relation of missionary institutions to the public educational system.
Funds for the maintenance of education are supposed to be regular items of the national and provincial budgets. Some of the ways by which money has been raised are extremely interesting and at times pathetic. Money formerly devoted to religious processions, theatrical exhibitions, and clan ancestral halls is sometimes put into the school fund. Temples and monasteries have been converted into schools, and temple lands and incomes appropriated. In some cases the return from licensing gambling has been devoted in part to education! Official recognition is offered to encourage private munificence. Some of the provinces have increased the rate of certain local taxes, but such increases are said to have been generally small. Since the establishment of the republic the practice of increasing the rate of local taxes for educational purposes has become more general, but as yet no system of general taxation has been evolved.

There is moreover a failure to discriminate properly between the government tax and the local tax, and there is a constant conflict between the central and provincial governments as to remittances.

The solution of the problem of financing the new educational system is dependent upon the larger problem of the national revenue. Thus far the fiscal aspect of China's national life has been far from satisfactory. The successive and excessive revolutions have played havoc with China's finances, and years must elapse before their effect ceases to be felt. It is estimated that the first revolution alone cost China in additional public expenditures and private losses a sum of about $172,000,000 United States Currency, aside from the complete cessation of internal revenue for several months. The burden of maintaining the military in China is proportionately greater than in any other country not actually at war, amounting to as much as forty per cent of her total national budget.

The simplest method of increasing China's revenue would be to increase the custom's import duty which has stood for years at only 5 per cent, but this requires an international agreement on the part of the leading foreign powers in treaty with China who recently offered in return for China's joining the Allies to permit an increase to 7 per cent (really only an effective 5 per cent owing to scale of values adopted), which is still remarkably low when you consider that many Chinese products entering the United States pay from 25 to 60 per cent duty. Unable of herself to determine her own policy of customs revenue China's only hope for a future independence lies in the true observance of the open door policy and the development of her natural resources with the financial and technical assistance of America and Great Britain and Japan; but in association, not separately. China's natural resources and her cheap and abundant labor still await proper development and application as the basis of all other prosperity including educational development, and in turn popular education is a necessary accompaniment and adjunct of this material development.

One step toward a solution of the financial problem of general education would be the elimination of the great surplus of non-teaching offices; for while in 1910 the government teaching force numbered less than 90,000, the number of purely administrative officers was nearly 96,000, and in 1918 there are 157,000 officers out of a total staff of 326,000. Private and mission schools should also be encouraged and thus reduce the government's burden at least for a time.

Universal Education

Reliable data are not available but it appears that the proportion of children who attend school varies considerably among the provinces—in some as low as one-fourtieth, in others nearly a half.

Some idea of the growth of the government effort in education may be had from the following data as to the number of schools of all grades under various native auspices:
But development of the language so as to be able adequately to express the content of modern knowledge presents a most tremendous problem, which only native scholars highly trained in modern thought and equally familiar with their native tongue and its previous development can solve. It will take time, but this difficulty will ultimately be overcome. It is, however, an even greater problem than would have been presented had all the content of modern knowledge knocked at the door of eleventh-century English and demanded immediate expression. So long as this language difficulty remains largely unsolved, it will be necessary to conduct the higher grades of instruction in the sciences with English as the medium—at least for those who are themselves to be leaders in the renaissance. To have a share in the preparation of men who will solve this problem is about as far as the foreigner can hope to go.

There should be a million schools instead of 130,000, or an addition of some 870,000 schools having a staff of 2,000,000 teachers, with all that is involved in the preparation of these teachers and the financing of the program.

Then there is the language difficulty. Since the Chinese language is not alphabetical, but ideographic, learning to read is a much harder task than in most countries; and this is intensified by the fact that the written language is not the same as the spoken tongue, and that the spoken language is not the same over the country, but is subject to numerous dialects. The language difficulty is being overcome by: (1) Substitution of a rational process of teaching the meaning instead of mere memorizing the sound of the character, as was the old style in elementary instruction; (2) Use of graded and illustrated readers; (3) Publication of books and papers in colloquial, specially adapted to the daily speech of the people; (4) In the hands of modern trained Chinese the written language proper is growing clearer through simplification of style and introduction of punctuation; (5) A more widespread and insistent emphasis on the study of Mandarin in all schools, in order to hasten the unification of the spoken language throughout China; (6) And a more widespread use of a properly developed romanized or phonetic form of the written language.

Of this total number of schools probably 120,000 are lower-primary.

The total enrollment in schools under various native auspices in 1905 was 102,767 and in 1910 it was 1,625,534 whereas in 1903 there were but 1274 students in all modern schools under native auspices. For 1918 the enrollment has been reported as 4,500,000, with an expenditure of about $40,000,000 (silver).

There will need to be considerable progress in the government's own educational program and especially in the settling of its policy and in the choice of qualified administrators, before the missionary institutions could justifiably be subjected to any degree of real governmental control. And yet in due time the government should exercise legitimate supervision of the educational work of the missionaries as well as of other private educational institutions and utilize the missionary schools and colleges to supplement the national educational work.

\[\text{Table} \]

<table>
<thead>
<tr>
<th>Year</th>
<th>Government</th>
<th>Public</th>
<th>Private</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1905</td>
<td>3,605</td>
<td>388</td>
<td>224</td>
<td>4,222</td>
</tr>
<tr>
<td>1910</td>
<td>14,301</td>
<td>32,124</td>
<td>5,793</td>
<td>22,228</td>
</tr>
<tr>
<td>1918</td>
<td>(Detail not available)</td>
<td>122,588</td>
<td>(Detail not available)</td>
<td>124,000</td>
</tr>
</tbody>
</table>

\[\text{Notes} \]

*Teacher's College, Columbia University, Contributions to Education No. 64, pp. 136-140, New York, 1915.*
and careers no privilege of official preference
now confers a degree, which, however, is partly academic.

educational system. Graduation from a college is
considered an educational qualification, but for
students majoring in English, the English degree
is considered as a major educational qualification.

When in 1962 the student system of literacy

DEERES

The poor but worthy student
will attend different schools and be
permitted to provide for

Of course, in institutions where these higher fees pre-

"Only 8 or 10 of the

necessary 100 or 700 per month, a price of


STUDENTS ABROAD

sent

diplomas are granted under the Regents' Superintendence and

Government of the State of New York, and

Government of the City of New York. The

City's Charter gives the Board of Education the

power to issue diplomas under its regulations.

American mission colleges grant the B.A. degree under
United States on Indemnity Scholarships. Others have been granted scholarships from the provincial governments, especially since the inauguration of the republic. Tsing Hua is now aiming to develop a collegiate department of its own so that hereafter most of the indemnity scholars coming to America will come for graduate work only. While we believe that many of those who have come thus far have come at too early a stage, there will not be a true fulfillment of the purposes of the foundation in promoting the mutual relations of China and America if this development of higher work at Tsing Hua prevents an adequate number of qualified students from actually reaching America; for only by their bringing to Americans through personal contact in the United States an appreciation of Chinese characteristics and taking back to China the best that our civilization in all its phases has to offer can the two peoples be brought effectively together, which, we take it, is the real purpose underlying the return of the indemnity fund. It would seem from recent developments at Tsing Hua that this aim needs to be somewhat safeguarded.

Tsing Hua College in 1917 had an enrollment of 624, all boarders of an average age of 16, while the staff included 25 Chinese trained in the United States, and 17 Americans, as well as 19 Chinese without a foreign training. It is reported that the Japanese government has proposed to use a part of the 1900 indemnity fund still due to it in the establishing in Peking of a school similar to Tsing Hua, in which students will be prepared under a faculty of Japanese and Chinese returned from Japan, for further study in Japan, and thus form a basis for the development of a better mutual understanding.

Prior to 1907 students abroad were under the care of China's diplomatic representatives. In 1907 a Chinese Educational Mission was organized to supervise all such students, especially those sent under Indemnity Scholarships, and in 1913 all students supported by the provincial governments also came under this Educational Mission's general supervision. In 1909 in Tokyo 1992 Chinese government students were in collegiate schools and 395 in military schools, totaling 2387; besides 2500 private students. In 1910, 5000 private Chinese students were in Japan, 150 of them women. For the same year in the United Kingdom there were some 140 Chinese government scholarship students and an equal number supported by private funds; in Belgium, 70 government students; in France, 50; in Germany, 60; in Austria, 10; in Russia, 15. No information as to the number of private students in these countries is available. In the United States in 1910 there were at least 600. At present besides 373 Indemnity Students in this country, 38 of whom are women, there are 30 students supported by the Central Government and 133 supported by various provincial governments, of whom 8 are women. There are also some 764 studying in America on their own resources (the number of women in this group has not been available); making a total of 1350, of whom 250 are in preparatory school and 1100 in college.

**Education of Women**

Although women had no proper place in the old educational system of China, when the new era dawned for men it almost immediately dawned for women also. Of course mission schools for girls have existed for many years (since 1844) but even so they have not had adequate emphasis and even today there are not more than three institutions in all China where women can get collegiate training of proper grade; these are all under American mission auspices. It was fifty years after the opening of the first mission school for girls that the first modern school for girls under Chinese auspices was opened (Shanghai, 1897).

Prior to 1907 government officials emphasized the importance of educating women, and some of the provinces established girls' schools, but the central government attempted neither to provide nor to regulate schools for girls. In 1907, however, official provision was made
not only for primary schools for girls but also for normal schools and women have been given government scholarships for study abroad. At the present time there are 46 such in the United States and about 80 others on private support.

There are today fifty-four girls' normal schools of more or less excellence and Chinese opinion is rapidly developing a new status for the women of Cathay. Certainly there is no more significant factor in the renaissance of China than this; but very much yet remains to be done, and many first class high schools and a few first class colleges for women are greatly needed.

Among the higher educational institutions in Canton, for instance, which attempt to serve a region of say 30,000-000 population, there is no provision for college work for women, except at the Canton Christian College in connection with the regular courses for men also, and no adequate provision for first class high school education for girls, though at least one of the mission schools is aiming to develop such. It is a time for the concentration of all forces whose combined strength will be needed to meet the opportunity adequately.

(To be continued)

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*Data as reported through the Chinese Students Alliance and through the Educational Commissioner in Washington differ.*
MODERN EDUCATION IN CHINA. II

By Charles K. Edmunds, Ph.D., President of Canton Christian College, Canton, China

EDUCATIONAL NEEDS AFFECTED BY INTERNAL CONDITION AND INTERNATIONAL SITUATION

A review of China's internal condition and international relations leads to certain conclusions regarding the types of education most urgently needed.

China is destined to become one of the foremost producing nations of the world, a vast market, a huge stabilizing, peaceful power if allowed to develop its great wealth in its own way. The shortest road to a partial success in this endeavor to preserve free nationality in Asia is the development of China's material resources, which will not only enrich China and the world, but will help to arouse the people from their age-long sleep, and to create a sense of nationhood.

The introduction of foreign capital and the internationalization of foreign interests in a cooperative spirit with China and the supervision by a League of Nations constitute the only hope as regards China's foreign relations and even as regards her internal development. The fundamental element in all this from the Chinese side is more general education of the people to give the background for progress and the training of native leaders upon whom must rest the responsibility for carrying out in detail such plans as may be formed for the alleviation of present conditions.

It is just here that one of the functions of our mission colleges in China comes in—to train these leaders in situ, without loss of connection with China; for they need to know China as well as Western science and institutions and methods. Certain types of education demand special attention if China is to be prepared adequately to meet even her immediate needs. These are the departments of engineering, agriculture and medicine. Concerning each of these we venture to offer a brief and suggestive account.

Engineering

The ever increasing outside demand for China's products, makes it imperative that she be integrated industrially as well as politically for only by responding adequately to this call of the time for industrial development can she retain even that measure of national independence which she still possesses and lay the foundation for ultimate complete independence.

Of primary importance in this connection is the more adequate development of better means of communication, railways, trolley lines, automobile roads, telegraph and telephone systems.

This development of communications is not only fundamental to other industrial development but is of special urgency in China in order to alleviate the famine conditions frequently arising as a result of floods by permitting the more rapid and more adequate movement of food supplies to regions in want, and furthermore the development of the lines of easier transport of both goods and people will serve to unify the people and bind them together whereas now it is exceedingly difficult for a sense of nationhood to be developed among a people so widely separated by rivers, mountains and dialects with no trunk lines connecting the north with the south or the east with the west; the existing railways are practically confined to the north-eastern quarter of the country and the total in the whole country is a little over 6500 miles, whereas we are finding our 265,000 miles inadequate for a country of the same size.

It is essential that within China's own borders adequately equipped schools should be established in which the Chinese may be taught the arts and sciences necessary to the development and maintenance of such utilities.

Fundamental to railway and other industrial development is the exploitation of the mineral wealth of China,
especially that in coal, oil, and iron, as well as the ore deposits of other metals. No geological survey of Chinese dominions has yet been made and the Chinese themselves have never developed the art of mining to any great degree. There is urgent need of scientific investigation under China's own auspices of both the general geological structure and the specific commercial values. The actual reconnaissance would in great part furnish the means of the needed training in a working form. The intellectual processes involved in such work are precisely those which the youth of China especially need as a corrective of the traditional neglect of the inductive method; and the intellectual and even ethical results of a thorough investigation of the natural resources of their land, even though inspired primarily by economic considerations, would if carried out on broad and sound lines be greater even than the industrial and commercial results.

Some attempt to meet the need of education in the various lines of engineering is being made at Peiyang University, the Government University at Peking, the Mining and Engineering College maintained in connection with the Peking-Mukden Railway at Tangshan three hours east of Tientsin, at the Government Institute of Technology at Shanghai, and in a less substantial way at Taiyuan in Shansi and at Chengtu in Szechwan. Then there is the engineering department of Hongkong University which, however, is strictly speaking not in China and can never effect the same result as an institution on Chinese soil and under Chinese control. None of these institutions is really adequately equipped or staffed in comparison with the need for high-grade engineering education. Nor are any of the mission colleges prepared as yet to render any adequate service in this connection.

Agriculture

The fundamental industry in China is agriculture, some two-thirds of the entire population being thus employed; and because the more complicated industries based on the mineral resources are so largely undeveloped and will be slower in their more adequate improvement, the resources of the soil are of special and more immediate importance. Perhaps the greatest opportunity for industrial improvement in China lies in this department. The methods and the very implements are said to be the same today as in 2700 B.C. The Chinese agriculturalist is an expert intensive gardener but knows little of extensive farming or of the improvement of plants and animals by selection and breeding. Moreover the area under cultivation could be greatly increased. The use of the grass lands for cattle raising, and the development of dairy products as well as a meat supply offers a tremendous opportunity.

With proper organization and administration along these lines of education and the development of communications, the land could readily support not only the present population with a greater margin of livelihood but would even produce raw materials and foodstuffs for export in much greater quantities than today.

Then too the afforestation of China's hillsides is imperative; for at least one-sixth of the area of China proper that is the only hope. Besides the need for fuel and for building timber, there is the urgent matter of flood prevention by control of rainfall and runoff over these hilly and mountainous regions. While a forestry advisor (an American) is employed by the central government it is a question whether his advice is adequately followed or whether he is given any opportunity to effect the sorely needed improvements.

And finally there is the great problem of conquering the desert lands. Perhaps a twentieth of China proper is so arid and sandy as to be put in the desert class, and then there are the extensive deserts in the dependencies of Mongolia and Chinese Turkestan. In view of the need to overcome the great deserts of America, Australia and Africa, as well as these in Asia, this problem of developing plants and methods that will aid in creeping out step by step upon the desert instead of allowing the desert to advance upon the present habitable areas is of great importance to mankind. And to its solution the Chinese if trained in scientific
lines and endued with the scientific spirit will be no mean contributors.

All these considerations emphasize the need for agricultural education in China not only for China's benefit but also for that of the world at large.

The central government has undertaken the development of a School of Agriculture and Forestry in Peking, and a few of the provinces have local experiment stations with some attempt at instruction. In two provinces, Shantung and Szechwan, a large number of so-called agricultural schools are reported in the Educational Directory of 1918: no less than 67 and 17 respectively; but it is to be feared that these as well as the other eight government agricultural schools reported for other provinces are of inadequate grade and attainment. The institutions under missionary auspices which lead in this work are Nanking University and Canton Christian College, where courses of collegiate grade both theoretical and practical are offered in the various phases of agricultural education and it is encouraging to note how popular these courses are. There is no limit to the opportunity for effective service in this department except that imposed by lack of funds.

Medicine

Disease is rife throughout China and the death rate is probably higher than in any other country. The mental power and economic efficiency of the nation as a whole is thereby greatly lessened.

Unhygienic conditions are offset somewhat by the practice of eating no uncooked food and drinking weak tea made with boiling water. A public health service is almost unknown and so smallpox, tuberculosis, and leprosy go practically unchecked. The spread of pneumonic plague in 1910-1911, however, aroused the Government and some measure of a preventive service has been established. The autopsies then permitted led to official authorization for autopsies and dissection throughout China beginning November, 1913; but full advantage of this privilege can only be had gradually.

China has long had her own practitioners of the healing art, and there is quite a volume of Chinese materia medica. Quinine, for instance, is widely used, and inoculation for smallpox has long been practiced. There is a very thriving business today in patent medicines, among which unfortunately certain foreign concoctions predominate and through some, sent in largely through the Japanese Post Office, the morphia habit is all too readily assuming the role formerly held by opium. There is no legal control of the practice of medicine in China. The Chinese old-style practitioner has no knowledge of surgery.

Private practitioners of western methods are for the most part confined to the treaty ports; among them are a few Americans or Europeans but more Japanese, mostly of inferior training. There are perhaps 60 or 70 Chinese modern physicians educated in Europe or America, but most of these work in hospitals or medical schools, not as practitioners. There are a few graduates from missionary medical schools who are now practicing, but there have been to date probably less than 160 such graduates and many of them are working in mission hospitals or medical schools. On the whole then, outside the mission hospitals and outside the treaty ports there are very few practitioners in China who have had any training in western medicine and almost none who have been adequately trained.

The first hospital in China was established in Canton under American missionary auspices in 1835. The first government hospital was inaugurated at Tientsin as late as 1904 under army auspices. The only hospital for the insane in all China is also in Canton and maintained by American missionaries. Although medical instruction began decades ago in an informal and inadequate way in connection with the mission hospitals, medical schools even under missionary auspices are of only recent development, mostly since 1908.

A dozen medical schools under Protestant missions with a total foreign staff of 80 and a modern-trained Chinese staff of 30 look after some 600 students, of whom less than 100 are women. Two-thirds of all the medical as also of
the educational work in China under Protestant missionary auspices is conducted by Americans. Some 250 American physicians and 90 nurses aided by 20 Chinese physicians (modern trained) and 400 assistants and 600 nurses attend annually some 2,300,000 patients. The value of this medical work as a remover of prejudice and a door-opener cannot be overstated, let alone its real humanitarian value as such, which appeals to the Chinese sufficiently to draw contributions of some $500,000 Chinese currency, annually for the support of medical work under American auspices. The chief centers for this hospital and educational work are Mukden, Peking, Tsingtau, Chengtu, Hankow, Changsha, Nanking, Hangchow, Shanghai, Foochow, Canton. The foreign staff of a missionary medical school ranges from four to fourteen, the investment in plant from $10,000 to $210,000 each, the annual cost of maintenance from $10,000 to $50,000. The number of graduates is small, totalling to date about 160; tuition is low, $100 Chinese currency, or less.

The central government maintains two medical schools, one in Peking and one in Tientsin in connection with the army. Provincial medical schools have been attempted at Tientsin, Wuchang, Nan chang, Soochow and Canton, perhaps elsewhere also, but except at Tientsin they have not amounted to much. This Peiyang Medical School, which must be distinguished from the Peiyang Military Medical College also at Tientsin, gives probably the best medical instruction of any government institution. It is the outgrowth of the work of Dr. John Kenneth McKenzie of the London Missionary Society whose skill attracted the attention of Li Hung-chang when he was Viceroy of Chihli. It is now officially recognized and supported as a government institution. All instruction is in English.

In November, 1912, the Ministry of Education issued outlines and regulations for "Special Medical Colleges." These are meant to correspond to the schools in Japan similarly designated; a four years' course, for which the curricula must be approved by the Board of Education, though the school may be developed under private auspices. Such are being conducted at Nanchang, Wuchang and Canton where there are two, although one of them is largely inspired by and dependent on the efforts of two American physicians.

The total enrollment in these government and special medical schools is about seven hundred. All of them lack access to satisfactory hospitals for clinical instruction.

There would be no greater force for the regeneration of China than an adequate corps of well-trained Chinese women physicians inspired with Christian ideals of character and service. Yet there are but three institutions under missionary auspices, and but one under Chinese auspices where any attempt is made to provide women with medical education, and all of these are small, poorly equipped, understaffed and ill-prepared to train competent physicians. Of course, the girls of China lack as yet adequate preliminary education, but this condition is improving. There is of course great need for high grade nurses as well as physicians. Even from the existing schools, the oldest of which dates from 1900, there are but a hundred graduates all told, and most of them could not rank as independent practitioners.

Besides the missionary medical schools there are a few schools under foreign semi-government auspices, inspired probably by motives of political policy. At Mukden, the Japanese have inaugurated a promising school with a staff of twenty. At Tsingtau and at Shanghai, the Germans had begun the preliminary stages of modern medical schools when the war stopped their progress. At Canton the French conduct a hospital and medical school, with three physicians detached from the French army; but it is entirely inadequate as a teaching institution.

No medical school in China is adequately equipped and none is adequately manned, though some include on their staff most excellent men and aim at high standards and are following sound policies. The whole aspect of this problem has been modified within the last few years by the entrance into the field of the China Medical Board of the Rockefeller Foundation, which has stimulated real progress by giving aid under proper conditions to a number of hospitals through-
out the country, by affording opportunities for further training and research to a number of missionary physicians when on furlough, and to a number of Chinese graduates in modern medicine, by assisting in the development of more adequate premedical courses at Changsha, Shanghai and Foochow in connection with existing institutions, by strengthening greatly the medical school of Shantung Christian University where the medium of instruction is Mandarin, and by the reorganization of the Union Medical College at Peking where the medium of instruction is English. In connection with this last institution a premedical faculty has also been provided, and for the hospital and medical schools very extensive buildings are now in course of construction at a cost of several million dollars gold.

A large medical faculty is being provided and their work will undoubtedly affect medical standards throughout the land in due course. But in view of the great need for adequately staffed hospitals, all over the land, and for qualified private practitioners, only the hem of the problem has been touched.

The China Medical Board proposes in due time to establish a similar plant and staff at Shanghai. South China properly speaking is still neglected although the region of Canton is especially rich in clinical material of all sorts, particularly of certain tropical diseases. The medical school of Hongkong University is not on Chinese soil, charges very high fees and does not have a whole-time faculty, but is manned almost entirely by physicians whose chief concern is their private practice. These reasons, especially in view of the natural attitude of the Cantonese toward an institution wholly under British control and on British soil, make it extremely desirable to develop in Canton a medical school of the highest grade under joint missionary and Chinese auspices. No greater opportunity for effective philanthropic investment can be found in China than now offers in connection with medical work at Canton where ninety years ago such work entered China, yet where existing institutions today are not adequate to the situation.

MODERN EDUCATION IN CHINA

Causes of Backwardness

The fundamental element in the three types of education just discussed is of course natural science in its many branches and this involves the realm of ideas most in contrast with the content of Chinese education of the old type. But even more fundamental than the difference in content is the difference in method and attitude for it is here that the major causes of China's backwardness in science are discovered:

Absence of the inductive method

"Method" is the distinguishing characteristic of modern science, "inductive method" if you please; and this has been almost completely lacking among the Chinese, whose philosophers have preferred a priori deduction, and give great weight to analogy.

Western teachers of Chinese students are constantly impressed with their readiness to argue by illustration and to accept a single illustration as proof; not that they consider that a single exception to a rule invalidates its generality, but that from a single case a general law can be deduced.

The method of the Chinese philosophers was a priori, and it seems that they adopted this course, not through ignorance of the experimental and inductive method, but from choice.

We see the sages of China, vainly seeking a short cut to universal knowledge by following what they considered by the light of inner reasoning to be the order of nature, instead of laboriously studying one thing at a time in order to connect "all the particulars by general laws."

Spirit of inaccuracy

A spirit of inaccuracy or of indefiniteness, of being satisfied with very approximate statements, as well as with assumptions instead of proofs and of generalizing from a single case, is most prevalent and will only be dispelled by the spread of modern education. There is no more vexing factor in the life of a foreigner in China than the utter lack
of accuracy among the Chinese in most matters involving numerical relations. The ordinary troubles that one has with careless and even dishonest workmen and contractors are enhanced many fold by reason of the discrepancies between the various measures used for different purposes though called by the same name. The method by which the units were adopted and fixed is lost in antiquity, and the variations in the measures now used destroy any claim that there ever was a true standard such as those recognized and employed by western peoples to-day. For instance, the chih or unit of length differs according to the province and the prefecture, the city and the ward, the craft and the usage. There are over a hundred different values of the chih actually in use, the extreme values differing by more than 6 inches in a unit of approximately 14 inches, on the average. In some places the carpenter’s rule so differs from the mason’s that in a building 100 feet long, if the same specifications in Chinese measure were furnished to masons and carpenters, the frame of the house would overhang the stone foundations by 2 feet. In most cloth shops there is one measuring rod to use in buying and another to use in selling, and it does not take a Solon to tell which is the shorter. The maker of measuring sticks or of balance rods keeps a stock of ungraded blanks and inserts the brass points to suit the wishes of his customer. Nearly every householder has his own set for checking against those of itinerant vendors of drygoods and foodstuffs.

The distance between two points A and B, according to Chinese representation, depends not merely on the geometrical factor, but on others which determine the relative facility of travel between these points. It is further from A to B than from B to A, if B is upstream from A on a river, or at a greater elevation on a hill road. It is further between A and B at night or when raining than it is by day or when clear. While of course the practical philosophy of this way of regarding distance is evident, it still is true that such failure to separate these factors from the geometrical factor in the form of statement operates to retard appreciation of accurate statement and accurate thinking.

Paper may be sold by the hundred sheets and yet by a desire to keep the stated cost per hundred uniform in spite of variations in quality the dealer will “call” a less number of sheets a hundred sheets, so that when I requested my servant to buy a hundred sheets of a certain paper, he returned with eighty and insisted that “in that kind of paper a hundred sheets are only eighty.”

The whole Chinese system of thinking is based on such a different line of assumptions from those to which we are accustomed, that they can ill comprehend the mania which seems to possess the occidental to ascertain everything with unerring accuracy. Curiously enough, concomitant with the early development of their system of weights and measures—a decimal system for the most part—the Chinese have become fixed in the habit of reckoning by tens, and frequently refuse to make a statement of number nearer to the truth than a multiple of ten. An old man is “seventy or eighty years of age” when you know for a certainty that he was seventy only a year ago. A few people are “ten or twenty,” a “few tens,” or perhaps “ever so many tens.” The same vagueness runs in all their statements, and for greater accuracy than this the Chinese do not care, except when you are paying them money.

The Chinese are as capable of learning minute accuracy in all things as any people ever was—nay, more so, for they are endowed with infinite patience, but what we are here remarking is that as at present constituted they are entirely free from the quality of accuracy and that they do not know what it means except as they come under modern education.

Other causes

Another cause of China’s backwardness in modern science is to be found in the lack of or failure to apply mathematical knowledge. Even though their philosophers early made most remarkable independent advances, especially in algebra, the knowledge of mathematics is today very small among China’s scholars except where they have recently been under foreign instruction.
The language difficulty has already been mentioned sufficiently. The old system of education quenched the spirit of inquiry and neglected to include knowledge of science as a criterion for political preferment, which was the end of all education. The influence of astrologers, fortune tellers and geomancers was reinforced by the official indifference regarding popular education so long as the government felt that its own security depended somewhat upon the upholding of ancient superstitions and reverences, an attitude which fortunately has now seen its day even in China.

Outlook

A more widespread contact with translations of western books is slowly but surely bringing the reading Chinese into a fuller appreciation of western or more scientific thinking. Their increasing familiarity with the inventions and methods of the west is undermining their superstition, as is, also, the spread of Christian theology.

The changes in the method of instruction and the system of education are for the most part tending to develop a spirit of inquiry and an appreciation of the inductive method, which is beginning to yield due fruit. When the influence of returned students who have been adequately trained in western countries and that of the graduates from first-class mission and government colleges becomes more potent, we can expect to see a much more rapid development of the educational system, but here again the magnitude of the undertaking and the difficulties as to efficient teaching force and adequate resources are such, that only natives can handle the ultimate solution. We teachers from abroad can hardly expect to do more than to give the impulse and to help prepare the vanguard of such an advance.

When special and general education has proceeded far enough to provide the trained men needed to make the various adjustments involved in the tremendously complex and many-sided renaissance of this nation and to have provided the background of an enlightened people, there will of a surety be found among Chinese students many who will desire to follow the torch of learning and of truth for its own sake, some of whom, we believe, will attain a high degree of analytical power and experimental skill, for the Chinese after all are capable of exact and careful thought under right conditions, and moreover possess unusual patience and manual skill. The Chinese have a power of application and patience and a capacity for detail that is destined to bring success in scientific inquiry when once they get the background, adopt the method and make the start.

The progress destined to be made by western science among the Chinese will surely undermine their faith in the "Book of Changes," which is at the base of Chinese philosophy. What new moral and spiritual ideas are to replace the old in order that the new state of these people may not be worse than the first? Mere education in the science of the west, mere contact with western civilization, commerce, railways, telegraphs, mines, etc., can not be expected to regenerate China, for the Chinese seem never to have been profoundly moved by other than moral and spiritual forces. Education which deals only with coordinated physical or mental facts, conducted however thoroughly, does not prove adequate for the regulation of the conduct of mankind. It is so chiefly intellectual that it leaves man's highest nature unsatisfied and almost untouched; therefore, it is imperative in the present intellectual and material awakening that the more subtle forces which will profoundly affect the soul of the race should be fostered side by side with these others, and that full advantage be taken of the critical state presented by this transition, in order to gain for Christianity its rightful place among the educated men of the rising generation.

At the same time care must be taken to avoid repetition of the unwarranted conflict between science and religion. Our instruction must be such that these two departments are not regarded as antagonistic, but as supplementary, not only in affecting daily life and conduct, but supplementary, also, as revelations of the character and purposes of God. We must, also, avoid the tendency to impose a system which is the outgrowth of western civilization with-
out due regard for the oriental character and mode of thinking. Much of the prejudice against missionary work has doubtless been due to its connection in many instances with dogmatism which happily has been and is being largely eliminated by the broadening of education.

**Contradictory characteristics**

In reviewing the faults and virtues of this remarkable people, one realizes that they exhibit strangely contradictory characteristics, at least contradictory as we of the West view them, though I am mindful that often the oriental, especially the Chinese, sees no contradiction between ideas or ideals which we may consider mutually exclusive.

Ingenious in small things, they rarely carry their invention in any direction to its natural sequel. Responsible for some of the best of early achievements in applied arts, they have made no great inventions in recent centuries.

As a nation, they present the greatest example of persistence, while as individuals they are often singularly lacking in this quality. They show great economy in use of materials but are very wasteful of time and energy. They build but do not repair.

Kindhearted and in general considerate of animals, in deference to Buddhistic teachings allowing even snakes to live, they let men die of starvation by the roadside and seldom make heroic efforts to save endangered lives; in hard times the lower classes even sell their children to be slaves.

So drilled in usage of the past, they continue in old ways even when the reason for that way has long since ceased. So conscious of their obligation to the past they are comparatively indifferent to the claims of the community in which they themselves are living and have little idea of passing on to the future with interest what they have received from the past. They spend vast sums in reverence to ancestors but destroy the forests that would safeguard their own descendants. They practice early marriage and polygamy for the sake of progeny, and yet impoverish their posterity. The nation which of all now extant has shown the greatest power of persistence, nevertheless has made the least provision for its own future.

This outstanding result of ancestor worship and the all pervading practice of "squeeze" are the two paramount evils of Chinese life. Serious as these faults are and slow in their removal, they can be overcome by a type of education that will develop the scientific spirit, higher moral ideas, especially a regard for the community and the future, and greater strength of character; in short the highest type of modern education which while training the student for effective service will, also, spiritualize his motives in life. This is, indeed, the high aim many of our American missionary colleges are fulfilling to the extent of their ability.

**Mission Schools**

**The opportunity to serve China**

Although the first modern schools in China were begun under mission auspices and some of the best educational institutions today are under mission auspices, the education of the Chinese is not the problem of the mission boards; it is China's own problem. But in view of the immensity of the government's task, the missions have an unprecedented opportunity to render a real service to China. Because of the disturbed political conditions ever since the revolution of 1911, the governmental effort at providing general education has, with a few exceptions, been very ineffective and the mission schools have even a greater opportunity today to help mould the educational system of China than was even thought possible in 1911 when such a new spurt was taken under the first republic in educational matters, the most marked since the eventful day in 1905 when a stroke of the Imperial pen abolished the old system of literary examinations and called for the establishment of modern schools throughout the land.

As already indicated, the great handicaps in the government's educational work are the lack of funds, the lack of qualified teachers and the lack of honest and progressive
administrators. An adequate appreciation of the function of education and the precise adjustment of the type attempted to the needs of the community and of the nation are also still to be achieved. It is for these reasons that mission institutions have had and are still to have a very great share in shaping the course of China's educational development.

After several decades of diffused and experimental ministry, which, however, has been of great value and was even a necessary preliminary, the Protestant missions are aiming to furnish China with a thoroughly standardized and coordinated system of Christian education, emphasizing quality rather than quantity, so as to provide educated leadership in the various professions and vocations, and an intelligent and reasonably educated Church membership and dependable citizenship who will constructively influence their community life. This is serving as a challenge and a corrective to the native schools of similar grade.

Statistics of mission schools

Out of a total of 6000 Protestant missionaries, some 4800 are Americans, and of these some 1500 are engaged in educational work, which includes two-thirds of all the educational work at present under way in China under Protestant auspices. Unfortunately the statistics of Catholic work are not available, though there are many French, German and Belgian Catholic missions, and a few American priests who work under one or the other of these missions. Generally speaking, the Catholic missions are not so ambitious from a purely educational point of view, though they are fairly strong on industrial work connected with the production of church fixtures and furnishings, and some of the best scientific work ever done in China both in former and in recent years has been under French Catholic auspices.

Protestant missions in China besides their medical work conducted in 1917-1918, 115 kindergartens, 5276 lower elementary schools, 575 higher elementary, 233 middle or high schools, 28 colleges, 156 normal and training schools,
China, whereas the training of the leaders for that more general educational conquest can best be done near the largest cities.

Although the great bulk of missionary education is still in the elementary and secondary grades, in more recent time a number of schools of college grade have been developed, nine even assuming the title of university.

The strategic points at which mission colleges and government institutions also are concentrated are as follows: From south to north through the eastern provinces, Canton, Foochow, Shanghai and the neighboring cities of Hangchow, Soochow and Nanking (all of which are connected with Shanghai by rail), Tsinan, Tientsin and Peking. Then up the Yangtsze 650 miles is the educational center of Wuchang and Hankow. South from Hankow two hundred miles we come to Changsha, the capital of Hunan Province, the last to be open to foreign influence, and here Yale maintains an educational and medical mission. Then in the far west at Chengtu, the capital of the great province of Szechwan, there is the beginning of a college which has one of the brightest prospects in all China.

Of 26 colleges, in some of which the bulk of the work is still of high-school grade, 10 are maintained as "union" institutions by several denominational boards cooperating, while two are strictly non-sectarian though Christian. These are Yali or the College of Yale at Changsha, and Canton Christian College which may in a way be regarded as an intercollegiate mission since eight American institutions maintain each a representative on the faculty of this school in distant China as a part of the foreign work of their Student Christian Association or other special organization. Curiously enough both of these institutions have had a remarkable degree of financial support from the Chinese; in the case of Yali this has taken the form of a definite cooperative basis, while at Canton money both for building and for running expenses has been turned over unconditionally to the Trustees of the College incorporated in New York.

Canton Christian College

The history of the Canton Christian College falls naturally into three periods: Inception, 1884–1903; organization, 1904–1918; and realization, 1919 and beyond. Started by Dr. Happer of the American Presbyterian Mission who raised the initial fund, the college has since become non-sectarian, and standing to serve the whole cause of education under Christian auspices in South China offers an opportunity to the several denominational boards each to support a man on the staff and nominate a trustee. Thus far three boards, two of them English, have accepted. While religious instruction is an integral part of the curriculum, great care is taken to make the atmosphere of the campus wholesome and tolerant and the doors are open to all students qualified by character and scholastic attainment to enter, irrespective of religious belief. The most striking feature of the institution since 1904 when the development of the present site was begun, has been the rapidity of growth. The campus has increased from 20 acres to over 130; the two long wooden bungalows which provided temporary shelter for the whole institution in the first years are now supplemented not only by a score of other temporary buildings, many of which are of brick, but by twenty-five permanent fire-resisting and ant-proof buildings, with five more in course of construction. The student body has grown from 60 to 600 and the staff from 6 Americans and 6 Chinese to 31 Americans, 2 British, and 51 Chinese (not counting the wives who do not teach). The budget of current expenses has risen from $20,000 Hongkong currency to over $200,000 annually. Only one element has failed to grow, the all important item of endowment; we had none in 1904 and we have almost none in 1919.

Half of the budget for current expenses is met by student fees and rentals; the remainder must be secured each year from generous individuals or supporting groups, Chinese
or American. The investment at the College to date is about as follows: Grounds $80,000, buildings $350,000, equipment $35,000 or a total of $465,000 United States currency. The rapid growth and this substantial investment make even more urgent the securing of an adequate endowment.

Inaugurated on the petition of over 400 prominent gentry and officials of Kwangtung, the College has in recent years received as much money for all purposes, current expenses as well as buildings, from Chinese sources as from America.

The institution is coeducational in all grades, with a total of about 40 girls. In the secondary grades we are in affiliation with the girls' middle school of the American Presbyterian Mission, on the condition that they offer adequate preparation for entrance to our College of Arts and Sciences. The establishment of a separate college for women awaits the development of a more adequate foundation of secondary schools.

English is the medium of instruction for all modern subjects beyond the second year of the secondary school. At the same time a high standard in Chinese subjects is maintained and all students are required to study Mandarin, which is also employed as the medium of instruction for some of the courses such as the geography and the history of China.

Three elements of modern education are so entirely novel in comparison with the old style and are now of such recognized importance that a brief mention will suffice to indicate the special emphasis they receive in the Canton Christian College and other progressive schools in China: The natural sciences, manual training, and athletics.

In endeavoring to introduce and develop interest in manual training, it has been necessary to proceed wisely, in view of the traditional antipathy toward any sort of manual work on the part of the scholar class. But that the movement has been crowned with abundant success is evident from the spirit exhibited by our students in digging a large outdoor swimming pool two years ago, a tremendous undertaking involving daily participation in dirty work which covered more than a year.

Outdoor games were, of course, introduced at the very inauguration of the institution and naturally the long finger nails and the long gowns were not long in coming off when once the wearer actively participated in a game of association football. That was the first step; other athletic forms were rapidly developed and the total effect of such in opening the mind as well as the pores has been of untold value.

In the line of manual training, more properly speaking, advantage was taken of the traditional reverence for the written and printed "character" and elementary practice in type-setting and printing was introduced as the thin edge of the wedge, which in due course was followed by required work in carpentry, basket and rattan work, and then later in gardening—all in the secondary school. While in the college grades proper nearly the whole time assigned to science courses is spent in laboratory and field work.

Somewhat related to the same principle underlying this athletic and manual work is that involved in military drill. Not only is the discipline of the secondary school conducted on a military basis but military as well as physical drill is required. In the College of Arts and Sciences there is no required military drill but a vigorous volunteer corps has been formed entirely on the students' initiative.

Three major problems of organization have been substantially solved: The architectural general plan, the administrative function and the scholastic divisions.

A comprehensive layout has been developed to permit a coordinated and harmonious expansion of the plant. The College maintains a resident architect and has organized its own construction department, thus greatly reducing the cost of buildings.

The type of permanent building adopted combines modern construction with a Chinese aspect, chiefly expressed in the roofs which are of green glazed tile and ornamented and curved according to the best native style. The floors are reinforced concrete, the walls of red brick of a pleasing soft tone. All the buildings are equipped with modern plumbing. It is distinctly the aim of the College so to build as to exemplify structurally and artistically the best combi-
nation of Western and Chinese architecture and thus as well as in other ways to be of help in this period of change in China.

The officers of general administration and the heads of the several schools constitute a Council which draws up the budget and looks after all affairs that concern more than one school, including the inauguration or elimination of departments or schools. With Trustees in New York and the College in China there is an element of administration unknown in an institution in America. This difficulty is reduced by frequent visits of the president from one side of the world to the other, and by delegating to the Council many functions generally performed in more or less detail by the Board of Trustees for a college in America.

There are three main schools of five years each: Elementary, secondary and collegiate, with enrollments (1917-1918) respectively of 120, 330, 103. Some 1100 students have entered the institution since 1899. All regular students are resident on the campus. There are also some 250 extension students, adults and children from the neighboring villages the work for whom, while of a much lower grade scholastically, is exceedingly important from a sociological point of view.

In the College of Arts and Sciences, a faculty of 30 offers courses in four groups: arts, natural sciences, social sciences, agriculture. A medical school, a teachers college and a school of engineering are also projected. After two decades of necessary emphasis on the secondary grades, the College department proper is now fully under way and in June, 1918 the first B.A. degrees were granted.

The opportunity for substantial and satisfying service along educational lines, combined as it is with opportunities for research in an almost untouched field, as regards economics, government, sociology, ethnology, geology and biology, and in the applications of all the sciences to the agricultural and industrial development of a country whose natural wealth is as yet not even surveyed, this great opportunity, we say, does not fail to attract men of high scholarship to membership on the faculty of the College, even on the reduced financial basis which to too great a degree characterizes missionary enterprises.

Even under present limitations this “man-factory,” as the Chinese call it, is a going concern; abundant high-grade “raw material” is available, a qualified staff is “on the job,” the work is fully organized, the “plant” is being used to the utmost advantage, and it but remains to put more capital at the disposal of its directors, in order that it may indeed keep pace with its ever-increasing opportunity to supply precisely the product which China so greatly needs for the period of reconstruction which she faces.