

that by simply using the ordinary precautions of sterilizing the needle by boiling, arsenic may be retained in the needle in sufficient quantity to give a positive reaction. Later, I observed greater care in washing the needle out with ether followed by sterile water and then boiling the needle, and my results as to the presence of arsenic immediately changed. I have also excluded in my reports specimens of spinal fluid which contained blood in those cases in which I had previously administered the different preparations intravenously or hypodermically.

I am submitting these preliminary reports and trust the future may reveal something in the way of importance along these lines. There should be some way of testing the relative toxicity of the spinal fluid on the spirochetes after the injections of these different preparations of arsenic. I would suggest also that by either increasing or decreasing the blood pressure or decreasing the pressure of the spinal fluid, arsenic may possibly be more readily eliminated into the spinal canal.

104 South Michigan Avenue.

AN EXAMPLE OF COOPERATION WITH THE CHINESE IN MEDICAL EDUCATION *

F. C. YEN, M.D., D.T.M.

CHANGSHA, CHINA

The leaders in medical science in China to-day are agreed that in medical education lies the strategic basis for future development. In order to accomplish the most for China and to confer a permanent blessing on her people, they realize the necessity of conserving the comparatively insufficient resources of men and money, and of utilizing to the best advantage all available energy and effort in the training of Chinese doctors. With the limited supply of men and money from foreign sources, it is suicidal to spread out over the whole field waiting to be occupied. As Dr. Gillison said, "Plant all the hospitals and all the doctors in civil and military practice in Great Britain and Ireland in the one province of Szechuen, and provide for the rest of China in the same proportion, and you have some idea of the goal to be reached." And this leaves out of account the entire field of medical education, which is to supply the doctors needed.

The present opportunity is superb for medical men to do educational work, and thereby shape the medical situation for China. Delay now means permanent loss, for when China has organized her own medical institutions, the opportunity will be forever gone. The need of uniting all available forces in establishing union medical schools in strategic centers, in order that the limited foreign funds and men may be fully conserved, has already been sufficiently urged, and several such schools are now in operation. The purpose of this paper is to invite serious attention to a working example of cooperation with the Chinese in medical education on a new basis.

The advantages of such cooperation are:

1. The good will of the Chinese is enlisted. When they are made partners, opposing forces are changed into promoting ones.

2. Suspicion is removed. Cooperation brings closer touch with the Chinese and a truer understanding of the real purpose of missionaries in China, thus averting the besetting dread of the Chinese of foreign aggression in educational work. The result is increased confidence in foreigners and their activities and motives.

3. The advice and practical aid of the Chinese workers is indispensable in adapting such institutions to Chinese requirements. Only a Chinese can fully understand the Chinese point of view.

4. Cooperation with the Chinese gives the work more permanency. In medical as in other lines, foreigners are merely laying foundations on which the Chinese themselves must build. By cooperation alone is the work made continuous and lasting.

5. Through cooperation the Chinese learn the best methods of conducting schools, and foreign educators are enabled to direct the proper expenditure of funds.

6. With government recognition, the work is viewed with favor by the Chinese.

There are, to be sure, certain disadvantages, but the merits of cooperation vastly overbalance these, and in most cases the difficulties are easily overcome. Having enumerated the advantages of cooperation with the Chinese, let me describe to you a cooperative agreement at Changsha between the Chinese and Yale which is now in full operation. Those who are seeking examples of such cooperation may, perhaps, profit from the recital of an actual experience.

This movement took a practical form in the summer of 1913, but Yale had been patiently and carefully paving the way since 1906. During these years the one aim was to cultivate friendship and good will with the Chinese, and to win Chinese interest and confidence in the Yale work. To this end, every effort was made to give practical assistance to the Chinese in such affairs as Red Cross work, combating epidemics, and in making effective sanitary reforms. So in 1913, when a large gift was secured in America for the erection of a new Yale hospital, the Chinese were at once interested, and appreciated the opportunity. On their own initiative, over eighty of the prominent gentry of Hunan, led by provincial officials, sent a joint petition to the governor, requesting him, in the name of the Hunan government, to enter into a working agreement with Yale for the immediate establishment of a medical school. This request was granted, and the agreement was signed in July, 1913, between Yale on the one side and the governor, representing the Hunan government, on the other. Thus was born the Hunan Yale Medical School.

I wish again to emphasize the fact that the cooperative agreement was developed at the initiative of the Chinese, but that the way was paved by a steadfast and definite policy on the part of Yale extending over seven years. In addition to opening a new medical school, with standards similar to those in the West, the cooperation also undertook to maintain two nursing schools for men and women, respectively, a hospital and a research department for the investigation of public health problems and diseases peculiar to China. By the agreement, the Hunan government is to provide the necessary school buildings, costing \$156,000 (Mexican), nine acres of land, amounting to \$50,000, and an annual sum of \$50,000 (Mexican) for the maintenance of the school and hospital. Yale undertook to furnish a hospital costing \$150,000 gold, and the salaries of fifteen doctors.

* Read before biennial convention of China Medical Association, Shanghai, Feb. 1-5, 1915.

Control is vested in a board of managers of twenty members, ten Chinese and ten from Yale. The board, when formed, is self-perpetuating, but undesirable members may be removed by a three-fourths vote of the board. In case of vacancy, the board has the right to elect new members, but such elections require a three-fourths vote of the members to become valid. Current business is in the hands of an executive committee, elected by and from the managers. The agreement provides for a probationary period of ten years, and is subject to indefinite continuation, if proved successful. Land costing 80,000 taels has been purchased adjoining the Yale campus. Of this sum Yale gave 20,000 taels, the Hunan government 50,000 taels, and the land owners 10,000 taels. A medical preparatory department and two nurses' training schools were opened in the fall of 1913.

Before the agreement was put to a practical test, it was feared by Yale that certain delicate matters would present practical difficulties. One of these problems was in connection with religious instruction, but the difficulty was easily met by a clause insisting on the importance to the society that physicians should be men of moral character, and providing that, while students were to have entire religious freedom, teachers were also to be free to give religious instruction. With a board whose Chinese representatives were chiefly non-medical men, it was feared that unreasonable interference on technical matters might impair the efficiency of the school; but it was soon found to be quite otherwise. The Chinese members voluntarily placed the entire responsibility in all technical matters in the hands of the Yale medical staff. Besides, the rules of the Hunan Yale Medical Association provide that professional management of the hospital and school shall be left with the two medical members on the committee.

The appointment and dismissal of teachers, it was feared, might become another serious difficulty. The Chinese might introduce their own friends, regardless of qualifications. But this fear was removed by leaving nomination for appointments entirely in the hands of the two medical members of the executive committee, and making dismissal of teachers require a three-fourths vote of the board of managers, on the recommendation of the medical faculty.

The difficulty of the language to be used as a teaching medium was also readily solved. The opinion of the Chinese managers was asked, and their decision was unanimous that English should be employed. It seemed evident to them that the difficulties in giving adequate medical instruction in Chinese, and the ideal of making this a first-class medical school, alike made the use of English imperative. Of course the pre-medical course, and perhaps part of the lower years of the medical course, would require more or less explanatory instruction in Chinese; but the opinion was unanimous and enthusiastic on the part of the Chinese that graduates should have a good working knowledge of English and that the more technical instruction should be in English.

In the midst of progress there came a serious setback. A small group of Chinese, claiming to represent the western medical profession of the province, from motives of jealousy and self-interest, attempted to wreck the Hunan-Yale scheme. At a time when Hunan was suffering from the effects of her declaration of independence from the central government (August, 1913), it seemed easy to ruin the scheme.

The governor who had put the agreement through lost favor at Peking and was removed. This gave the opposition its opportunity at Peking, and a decision of the cabinet ordered the Hunan-Yale agreement to be canceled. For a time difficult problems confronted Yale. Analysis of the situation resolved it into two propositions:

1. Was it worth while to revive the cooperation, if an agreement officially made with the Hunan government could be so easily canceled at Peking?

2. If worth reviving, should Yale bring diplomatic pressure to bear at Peking, or should the Chinese use their persuasive influence on their own cabinet?

Yale unanimously decided to adopt the latter policy in the belief that if the movement could not be revived by reasonable explanation, no real cooperation could take place.

After securing the approval of the new governor, who quickly became a warm friend of the movement, representatives were sent to Peking to ascertain the nature of the opposition. They found that the objections, which were largely misrepresentations by the opposing party, were easily explained. Only one real issue was raised by the Peking government. Since the movement was the first of its kind, representing the cooperation of a private foreign body with a provincial government, Peking feared that it might later be used as a precedent by other foreign organizations whose motives might not be so sincere as those of Yale. Consequently, the services of thirty leading Hunan officials resident in Peking were secured to organize an association known as the Hunan-Ru'-chuen Educational Association, and an agreement similar to the original one was signed between it and Yale. The agreement met the formal approval and sanction of the cabinet, as well as of the Boards of Education, Finance, the Interior, and Foreign Affairs. The Ru'-chuen Association thus acts as a technical intermediary between the government and Yale. All the financial undertakings called for in the agreement are, in reality, carried by the government.

Thus the Hunan-Yale Medical School was revived. This time it has been placed on a still firmer basis because it has been registered with the central government as well as with the governor of the province. The cooperation is made stronger and more real because no foreign pressure was used in its revival. The movement has stood a severe testing. It was subjected to the scrutiny of the cabinet twice, was approved by three governors, and supported by two parties of opposite political views. The fact is significant that though at present the provincial treasury is depleted, and though the authorities are trying in every way to reduce expenses, educational and of other sorts, yet they are sincere in their desire to discharge their obligation to the Hunan-Yale Medical School. Two payments totaling \$20,000 have been made, and a large building worth \$50,000 has been reserved for the use of the school and hospital, pending the erection of permanent buildings.

The medical preparatory school with nineteen students, and the two nursing schools with thirty-five students, are now in full operation, and the Yale hospital is under the direction of the joint board. This represents the Hunan-Yale cooperation in medical education. It is taking place in Hunan, a province in which provincialism and local pride, to say nothing of nationalism, run high. If it is possible in Hunan, it must be possible in many other places in China. The time has

come when the Chinese look on cooperation with favor. Where it is sought it will be found; but progress must be patient and slow, if lasting results are to be obtained. The first essential is to remove all opposition, and to secure the friendship, good will and sympathy of the Chinese. To overcome opposition, the resources of Chinese friends must be sought. One man who has made friends out of opponents for the work in Changsha is an elderly Chinese doctor who has made both fame and fortune in the practice of Chinese medicine. When he was won over he gave up his lucrative practice and resigned the presidency of a Chinese medical school. Not only does he lend financial and moral aid to the Hunan-Yale school, but he sends many rich and influential patients to the hospital and on every occasion testifies to his conviction that Western medicine is better than Chinese.

When opposition is removed, indifference and apathy must be transformed into keen and proprietary interest. Indifferent cooperation is not productive of effective results. Unless the Chinese have an intense and vital interest aroused, cooperation is in name only. Here are needed those Chinese who command esteem and respect among their countrymen. Revival of the Hunan-Yale movement would have been difficult without such Chinese as General L. Chang, who from long contact with foreign institutions knew exactly what they stood for, and from his important official position as military adviser to the president, commanded the confidence of the people. Because of this, he was able to convert the previously uninterested officials in Peking into actual promoters of the movement. At Changsha Yale is fortunate in having another friend, the son of a governor, whose close connection with the gentry gives him great influence with his fellow provincials. Three principals of the three most important middle schools, as well as the commissioners of education and police, are among the members of the board of managers. Indeed, the strongest asset of the Hunan-Yale Medical School is the great and practical interest taken in its work by the Chinese members of the board. This interest has been worked up by this one man.

Hunan-Yale represents a thorough and wholesale cooperation in medical education with the Chinese. It is a brave attempt in that its success is yet to be proved. It is a risky enterprise in that the coalition has yet unforeseen difficulties to face. It means self-denial and sacrifice on the part of the foreigners concerned, but it is worthy of the most serious consideration. The time has come when cooperation with the Chinese is no longer an ideal dream but may be materialized in fact. The Chinese are getting to know the foreigners better, and to understand their real motives, and are prepared to unite with them in such movements as this. But the initiative must come from foreigners. Where cooperation is sought, it is given, but the degree of success must necessarily depend on the spirit in which it is entered. In proportion to the fairness, loyalty and enthusiasm of the foreign party will be the cordiality, interest and support of the Chinese.

Amount of Breast Milk at a Feeding.—The quantity of breast milk received by the baby at a single meal varies within wide limits. The largest quantity ingested at one meal may be two or three times as great as the smallest quantity taken at one feeding on the same day.—Isaac Abt, *Detroit Med. Jour.*, February, 1915.

THE PROGNOSIS AND TREATMENT OF TUBERCULOSIS OF THE KNEE IN CHILDHOOD *

JAMES WARREN SEVER, M.D.

Junior Assistant Surgeon, Children's Hospital, Boston; Surgeon to the House of the Good Samaritan

AND

EBEN W. FISKE, A.M., M.D.

Clinical Orthopedic Assistant to the Children's Hospital, Boston; Assistant Orthopedic Surgeon to the Boston Dispensary; Assistant Surgeon to the N. E. Peabody Home for Crippled Children

BOSTON

Methods of treatment and concern for the future are always subjects of interest and importance in the consideration of tuberculosis of the joints in children. The relation of treatment to prognosis in these cases is definite and close, yet the eager questions of the parents with regard to the future usefulness and appearance of the part are often extremely difficult to answer. In no joint is this condition of affairs more apt to arise than in the knee. Deformity, limitation of motion, shortening, and impaired function are such common end-results of tuberculous infection of this joint, that it is frequently advisable to establish with the parent an early understanding of these possibilities as well as the certain expectation of a long and tedious convalescence. Indeed, after the many months or even years of treatment, during which the child must continue an invalid, must be constantly attended and nursed, must have, as in many cases, frequent dressing of discharging sinuses and must be carefully watched for exacerbations and untoward symptoms, a termination of the acute process, even though attended by malformation or partial disuse, is gladly welcomed.

COMPLICATIONS OF TREATMENT

This rather pessimistic outlook, or at least, this uncertainty of prognosis, is due to many factors. Tuberculosis, in all its manifestations an insidious enemy, a slow-working yet a mighty destroyer, a smoldering fire with constant menace of terrible conflagration, makes no exception of the child's knee. Almost invariably there is a long history of partial disablement, pain, limp, and impaired general condition, before the child is brought to the doctor, and yet when seen, these same joints are quite as invariably hot, swollen, tender, held by spasm and otherwise markedly acute. In other words, the condition long standing has suddenly flared up and the parents have come to the realization that the child's "run down" condition will not "pass off" as they had hoped. Again, in the course of treatment, sufficient quiescence of the joint having been obtained in combination with increased general resistance, fixation is suspended and function resumed too quickly through the ignorance of an overindulgent parent or the hastiness or overconfidence of the physician. The result, recurrence of acute symptoms due to the stirring-up of the untreated focus, produces further damage to the joint, prolongation of treatment and prejudicial after-result. Improper fixation, the wetting or breaking of casts, neglect in carrying out the measures prescribed, inattention or inability to provide proper food, fresh air, rest, etc., all have their marked effect on the course and result of the disease.

* From the Orthopedic Department of the Children's Hospital.