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PROSPECTUS
OF THE PROPOSED UNION
MEDICAL SCHOOL
SHANGHAI, CHINA

March 1924

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March, 1924

Issued by the Organizing Committee:—

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Compiled with the aid of Rev. Earl Herbert Cressy.

General Secretary, East China Christian Educational Association.

Address all communications to the **Secretary, Proposed Union Medical School, St Luke's Hospital, Shanghai, China,**

WITH THE COMPLIMENTS OF

the President

ST. JOHN'S UNIVERSITY

SHANGHAI, CHINA

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PART I

A New Situation

The Occasion of This Prospectus

In February, 1922, the prospectus of a proposed union medical school was issued. The reason for issuing another prospectus is that the proposal from St. John's University as below made in November, 1923, has created an entirely new situation.

Proposal for the Immediate Formation of a Shanghai (or East China) Union Medical School. (November 1923.)

The Shanghai (or East China) Union Medical School shall be made up of two or more units working in cooperation in the training of Chinese students in Western Medicine under Christian auspices.

Units: Any Mission, hospital, or other group that appoints and supports one acceptable member of the faculty shall *ipso facto* be a full and equal member of the union and be classed as a unit of the union. When the organization has developed, other groups may be admitted into the union as units on such terms as the Board of Control may determine.

Object: To take over the control and running of the present Pennsylvania Medical School, being the Medical Department of St. John's University, and to form a Union Medical School in Shanghai. The name of the proposed school to be the 'Shanghai (or East China) Union Medical School, or such other name as the co-operating bodies may decide.

Control: Each unit of the union shall have an equal share in the control of and responsibility for the school.

Organization: On formation of the school the co-operating groups shall draw up the constitution and shall have full power to elect the Dean and other officers of the school and to decide questions of future policy.

Faculty: St. John's University offers any and all members of its faculty for both medical and pre-medical teaching. These and those who are appointed by other groups shall form the faculty at the inception of the school.

Affiliated Colleges: Each affiliated college will have the right to consider and to publish the school as its medical department.

Buildings etc. The American Church Mission and St. John's University offer dormitory space, lecture rooms, laboratories, apparatus and other facilities of St. John's University for the use of the school, and St. Luke's and St. Elizabeth's Hospitals for the clinical work of the school.

Finances: Until such time as other means of support are obtained St. John's University offers to be responsible for the running expenses of the school, with the exception of the support and housing of the members of faculty appointed by other members of the union. The rental of a dormitory in town for the students of the last two years shall be apportioned equally on cooperating units. This offer includes the purchase of necessary apparatus and materials. The fees paid by the students should be used for the running expenses of the school.

The American Church Mission reserves to itself the ownership and trusteeship of the property and buildings placed at the disposal of the school.

Note. This offer of St. John's University is made to effect the immediate formation of the Union Medical School, and to assure its existence until such time as the school is ready to build its own buildings and to finance its running expenditure. It will consider the union as formed as soon as one other unit agrees to join and will proceed to the organization of the school. While it is probable that for some years St. John's will be contributing the major part of the faculty and of the finances, it is understood that it will not have any greater share in the control than any other unit.

The Significance of this Proposal

1. The outstanding significance of this proposal is that it enables missions, colleges and Chinese groups to cooperate, and share in the control of the institution without immediately contributing the large amounts for plant, and annual budget which have prevented such cooperation since the first proposition for a union school made in 1920.

2. The plan adopted in 1921 outlined in the prospectus of February 1922 called for a plant to cost a million dollars, of which six hundred thousand dollars were to be available within five years. The unfavorable financial condition of some of the Boards has led to the conviction that a new plant cannot be secured for some time. The present proposal does not call for

a new plant immediately, but offers to share with the cooperating units the use of the following properties, thus practically eliminating large initial outlay.

Note: All figures in this prospectus are in Mexican dollars

At St. John's University.

Pre-clinical Laboratories	\$ 15,000
Dormitory Accommodation	10,000
Equipment	5,000
St. Luke's Hospital	275,000
Clinical Laboratory	25,000
St. Elizabeth's Hospital	75,000
	\$405,000

3. The present proposal puts emphasis on the existing school and hospitals as valuable assets, postpones the providing of an expensive plant, and reduces initial annual expenditure of each unit other than St. John's, to the providing of the support of at least one full time member of the Faculty, and to contributing a share in the rental of a dormitory in Shanghai for the students of the last two years. It is estimated that the rental of such a dormitory would amount to about \$1,500 per year.

4. The Union Medical School will be organized in such a way that it may become the Medical Department of the proposed East China Union University.

5. This proposal involves a new conception of union, which puts emphasis upon unity of purpose and spirit rather than upon proportional control based on amount of financial support, leaving it to each cooperating unit to assume gradually such responsibilities as its financial resources may make possible.

Nature of Action Desired

It should be borne in mind that this is only the first step. The governing body must eventually provide a larger budget secure additions to the plant, and work out the final form of organization looking forward to this school as the Medical Department of the proposed East China Union University.

Two Missions are already taking definite steps to contribute members to the faculty. Others have the matter under consideration. Steps are being taken to form a group of Chinese as one of the participating units.

The school is at present a union school of two missions—the American Church Mission and the Pennsylvania University Mission. The purpose of this prospectus is to interest other Missions, Colleges, Boards, and groups, to take steps to become units on the basis of this proposal.

Chinese Participation

From the start the Alumni and Chinese friends propose to take an active part in the organizing and in the maintaining of this school.

A representative group pledge themselves to provide three or four part time teachers or the salaries of one or two fulltime members of the faculty.

This group also proposes to enlarge their number so as to be truly representative of East China and to lay such a foundation as will enable them to assume larger responsibilities as the school grows.

It has been the policy of the present school to appoint Chinese members on the faculty whenever qualified teachers were available. So that now one half of the faculty are Chinese all of whom have had post graduate work in America or England. Other alumni are now in Post Graduate Medical Schools in America preparing themselves for teaching positions.

PART II

The Present School and its Possibilities

The new plan puts the emphasis upon the present school as a nucleus.

The first consideration, therefore, is to take an inventory of the school as it stands. The next step is to make such additions as may be immediately possible on the part of such missions and other groups as may cooperate, and to effect such reorganization as a representative board may determine.

ST. JOHN'S UNIVERSITY

PRESIDENT'S OFFICE

SHANGHAI, CHINA.

April 19, 1924.

President Ernest DeWitt Burton, D.D.,
University of Chicago,
Chicago, Ill.,
U. S. A.

My dear President Burton:

I am sending you copy of the prospectus of the proposed Union Medical School in Shanghai. For quite a long time I have been working at this project and I hope it may result in unifying the forces in this part of China. It is a first step in what may develop into an important union enterprise. Knowing that everything that makes for union in education in East China is of interest to you, I feel sure you would like to see this proposal, and I shall be glad to receive any comments you may have to make.

Yours sincerely,

R. L. Hawks Pott
President

ST. JOHN'S UNIVERSITY

PRESIDENT'S OFFICE

SHANGHAI, CHINA.

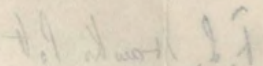
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Yours sincerely,


President

Student Body

The present school admits students upon completion of a two years premedical course in college, and requires for graduation a four years' didactic course and one year of service in an approved hospital. The present student body consists of only three classes as follows:—

First year	3
Third year	8
Fifth year	5
Total	16

It should be noted that classes have been admitted only in alternate years.

Standards

Taking into account the small number of classes and the size of the student body, the school as operating at present conforms approximately to the standards for a Medical College in China as defined by the China Medical Missionary Association.

Dormitories

St. John's University provides dormitory space for the use of students during the first two years. Students during the last two years will live in rented quarters.

Faculty

The present faculty consists of the following:—

Full-time professors and associates,	10
Part-time professors and associates,	12
Assistants	6

Of these four are engaged in teaching Pre-clinical subjects at St. John's University, the remainder teach Clinical subjects at St. Luke's and St. Elizabeth's Hospitals.

In this prospectus a full time member of the faculty is considered to be one who gives his whole time to teaching and to a hospital used by the Medical School for teaching purposes. This includes approximately 12 hours per week of teaching work, which may be any of the following:—

Classroom teaching
Laboratory teaching
Clinical teaching.

Clinical teaching may include work with small groups at the bedside in hospital wards, in the operating room, or in the outpatient department.

The ten full-time members of the faculty are teaching as follows:—

Under five hours per week,	3
Ten to fourteen hours per week,	3
Seventeen to nineteen hours per week,	3
Over twenty hours per week,	1

Of the three teaching under five hours per week, one is connected with St. Elizabeth's Hospital and the Department of Obstetrics. One is at St. John's University with responsibility for the Outpatient Department located on the campus, and the oversight of the student body.

Part-Time Teachers

One of the great advantages of Shanghai as a location for a Medical School is the fact that in addition to Mission doctors, there are a considerable number of Chinese physicians with Western training, and American and European physicians practicing in the foreign settlement. The Shanghai Medical Society has a membership of ninety-eight, including the following:—

23 Chinese Doctors
31 British Doctors
29 American Doctors

A number of these are already connected with the Medical School and there are others well qualified for such work who are willing to teach a few hours per week without remuneration.

The twelve members of the faculty at present rendering such services on a part time voluntary basis are teaching as follows:—

Three hours per week	1	Total hours	3
Two hours per week	3	Total hours	6
One hour per week	6	Total hours	6
Less than one hour per week	2		

Total Staff 12

Total hours per week

15

Four of the full-time professors and seven of the part time professors are Chinese all of whom, with one exception, have pursued advanced medical studies in Britain or America. The complete list of the faculty will be found in Appendix B.

Clinical Facilities

St. Luke's and St. Elizabeth's Hospitals are the teaching hospitals of the Medical School. In addition to the usual clinics in medicine and surgery, St. Luke's has special clinics as follows:—

Orthopedics	Proctology
Urology	Eye, Ear, Nose & Throat.
Dermatology	

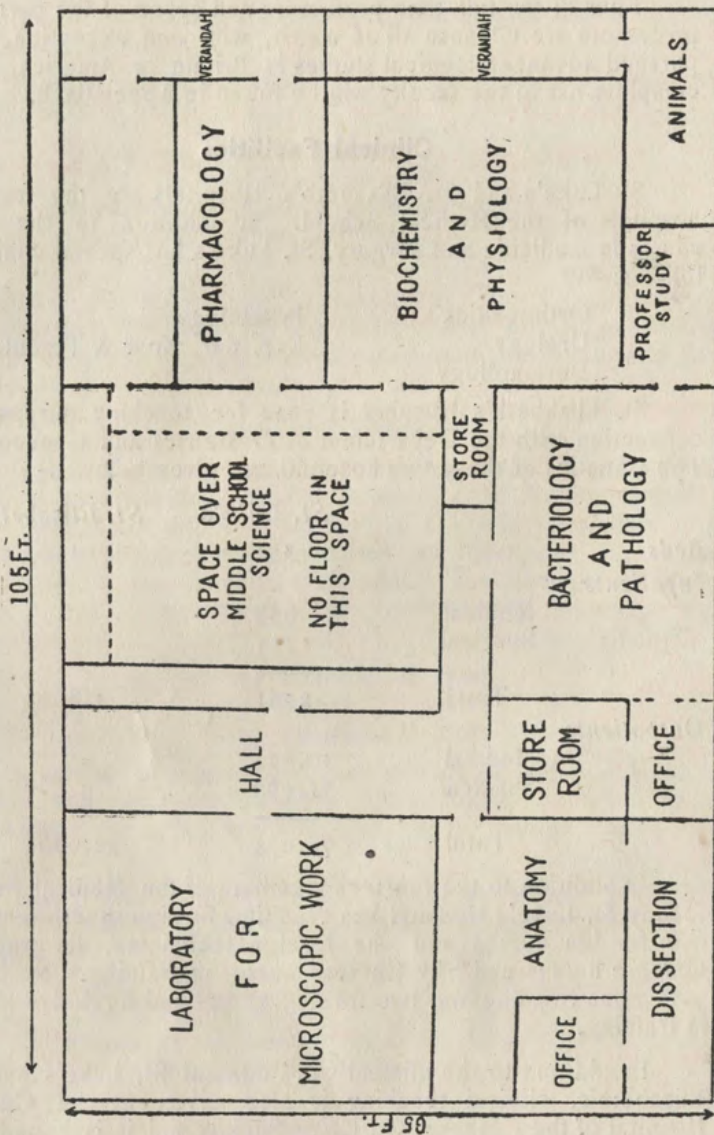
St. Elizabeth's Hospital is used for teaching purposes in connection with the Department of Obstetrics and Gynecology. The statistics of these two hospitals are given below:—

		<i>St. Luke's</i>	<i>St. Elizabeth's</i>
<i>Beds</i>		152	110
<i>Inpatients</i>			
	Medical	858	
	Surgical	1733	
	Total	2591	1,800
<i>Outpatients</i>			
	Medical	17,624	
	Surgical	52,450	
	Total	70,074	22,000

In addition to the fourteen members of the Medical School faculty St. Luke's Hospital has a full time foreign superintendent, five foreign nurses and one foreign technician, six graduate Chinese nurses and fifty Chinese nurses in training. St. Elizabeth's has two doctors, two foreign nurses and forty five nurses in training.

In addition to the clinical work done at St. Luke's and St. Elizabeth's, clinical teaching is also given at the General Hospital of the Chinese Red Cross Society and it is hoped that similar work may be done at the Chinese Hospital on Shantung Road.

MEDICAL LABORATORIES ST. JOHN'S UNIVERSITY



6,000 SQUARE FEET FLOOR SPACE

The New St. Luke's Hospital

The American Church Mission has recently purchased a plot of ground for approximately \$110,000 and proposes to build a new St. Luke's Hospital at a cost of \$750,000. This will be a 250 bed General Hospital for both men and women.

Pre-Clinical Laboratories at St. John's University:

In making the new offer, St. John's has placed at the disposal of the Medical School the upper floor of one of the university buildings as laboratory space for the Pre-clinical work of the first two years. The plan of this floor as arranged for the purposes of the Medical School is given below:—

It should be noted that there is a dispensary on the St. John's campus with an Outpatient Department providing approximately 20,000 treatments per year. This will furnish a certain amount of clinical material for use during the preclinical years, and somewhat lessen the gap between the two halves of the course.

Public Health

The Council on Health Education is rendering a valuable service to the school by conducting a course in Preventive Medicine and offering opportunity for the study of health problems. The Municipal Board of Health with its staff of specialists and hospitals for contagious diseases offers splendid opportunities for the study of city health organization and the diagnosis and treatment of contagious diseases.

PART III

Finance

Budget of present Medical School:

	<i>Paid</i>	<i>Voluntary</i>	<i>Total</i>
Administration	\$4,000		\$4,000
Library	960		960
Instruction Miscellaneous	6,560		6,560
Anatomy	6,000	750	6,750
Physiology	8,000		8,000
Pharmacology		750	750

Pathology	9,000		9,000
Preventive Medicine		750	750
Medicine	11,200	750	11,950
Surgery	15,600	3,750	19,350
Obst. & Gynecology	5,200	3,000	8,200
Eye, ear, nose & throat	4,000	1,500	5,000
	<u>\$70,460</u>	<u>\$11,250</u>	<u>\$81,710</u>

Notes:

The figures for the various departments cover the total cost of instruction including the following:-

Salaries of professors and associates
 Salaries of assistants
 Departmental supplies and equipment

Salaries for missionaries include furlough travel, house rent, and all allowances.

Voluntary teaching of clinical subjects is estimated at \$750 per hour per week per year.

Comparative Budgets:

For purposes of comparison, budgets and statements of expenditures of three medical schools in China are given below, including statistics of staff and student body:-

All figures are in Mexican dollars.

	<i>Shantung</i>	<i>Yale</i>	<i>St. John's</i>
<i>Administration</i>	\$6,800	\$3,500	\$4,000
Library		800	960
Miscellaneous	1,700	170	6,500
Administration Totals	8,500	4,470	11,460

Instruction-Salaries and Departmental Expense

I	Anatomy	9,900	6,402	6,750
II	Physiology	6,400	6,620	8,000
III	Pharmacology	5,600	2,184	750
IV	Pathology	14,300	2,739	9,000
V	Preventive Medicine	5,400	14,287	750
VI	Medicine	20,300	33,170	11,950
VII	Surgery	17,800	18,095	19,350

VIII	Obstetrics	3,400	9,716	9,200
IX	Eye, Ear Nose & Throat	2,000	4,014	5,500
Instruction Totals		79,000	96,300	70,250
Furlough travel-Shantung only		19,000		
		\$107,200	\$101,500	\$81,710
<i>Staff of Medical Schools</i>		19	20	22
<i>Students:</i>	1st. year	17	15	3
	2nd. year	19	11	0
	3rd. year	9	11	8
	4th. year	27	4	0
	5th. year	10	9	5
		82	50	16

The Medical College of Shantung Christian University: The figures are for actual expenditures for the year ending June 30, 1923, and include actual field salaries only in the case of missionaries. The amount of \$1,000 to cover furlough travel per year for the nineteen members of the faculty has, therefore, been added to the figures furnished by the institution.

Hunan-Yale Medical College: The figures are for actual expenditures for the year ending June 30, 1923. The salaries of missionaries include furlough travel, house rent and all allowances.

St. John's University Medical School: The figures are for the current year. Salaries of missionaries include furlough travel, house rent and all allowances.

The figures given above have been kindly furnished by the institutions and are used by their permission. It should be noted in each case that they cover cost of administration and instruction in the medical school only and not the whole institution.

St. Luke's Hospital

The other two medical schools, Shantung and Yale whose financial statistics are given above, maintain their own teaching hospitals, whose maintenance constitutes a large item in their total budgets. The proposed Union Medical School in Shanghai is fortunate in having St. Luke's Hospital available for this purpose. The hospital is a going concern with a hospital administrator in charge of its management, and sufficient income to cover administration and upkeep as well as operation, so that it need not be a charge upon the Medical School. This means a very large saving as compared with other institutions.

Financial Statement of St. Luke's Hospital

Income Only		
Fees		\$ 37,800
Salaries of Missionaries		32,000
Contributions		
Mission	5,863	
Municipal Council	8,889	
Foreign subscriptions	12,000	
Chinese subscriptions	5,000	31,752
Endowment and Rents		2,900
Miscellaneous		13,000
Total income 1923		\$117,452
Value of Property		
Present plant		275,000
New site		110,000
		\$385,000

Cost Factors

Attention has already been called above to the financial advantage of locating the proposed Union Medical School in Shanghai, arising from the availability of voluntary part-time teachers of special clinical subjects.

In accordance with the practice of many standard medical schools, it is possible to have as much as one-half of the clinical work covering the last two years, done on such a part-time basis. As approximately two-thirds of the teaching staff required for the Medical school is for the work of these two years, a medical school located in Shanghai can theoretically save one-third of the cost of instruction.

In addition to this, there will be considerable savings in the item for administration growing out of the fact that the first two years will be for some time conducted at St. John's University, which will be responsible for most of the general administration and for maintenance of physical plant. The hospital administration is already provided leaving only the item for administration to be borne by Medical School that corresponding to the office of dean in a college.

Many medical schools include large amounts in their budget for Public Health. Cooperation with the Department of Public Health of the Shanghai Municipal Council and with the Council on Health Education will greatly reduce these items.

In accordance with the recommendation of the Educational Commission given below, the school will concentrate on teaching and place less emphasis upon research.

307. "Two factors must be taken into account in considering the amount of research work which ought to be undertaken by medical schools. On the one hand a spirit and atmosphere of research are essential to good teaching. On the other hand a small staff can give but limited time to research. Because of its unusual staff and equipment a large amount of such work may be expected at Peking. The research work in other schools will by force of circumstances be limited until they are adequately staffed. For the present they will be obliged to depend to a large degree upon the results of the work in Peking, and of a few individuals who may here and there have opportunity to investigate some particular local problems."

Ultimate Developments

The immediate object of the promoters of the proposed Union Medical College is to put the institution in a position to admit a class of students each year, and turn out a continuous supply of the adequately trained doctors who are so greatly needed by the mission hospitals in East China, and for the advancement of modern medical science. It must be clearly recognized that the development of the institution cannot stop at this point. The first thing, however, is to secure this practical result and maintain high standards by undertaking only as much as can be done well with the facilities available. Additional staff, equipment and appropriations for running expenses must be provided in the future as may be possible. The organization of the Union Medical School as a part of the proposed East China Union University should be of great value in facilitating its further growth.

PART IV

Possibility of Cooperation with the Shanghai Union Christian Medical College for Woman

In the last few years there has been a steady tendency in China to open the doors of higher teaching institutions to women. Most of the medical schools, whether under Chinese or foreign direction, have already done this, including Peking Union Medical College, Shantung Christian University, and Yale in China.

The two missions which are cooperating in the medical college for women, and have voted to cooperate in the Shanghai Union Medical School have taken special action urging co-operation between these two institutions.

In the following recommendation of the Educational Commission, the advantages of such cooperation are stated:—

338. "In view of these considerations, it is the judgment of the Commission that the important interests of women's medical education can best be conserved, not by the maintenance of separate medical schools for women, but by concentration on securing for women proper opportunities and care at the co-educational schools. Not only would the women students at once receive a better education than can for some time be provided in a separate school, but the funds already in hand or obtainable would make possible the addition of women professors to the faculties of the existing schools, the erection of residences for women students, special hospitals for women, affording suitable clinical facilities for women students, and a traveling fund for students coming from a distance. Tsinan would offer facilities for those who prefer instruction in Mandarin, Peking and Shanghai for those who prefer English."

339. "Should this plan for adequate reason be deemed impracticable, the Women's Mission Boards, from whose treasurer the funds for providing education for women must largely come, should in our judgment unite their forces, transfer the Hackett Medical School from Canton and establish one first-class school for women in the city of Shanghai. Certainly the Boards could not justify the expenditure of the funds necessary to build more than one school. It would be a clear diversion of mission funds from their best use. If organized this school in Shanghai should be established in close affiliation with the medical school for men, which should materialize in the near future (see Sections 329-333), in order that there may be a saving of large sums of money in the erection of laboratories and hospitals and in the equipment of the same, as well as in the conservation of the life force of the men and women who must make the necessary sacrifices to make these institutions possible. No waste of life or money is justified in this critical hour.

If the proposal for a co-educational instruction in Shanghai is approved by the Women's Mission Boards, but other causes delay its realization, we recommend that the

establishment of a medical school for women be proceeded with in that city, and that it be so organized that it may become a part of a larger institution when it is developed."

The Shanghai Union Christian Medical College for women has been organized in Shanghai at the Margaret Williamson Hospital. A class will be admitted in the fall of 1924. This College has been organized and is supported by the Women's Boards of three or four missions in America. Plans already have been made by St. John's and this school for the exchange of professors and for such other cooperation as may be possible.

PART V

Relation to the Work of Local Missions.

The Christian movement in East China, Kiangsu, Anhwei and Chekiang provinces—has established fifty-six hospitals with five more under construction, making a total of sixty-one, with eighty-three mission doctors and eighty-nine Chinese doctors in charge. The statistics given below cover the medical work of all the missions, and also the amount of work carried on by each of the leading missions. The map gives the location of hospitals. The statistics are from the survey volume issued in 1922, and are three or four years out of date, but are the only complete statistics available.

Medical Statistics from Survey Volume.

	<i>Chekiang</i>	<i>Anhwei</i>	<i>Kiangsu</i>	<i>Totals</i>
Hospitals	19	8	29	56
Dispensaries	9	4	11	24
Beds	1,233	345	1,547	3,125
In Patients	13,216	2,295	17,537	33,048
Beds per Mission Doctor	61	29	30	120
Mission Doctors	20	13	51	83
Chinese Doctors	32	13	44	89

MISSION HOSPITALS



Medical Statistics by Missions.

	<i>Hospitals</i>	<i>Foreign Doctors</i>	<i>Chinese Doctors</i>	<i>Totals</i>
Church Missionary Society	7	6	11	17
American Baptist Foreign Mission Society	4	8	11	19
American Church Mission	4	8	19	27
Southern Baptist Convention	1	2	1	3
Methodist Episcopal Mission, South	3	10	5	15
Methodist Episcopal Mission, North	2	5	4	9
American Presbyterian Mission, North	5	7	5	12
American Presbyterian Mission, South	9	13	13	26
London Missionary Society in connection with Shantung Road Hospital	2	7	6	13

Economy of Providing Chinese Doctors as Additional Hospital Staff.

The China Medical Missionary Association is at present working out the requirements in staff for a standard hospital. Leading medical missionaries are insisting on a much larger number of physicians.

The whole trend in mission work at present is in the direction of the training of Chinese workers. This is particularly needed in the case of hospitals. It will be a considerable economy to the missions operating these sixty-one hospitals if a medical school makes possible their staffing with a larger number of Chinese and a smaller number of foreign physicians. The emphasis upon the larger number of foreign physicians holds good only so long as thoroughly trained Chinese physicians are not available.

The saving to missions in substituting well trained Chinese physicians for foreign physicians will pay the cost of participation in the Union Medical School.

The Contribution of the Present School to Medical Missions.

Total number of graduates	57
Deceased	5
Number now living	52

Interns in Mission Hospitales	10	20%
On medical school faculties	16	30%
In private practice, not teaching	14	27%
In non-mission hospitals	9	17%
In America, post-graduate study	3	6%

During the past ten years nearly every graduate has taken from one to three years hospital internship. Ninety percent of these have been in Mission hospitals.

Thirty-five percent of the graduates have taken from one to three years post graduate work in America or England.

Recommendations of Educational Commission Concerning Shanghai.

329- "*Shanghai*. After a review of the whole situation the China Medical Commission of the Rockefeller Foundation, in 1914, make this declaration: "Shanghai seems to be after Peking by far the best location for a strong and widely influential medical school."

There seems to be a little dissent from this opinion except that many believe that as a location for a medical school Shanghai is fully equal to Peking. This city, foreign though it is, is the gateway to China. While it is not regarded with the same affection by the Chinese as Peking or Canton, it is nevertheless destined to continue to be the leading commercial city of China. It is growing rapidly in population and wealth. It is a center for publication and for organizations of all kinds. It is the terminus, of the most important transportation routes of the country putting it in direct communication with the whole eastern coast and a large part of the interior. It contains a large population which by its intelligence, progressiveness, and wealth gives promise of furnishing more support for educational work than any other city in China.

Here, moreover, the Christian enterprise has its center to an extent that is true of no other in China. Here many of the Boards and Missions have their headquarters; more travelers from Christian lands come here than to any other point; here it is possible to gather the alumni of colleges, foreign and Chinese, as nowhere else. Increasingly Shanghai will be the center of the Christian influences for the whole Republic.

Furthermore, Shanghai is beyond any other city the educational center for eastern China. Without a school located at this point there will be for all East China, including the coast from Shanghai south, no Christian medical school, unless indeed the lack of it in Shanghai should unhappily lead to the establishment of one or more inadequately staffed schools at less advantageous points. This whole area would then fall to other schools not under Christian influence (there is one such now in Shanghai); students who would otherwise seek a medical education in a Christian school would turn to non-Christian schools; and the tendency would be to develop in this great area a medical profession uninfluenced by Christian ideals. This would certainly be most disadvantageous both to the Christian community and to the Chinese generally. Such an argument might indeed be put forth in reference to every point at which a medical school now exists and for various other cities. But the exceptional scope of the influence of Shanghai, and the practical impossibility of maintaining more than a very small number of Christian medical schools, make those considerations, in our judgment, a decisive argument for the development of a strong Christian school here rather than at certain other points.

330. The question of language is a serious one. While there are distinct advantages in giving an education in the vernacular, yet the differences in dialect in this part of China are so great that the various interests can be united only in the use of English. A school at Shanghai teaching in English would serve all.

As we have already pointed out we need sooner or later to complete our system of medical education under Christian auspices. With a strong school in Shanghai the system would reach a point of development which we believe would make unnecessary the establishment of any new schools for an indefinite period of time.

Concerning this Plan.

332. Recently the representatives of the institutions and the missions working in East China have been considering a plan of cooperation whereby they would take over the present school of St. John's University and incorporate it in a union enterprise. These representatives have decided to launch this undertaking as soon as it shall receive the official sanction of the missions in China and of the Boards at home and as soon as the necessary funds can be secured.

333. The Commission has been consulted frequently in this matter. As we have already indicated we believe that in the near future there should be a medical school under Christian auspices in Shanghai, and we give our cordial approval to such an undertaking. When it is carried into effect the school should be co-educational and adequate facilities provided for the education of women. (See Section 338.)

PART VI

Relation to Education in East China

There are over 3,000 students in the fourteen Christian Colleges and Universities in China, Of these 1733 students of college grade are in six Christian Colleges and Universities in East China, as follows:—

Ginling	96
St. John's	410
Shanghai	304
Hangchow	134
Soochow	211
Law School	137
Nanking	441
	1733

In the event of the organization of the Union University recommended by the Educational Commission, these colleges together with the Union Medical School would become parts of the University.

There are also 90 Christian middle schools with 7000 students in China. The East China Christian Educational Association has a full time secretary and has adopted the policy of developing all educational institutions in East China into one system, in accordance with the plan of the Educational Commission. Such a system will furnish a broad base for Christian professional education.

In addition to this there are a number of government and private colleges and professional schools, students from which will enter a medical school located in Shanghai.

Probable Number of College Students Available for Courses in Medicine

The report made by Dr. Paul Monroe to the institute of International Education (October 20th 1922), indicates that in 14 Mission Colleges in China there were at that time 2017 students, of whom 234 were studying medicine (table VII, page 38). This is eleven and one tenth percent. A study made by Dr. A. J. Bowen, President of the University of Nanking, to be published in the next China Mission Year Book indicates that out of 1528 graduates of nine mission colleges, 147, or nine and six tenths percent are at present engaged in the practice of medicine. This high percentage is in line with the emphasis put upon medical work by Christian Missions in China, and it is probably correct to estimate that ten percent of the students in Mission Colleges will study medicine.

In the five arts colleges for men in East China, there were in the fall of 1923, exactly 1500 students, including the following:

Junior class	184
Sophomore class	337
Freshman class	587

This indicates a large growth in institutions in East China and an increasing number who year by year will desire to study medicine.

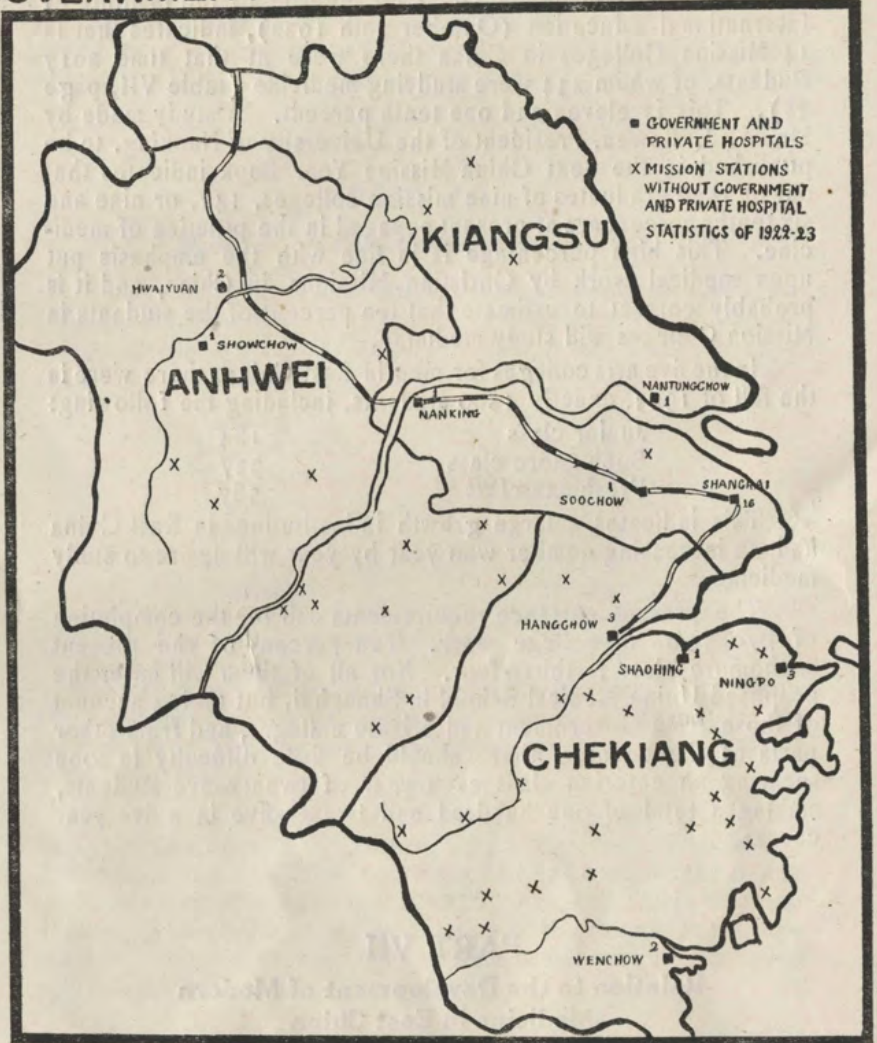
The present entrance requirements call for the completion of two years of college work. Ten percent of the present sophomore class is thirty-four. Not all of them will enter the proposed Union Medical School in Shanghai, but taking account of those from Government and private colleges, and from other parts of the country, there should be little difficulty in soon securing an entering class each year of twenty-five students, making a total of one hundred and twenty-five in a five year course.

PART VII

Relation to the Development of Modern Medicine in East China

The Survey Volume reports 31 government and private hospitals in East China. Their location is indicated on the map. It is worthy of note that sixteen are in Shanghai.

GOVERNMENT AND PRIVATE HOSPITALS



The volume on Education in China, published in Peking in 1923 by the Society for the Study of International Education, gives the following statistics for government recognized medical education in East China:

<i>Location</i>	<i>Students</i>	<i>Teachers</i>	<i>Expenditure</i>
Kiangsu	96	21	\$74,206
hekiang	205	27	55,280

The population of the three provinces in East China is as follows:

Kiangsu	38,000,000
Chekiang	23,000,000
Anhwei	20,000,000

Shanghai alone has a population of a million and a half.

Chinese and mission agencies can well cooperate in training doctors for the advancement of modern medical science in this great field.

The Contribution of the Present School

Up to the present time the St. John's medical school has turned out fifty-seven graduates, of whom fifty-two are living and engaged in the practice of medicine. They have taken a large part in the development of modern medicine, sixteen are now members of medical faculties, and in the work of the National Medical Association, one being president and another vice president, another secretary, and two editors of the National Medical Journal for 1924.

Appendix A

Actions by Various Missions and other Bodies

Resolution passed by Board of Directors of the American
Chamber of Commerce (Shanghai).
May 12, 1923.

WHEREAS the China Medical Mission Association of China and the National Medical Society of China have both endorsed the plan for the development in Shanghai of a Union Medical School for Chinese, and

WHEREAS a great need exists in China for western trained physicians and surgeons, and

WHEREAS Shanghai is the largest commercial center of China as well as an important educational center, and

WHEREAS the founding of such an institution would be of considerable assistance in strengthening Chinese-American good will. Now therefore be it

RESOLVED that we, the American Chamber of Commerce (Shanghai) place ourselves on record as being in full accord with the proposal for the establishment of a Union Medical School for Chinese in Shanghai.

D. J. Lewis

Secretary

American Chamber of Commerce (Shanghai).

MEMORANDUM

of the Meeting to Consider Proposed Union Medical School, Shanghai, China.

At the request of the Presbyterian Board of Foreign Missions a meeting of the representatives of boards which may be interested in this proposed school was held at 25 Madison Avenue, March 30, 1922, under the auspices of the Subcommittee on Medical Missions of the Committee of Reference and Counsel.

The following representatives of boards and organizations were present:

Presbyterian in the U.S.A.	E. M. Dodd, M.D.
Methodist Episcopal	J. G. Vaughn, M.D.
Subcommittee on Medical Missions of Committee of Reference and Counsel	Robert L. Dickinson, D.D.
American Board of Commissioners	Earle B. Cross.
Protestant Episcopal	John W. Wood, D.C.L.
University of Nanking	J. E. Williams
Committee on United Medical Work for Women in Shanghai	Gertrude Walker, M.D.
Women's Board, Presbyterian in U.S.A. . .	Mrs. Charles K. Roys
New York Branch, Women's Foreign Missionary Society	Mrs. Wm. I. Haven
Fukien Christian University	William I. Chamberlain
Women's Union Missionary Society of America	Mrs. Samuel J. Broadwell
Presbyterian in U.S.A.	George T. Scott.

Mr. Scott was elected chairman and Mr. Bible, secretary.

The meeting was opened with prayer by Dr. Chamberlain.

Mr. Bible made a brief historical statement with reference to the medical education situated in Shanghai and the adjoining areas and summarized briefly the proposals forwarded by Dr. Hawks Pott as Secretary of the informal Committee on Organization created in Shanghai. The recommendations of the China Educational Commission approving the creation of a co-educational union medical school was read. These recommendations suggested that certain other medical educational responsibilities already assumed by the boards should have priority but pointed out that the Shanghai project might be taken up by boards not engaged in medical education elsewhere in China.

An informal discussion followed, in which Dr. Walker explained that funds already received for the Woman's Medical School could not be put into a union co-educational school, but felt that a cooperative plan between a school for men and one for women might be worked out satisfactorily. Mr. Williams stressed the importance of enlisting at the outset the hearty cooperation of the Chinese under the leadership of influential Chinese laymen whose interest he thought might be secured.

In the discussion attention was called to the fact that the American Church Mission, the Methodist Episcopal Board, South, and the Woman's Board of the Methodist Episcopal Board, South, and the American Baptist Foreign Missionary Society and the Woman's Union Missionary Society of American are not engaged in medical education elsewhere and are largely interested in Shanghai as a mission center. It was suggested also that certain other boards, while interested to a limited extent in the medical school at Tsinanfu or West China, were not heavily involved in a financial way and might be able to participate in a school at Shanghai.

The Question was raised as to whether it would be advisable to have the proposed medical school as a university department participated in by Nanking University, Shanghai Baptist College, St. John's University, Soochow University, Hangchow Christian College, and Fukien University. In view of these suggestions the secretary was authorized to call a meeting of representatives of the boards referred to and representatives of the boards of trustees of the several institutions listed above to discuss the problem.

EXTRACT

Minutes of the Executive Committee, China Mission, Methodist Episcopal Church, South.

The following resolutions were submitted by the Mission Medical Committee:

(1) A. That we recommend to the Board of Missions that both of the Departments, the Department of General Work and the Department of Woman's Work, participate in the plan for a Union Medical School in Shanghai.

B. That this Union Medical College consist of two departments, one for women and one for men; and that these two departments cooperate in every way practicable in order to insure the highest efficiency and economy.

(2) A. That we recommend that the Department of Woman's Work put all of its available resources for medical education into this union scheme. This union scheme is understood to include the Margaret Williamson Hospital, the control of said hospital being left entirely to the Women's Boards interested.

B. That we recommend that the General Department appropriate one hundred thousand dollars gold, (G\$100,000) to this work, the same to be provided the first year following the Centenary; that twenty-five thousand dollars of this (G\$25,000), be advanced as soon as required, by a temporary shift of Centenary funds in medical work, if necessary.

We further recommend that for annual maintenance the General Board provide as a minimum ten thousand dollars gold (G\$10,000), and an amount necessary to maintain two members of the staff.

(3) That we recommend that the Board urge the American Church Mission to reconsider its action in regard to the building of the New St. Luke's Hospital on a site so remote from the Union Medical School, and that it be built in proximity to the Medical School and serve as the hospital for the men's department of the Union Medical School.

The Committee voted on the above report as follows:

Item (1) of the report was adopted.

Item (2) A was also adopted.

Item (3) B was amended to read as follows:—

"That we recommend that the Department of General Work appropriate \$100,000 Gold to this work, the same to be provided the first two years following the Centenary, fifty thousand dollars per year; that twenty-five thousand dollars of this, (\$25,000) be advanced as soon as required by a temporary shift of Centenary funds for medical work—if necessary."

Item (3) was adopted.

IT WAS VOTED: That a copy of these resolutions be sent to the Secretary of the Organization Committee, Dr. J. C. McCracken, and a copy to Miss Elizabeth Irving, Secretary of the China Section of the Board of Control of the Margaret Williamson Hospital.

J. A. G. Shipley
SECRETARY.

**Extract From Minutes of a Meeting of the Council of Advice
Distract of Shanghai Held in the Bishop's Office,
Jessfield, March 16th, 1922.**

The Report of the Special Committee on the proposed Union Medical School for Shanghai was considered. After discussion of various plans it was decided that the Department of Mission be asked to be responsible for two major units in the proposed school. two units representing a minimum of G\$50,000 for plant and equipment and G\$20,000 per year for running expenses,

**Action of the Reference Committee of the East China Mission
of the American Baptist Foreign Missionary Society.**

Nov. 26th. 1923

23243 To express our approval of the plan outlined in the proposal for the formation of a Shanghai Union medical College submitted on behalf of St. John's University in a communication from Dr. F. L. Hawks Pott dated Nov. 21 1923, and to appoint a committee to represent this mission in further consultation with the representative of missions concerned regarding these plans and to state that this mission can participate only on the following conditions:

(1) That our board cannot at present assume obligations for the cost of plant and equipment.

(2) That this college shall become the medical school of the proposed East China Union University.

(3) That there shall be secured a satisfactorily close degree of cooperation with the proposed Shanghai Union Medical College for Women.

(3) That not less than four mission cooperate.

Committee Dr. Proctor, Mrs. Ufford, D. Thomas and Dr. Lawney as alternate.

Helen E. Ritner, *Secretary*,

Apendix B

FACULTY

Full Time Faculty

Pre-clinical.

- C. S. F. Lincoln, B. A. (Bowdoin), M. D. (Central U. of Kentucky) Professor of Anatomy and Materia Medica.
L. S. Woo, B. A., M. D. (St. John's) (Harvard)
E. C. Peck, B. S., M. D. (Harvard) Professor of Bio-chemistry and Physiology.
H. H. Morris, B. S. (Haverford), M. D. (Pennsylvania) Professor of Medicine.
E. S. Tyau, M. D. (St. John's), D. P. H. (Pennsylvania) Professor of Dermatology, and Tropical Medicine.
U. K. Koo, M. D. (St. John's), D. T. M. (Harvard) Pharmacy and Pediatrics.

Clinical.

- H. H. Morris, B. S. (Haverford), M. D. (Pennsylvania) Professor of Medicine.
E. S. Tyau, M. D. (St. John's), D. P. H. (Pennsylvania) Professor of Dermatology, and Tropical Medicine.
U. K. Koo, M. D. (St. John's), D. T. M. (Harvard) Pharmacy and Pediatrics.
A. W. Tucker, M. D. (Virginia), F. A. C. S. Professor of Surgery.
J. C. McCracken, M. A., M. D. (Pennsylvania) F. A. C. S. Professor of Surgery.
L. S. Woo, B. A., M. D. (St. John's) (Harvard).
E. C. Fullerton, B. S., M. D. (Minnesota) Professor of Gynecology.
L. C. Han, B. A., M. D. (St. John's) (Certificate in Otolaryngology) (Pennsylvania) Ear, Nose and Throat.

Part Time Faculty

Pre-clinical.

W. S. New, B. A., M. D. (Harvard)
Applied Anatomy.

Public Health.

S. M. Woo, B. A., M. D. (Johns Hopkins) C. P. H. (Massachusetts Institute of Technology).

G. A. Huntley, M. D.
Ethics and Jurisprudence.

Clinical.

W. I. Min Hsu, B. S., M. D. (St. John's), M. M. S. (Pennsylvania) Urology.

W. L. New, B. A. (Cantab.) M. R. C. S., (London) M. B. C. H. B. M. A. (Cantab.)
Operative Surgery.

C. V. Yui, M. D. (St. John's) D. P. H. (Pennsylvania)
Chinese Scientific Medical Terminology

C. C. Landis, M. D. (George Washington)
Electrotherapy and Hydrotherapy.

K. T. Yui, B. S., M. D. (St. John's)
Surgery.

R. A. Belilios, M. D., F. R. C. S. (Edin.)
Ophthalmology.

K. Chow, M. D. (Louisville University).
Urology

M. Mammon, M. D. (Rush Medical), F. A. C. S.,
Surgical Diagnosis

N. L. Zee, B. A., M. D. (St. John's) M. M. S. (Pennsylvania)
Materia Medica

H. Lovett Cummings, M. D. ch. B. (Edin), D. T. M., H. (Camb.)

Therapeutics

China

University of Nanking
Agriculture and Forestry Series
Volume One, Number Nine

Famine Prevention Program
of
The College of Agriculture and Forestry
as approved by
The China Famine Fund Committee



Issued by
The College of Agriculture and Forestry
May 1924

University of Nanking
Agriculture and Forestry Series
Volume One Number Nine
Famine Prevention Program

of

The College of Agriculture and Forestry

Additional copies of this BULLETIN will be sent on request. Address all communications to the College of Agriculture and Forestry, University of Nanking, Nanking, China.



Issued by
The College of Agriculture and Forestry
May 1934

Famine Prevention Program.

INTRODUCTION

Famines represent a chronic condition in China's economic life. Records of thousands of famines resulting from flood, drought, insect pests, etc., are found in Chinese literature dating from the earliest time. Permanently to prevent famines in China is one of the out-standing economic problems of the country, complicated by many sociological factors. For thousands of years famines have occurred with little effort to control or prevent. The last great series of famines in 1921 and 1922 have awakened a new interest in the problem. Further famines in the near future are inevitable, though the possibility of their banishment is in sight.

The College of Agriculture and Forestry was organized in 1914 by Mr. Joseph Bailie, a member of the University of Nanking faculty, who had been active in relief work during the Hwai River famines of 1910-1912. The College was organized as an important step toward effective famine prevention by providing training for young men in scientific agriculture and forestry and by clearly recognizing the need of the agricultural population for trained leadership, without which rural improvement cannot be hoped for. It is always the agricultural population which suffers most from such disasters, and it is with these people chiefly in mind that the necessarily restricted, though we believe significant, program of famine prevention projects as outlined herein has been developed with the funds recently allocated to the University by the American Committee for China Famine Fund.

Moreover for a number of years the Forestry Fund Committee of Shanghai, administering funds left over from the 1912 Hwai River flood famine, has made and is still carrying an annual appropriation to our Department of Forestry, a department which has trained over forty students, many of them now occupying important forestry positions in eight provinces in China. This Committee through its help at Nanking and in other ways has attained to a distinctive influence in present day forestry in China.

It is clearly recognized that the problem of famine prevention is both immense and complex. Many factors are

involved. Among the most important are the great conservancy engineering projects which must be carried out in line with flood control. Moreover the problem of floods and flood control is very closely allied to the problem of the control of silt that is carried by the North China rivers where floods and famines are most common. The prevention of erosion and the control of the silt immediately bring the conservancy engineer face to face with the necessity of utilizing forestry. Furthermore, granting that floods have been controlled and drought overcome, the farmer still finds himself under exactly the same conditions so far as improved seed, control of plant and animal insects and diseases, lack of credit facilities, and other limiting factors of production under which he is now wearily and hopelessly laboring, are concerned. Transportation by roads and railroads must be developed. Distribution of population by colonization would relieve more densely populated areas and bring into production areas that are now unused. Irrigation projects over wide areas must be undertaken and local water supplies must be utilized to eliminate risk and losses by droughts. Industries too must be developed.

The permanent prevention of famines can only be brought about by attacking the problem on a comprehensive scale. What is proposed herein seems meagre in comparison to all that must be done, but we believe it is at least a beginning in the right direction. **The improvement of Chinese agriculture and the conditions under which the farming population lives is not only the cornerstone of any comprehensive and wise program of famine prevention but it is basic to national prosperity and greatness.**

SOURCE OF FAMINE FUNDS FOR PREVENTION WORK

The Final Report of the American Committee for China Famine Fund printed below will indicate the source of the funds allocated to the University for famine prevention work and the conditions under which the fund is administered and used.

New York, N. Y.

August 1, 1923.

"To the President of the United States and
the Contributors to the China Famine Fund:

"Supplementing its report dated October 31, 1921, the American Committee for China Famine Fund hereby submits a final report of its service in connection with the campaign for the China Famine Fund.

"The preliminary report indicated a surplus on hand of about \$1,250,000 but of that a net sum of about \$350,000 was sent to China for further emergency relief. A thorough investigation was then made to determine how best to use this surplus in consideration of the purposes for which the money was contributed. As a result a trust has been created under the laws of the District of Columbia under which Nanking University and Peking University will receive aid, the trustee holding for their account approximately \$675,000 and \$225,000 respectively, to be used for the study and investigation of famine causes and relief and the education of the Chinese in agriculture and forestry. Expenditures from the principal of either sum may be made only with the approval of a China Famine Fund Committee to be composed of five American residents in China, serving without pay, two to be selected by the American Minister to China, and two by the Committee of Reference and Counsel of the Foreign Missions Conference of North America. These four are to select the fifth. The universities are required to inform the committee of all proposed expenditures and the committee has authority to revise such items. Compensation from the fund is limited to those actually engaged in carrying out the purposes of the trust.

"There is reserved from these two grants in trust for five years an emergency fund of \$100,000 for use as a nucleus to start a national campaign in the United States for famine relief in China should such a campaign be necessary.

"At the end of ten years the Committee created by the trust may direct the trustee finally to surrender control of the funds to the two universities, or, if the administration by the universities has not been satisfactory, it may withdraw them entirely and direct the trustee to apply them to other uses within the purpose of the plan, all decisions being subject to the approval of the Supreme Court of the District of Columbia.

"The plan, after approval by counsel, was submitted to the members of the Executive Committee of the American Committee for China Famine Fund. It received the unanimous endorsement of all members of the Committee in this country and will promptly be put

into effect. An audit of the accounts of the treasurer and a copy of the Decree of the Supreme Court of the District of Columbia are submitted herewith.

"A copy of this report is being sent to all contributors on record to the fund and will be furnished to the Press.

"Hoping that this plan, designed to promote measures preventive of future famines, and now completed, will commend itself to you as wise.

I am,

Yours respectfully,

THOMAS W. LAMONT,

Chairman.

PERSONNEL OF CHINA FAMINE FUND COMMITTEE

The following American citizens residing in China have been appointed to the China Famine Fund Committee: by the American Minister, the Honourable Jacob Gould Schurman, Mr. C. R. Bennett, General Manager Peking Branch, International Banking Corporation, with Mr. Robert Coltman, Standard Oil Company, Peking, as alternate, and Mr. J. Harold Dollar, Vice-president and General Manager of Robert Dollar Company and President of the American Chamber of Commerce, Shanghai, with Major Arthur Bassett of the British American Tobacco Company, Shanghai, as alternate; by the Committee of Reference and Counsel of the North American Conference of Foreign Missions, the Rev. Charles E. Patton, Shanghai, Secretary of the (Presbyterian) China Council, with Rev. J. E. Shoemaker of Yu-yao, Chekiang, as alternate, and Bishop T. F. Keeney, Foochow, with the Rev. Frank Rawlinson, Editor of the Chinese Recorder, Shanghai, as alternate; by the four above named members of the Committee, Mr. Dwight H. Edwards of the Y. M. C. A., Peking, with Mr. J. B. Powell, Editor of the China Weekly Review, Shanghai, as alternate.

PROGRAM AS APPROVED

The projects which follow have been approved for the University of Nanking by the China Famine Fund Committee. The project on rural engineering is not to be undertaken until a future date, and it is hoped that the Cornell-in-

China Club will take over this project, along with the project on agricultural extension, in line with their resolution to "begin with agricultural extension and as soon as possible thereafter to add engineering extension in order through both of these departments to contribute to the solution of the problems of food production and famine prevention."

INSTRUCTION IN FORESTRY

The aim of instruction in forestry shall be to train foresters capable of directing large reforestation projects, including the surveying and mapping of forest sites, the location and establishment of forest nurseries, the selection of suitable tree species, the supervision of extensive field plantings, and the management of reforested areas.

In addition to the regular course of instruction and as a final requirement for the degree of B.S., the student will make a detailed working plan for the reforestation of a large typical unforested area. He will be required to survey, map, divide the tract into the several planting sites, determine the suitable tree species for each site, locate the nursery and plan its operation, prescribe the planting practice to be followed, and draw up a plan of management for the reforested area. Actual nursery and field planting work will be required of the student to acquaint him with the processes needful to the reforestation of wide areas. He will also be given instruction in the importance of farm forestry and in the methods of establishment and treatment of the farm woodlot as an important adjunct to agriculture.

FOREST RESEARCH.

The purpose, in general, of Forest Research shall be to determine rational and practical bases for the regulation of watershed run-off and for the foundation and sustained production of forests on lands chiefly suited to forest growth. These investigations will be conducted chiefly in and for the widely denuded regions of China north of the Yangtse River.

More specifically, the investigations under Forest Research will not only examine the effectiveness of the present methods of reforestation but will include:

- (a) regional surveys to determine the advisability of and methods for reforestation and run-off regulation;
- (b) studies in the relationship of forests and forest products to famines;
- (c) investigations to determine the most suitable methods for nursery practice and for field planting;
- (d) studies to determine the relative value of available tree species for reforestation projects;
- (e) and studies to determine the most productive and advantageous methods of treatment of reforested areas.

Supplementary to these major lines of investigation, minor studies will be conducted, as need and occasion arise, in dendrology, forest utilization, and allied subjects.

Students will be given opportunities to elect courses in Methods of Forest Research to prepare them for making detailed studies in the problems of reforestation, and of protection of watersheds and in the practice of forestry.

In the fulfillment of this program the division of Forest Research will assist in bringing together necessary data and will work out methods of practice needful to place the production of forest products on a sound and practical basis. It should thereby contribute materially to relieving agricultural land of the present burden of fuel production, to rendering fully productive the extensive hill and mountain lands now bearing little more than herbaceous vegetation, to creating supplemental rural industries, and, in short, to contributing to the permanent removal of the causes of famine.

FOREST EXTENSION

The aim of Forest Extension shall be (a) to make known generally the needs of forest products and forest industries as a basic resource essential to social and industrial develop-

ment of the nation and as a safe guard against the shortage of food and of other supplies during periods of drought or flood; and further the aim shall be (b) to educate and instruct the people in ways and means of meeting these needs by: demonstration on forest areas; fostering the development of school forest nurseries; giving expert counsel in nursery and planting practice; preparing and giving illustrated lectures on reforestation; the preparation and distribution of bulletins and circulars; the co-ordination of reforestation activities; seed collection and distribution; fostering and extending the observance of Arbor Day; extension forestry courses; newspaper propaganda; and in other ways advancing the knowledge of the methods and means of the practice of forestry.

AGRICULTURAL EXTENSION

The aim of Agricultural Extension work is to take to the farmer scientific information that will help him in the practical affairs of farm life. It is the "sales end" of scientific agriculture, and always in the beginning involves "creating a demand and developing a market" for improvements that will arouse the farmer and get him interested in things that will help him. Agricultural improvement—on the Chinese farm—must come largely from without. The farmer will not seek it.

Agricultural extension projects will include the distribution of improved seeds; demonstration areas; introduction of new crops; the promotion of certain crops which should be extended in an area; the introduction of new or improved farm implements; deepening and digging of wells; co-operative credit, savings and marketing methods; agricultural exhibits and lectures; distribution of helpful farmer's bulletins; co-operation with local officials, schools, and missions in carrying out extension projects; and the development of efficient extension methods for use by teachers, students, and community workers.

FARM CROPS IMPROVEMENT AND SEED FARM

Improvement in quality and yield of China's crops is one of the quickest ways to increase the food supply available for food reserves or for increased income. It calls for the application of recognized plant breeding principles and scientific methods. The outstanding achievements in the acclimatization of new introductions and the breeding of drouth resistant types that have transformed the agriculture of the semiarid sections of the United States give a suggestion of the great field of opportunity in the famine areas of China. A working example of such possibilities now exists at Nanhsuchow, Northern Anhwei, where the average yields of the common inferior native wheats do not average, in English measurement, twelve bushels per acre, but where last year two varieties of imported wheats introduced by the University of Nanking yielded over forty bushels per acre on the experiment station.

Seed farms should also be established in order to grow large quantities of improved seed of certain crops for distribution to farmers and co-operating agencies, and in order to give concrete demonstrations. A small quantity of improved seed supplied to the farmer, for him to try out and be supplied with, is worth any amount of talking about the necessity of his using improved seed.

ECONOMIC AND FARM MANAGEMENT STUDIES IN FAMINE AREAS

The aim of these studies is to secure exact knowledge of the economic and farm management conditions which contribute to the effects of food shortages through decreased production from any cause, and to use this knowledge as a basis for recommending changes in present farm practices. At the present time practically no such data exist for the famine areas, and until we have it no sound basis exists for introducing assumed improvements. Effective extension work can only be carried on with a knowledge of existing factors which help or hinder the farmer.



Anti-rinderpest serum being administered to cattle in North Anhwei, a chronic famine area. Farmers throughout China suffer incredible losses through animal diseases (see page 11).



A combination of the western endless chain pump and the ordinary Chinese tread power being developed to overcome the effects of drought by supplying well irrigation to winter wheat in North Anhwei. The yield of winter wheat is invariably reduced through lack of moisture during the dry season, although water for irrigation is available within a few feet of the surface.

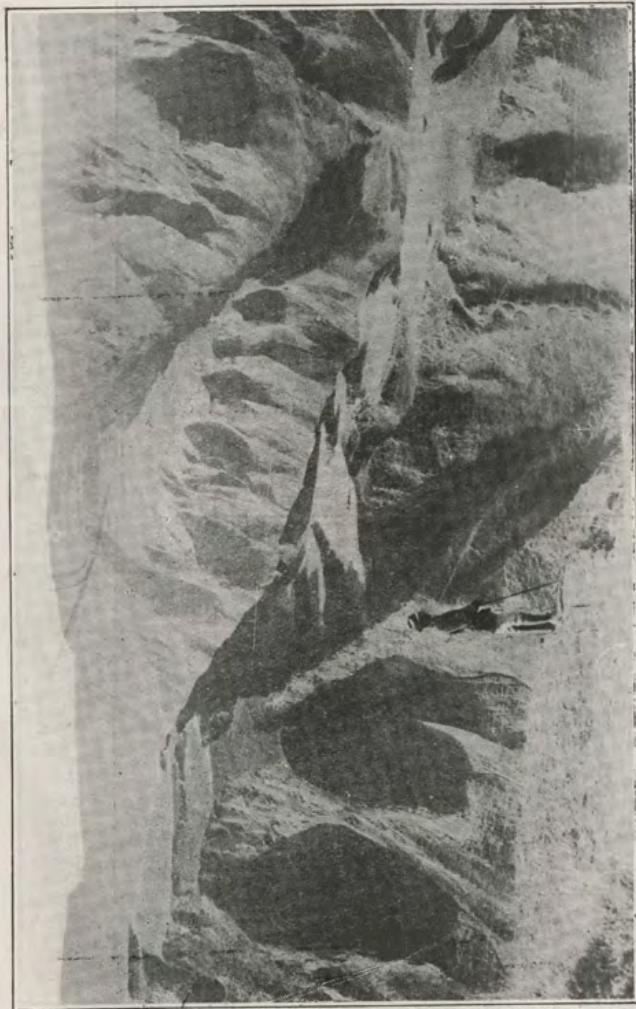


Photo by W. C. Loudermilk.

An example of active and excessive erosion in the loessal area of the water shed of the Yellow River. As much as fifty per cent of the loess uplands are occupied by these gullies, which are waste land. They are not contributing their share to the support of the rural population. Erosion, on the other hand, is here reducing the tillable farming area and furnishing great quantities of silt in the form of liquid mud to choke up the river channels in the plains, thus contributing to the causes of floods, which in turn cause famines. The stoppage of this destructive erosion is primarily a forestry problem.



Photo by W. C. Lowden with.

That the erosion such as indicated in the opposite picture may be checked is shown by this picture taken in the same area of the loess region of north Shensi where the sparseness of population has permitted a natural stand of willows and elms to take possession of the bottom of a gully. Excessive erosion is here prevented naturally. Nature points the way to its control. The artificial methods must follow it. They must include a planting up of the gully bottoms with trees. This is distinctly a famine prevention measure.



Photo by W. C. Lowdermilk.

This is an excellent example of what can be done in the alluvial plains region when the local inhabitants are convinced that the growing of timber pays. This is a farm wood lot grown on irrigated agricultural land, being also an index of the value of wood when agricultural land is devoted to its production. This type of forestry is possible for village forests and farm wood-lots. This is a famine prevention crop: it is scarcely affected by drought; it gives the farmer employment during the otherwise idle winter months; it creates industrial occupations; it increases the standard of living and it is a savings bank on which the village or farmer may draw in times of need and famine.

From experience already gained in China it is practicable to secure the data desired by means of farm and rural surveys. Large numbers of these records must be secured from a given region in order to draw accurate conclusions. Such data when summarized and correlated will show which farms are profitable and which unprofitable, and why some are successful and the others are unsuccessful. Some of the factors involved in such a study are diversity of crops grown; the kind of crops (in some districts it may be more profitable to plant more intensive crops); size of farm most economical, and efficiency in the use of labor and capital. Conditions which influence the farming business from the outside and which require special attention from this standpoint are: land tenure systems; effect of famines on land holding; relations between landlords and tenants; farm labor problems and the effect of famines on the farm laborer; marketing methods and their improvement so that the farmer may secure a more adequate return on his year's work; special study of famines in relation to their history, geography, effect on prices, effect on the community, in relation to the problem of over population, and to the problem of developing a population of greater intelligence and better character.

One phase of rural economics which should receive special emphasis is the establishment of rural co-operative societies for credit, savings, and marketing. Such societies, if successful, would protect the farmer in periods of scarcity by providing necessary credit to keep him independent and self-supporting, and at all times by protecting him from usurious interest rates and from selling his land and by guaranteeing to him a more just return on the sale value of the products of his labor.

CO-OPERATIVE EXTENSION WORK

This includes co-operation with schools, missions, officials, or other famine relief or prevention agencies, in carrying out projects definitely related to famine prevention. Several institutions have already approached us for aid and co-opera-

tion in establishing educational and extension work in agriculture.

The following factors have been approved by the committee to be used as the basis for co-operation: interest of missionaries and the assurance of permanency; willingness to co-operate and carry out plans agreed upon; presence of trained personnel to carry the responsibility; value of the location as a demonstration center; availability of land and equipment and other extension facilities, such as churches, schools, teachers and preachers, etc.

Definite schemes of co-operation have already been worked out with the following missions and along the lines indicated in the projects named:

1. Kaifeng Baptist College, co-operating in the following projects: farm crops improvement; fertilizer tests; improvement of native cattle; rinderpest control; and spring irrigation of grain.

2. Presbyterian Mission Station, Nanhsuchow, North Anhwei, co-operating in the following projects: pure seed farms; rinderpest control; winter and spring irrigation of wheat; improved irrigation pump; and improved irrigation wells.

3. Central China Teachers College, Wuchang, Hupeh, co-operating in the development of a Department of Agriculture and the giving of definite rural training to the large number of teachers which the College is sending back into the rural districts.

4. South Shantung Industrial School, Yih sien, Shantung, co-operating in the following projects; improvement of winter wheat; improvement of fruits; preservation of fruits; control of fruit diseases and insects; and utilization of waste land by practice of reforestation.

5. Co-operation with a number of missions in the training of students to return to the mission for the development of agricultural work.

PLANT DISEASE CONTROL

An incalculable loss is sustained every year by plant diseases over which the farmer has no control. Some of these diseases, such as smut and rust, have already been studied in western countries and methods of control have been worked out. There is a pressing need for study of Chinese crop diseases; and for bringing to the farmer scientific information regarding measures of control. To save the crops from destruction in part or in whole is certainly in the line of famine prevention.

ANIMAL DISEASE CONTROL

Animal and poultry diseases abound in China, and each year take their toll. Rinderpest epidemics wiping out the animals of whole villages are common and nothing is done to prevent recurrence of disease and losses. There are many other diseases which can be controlled if facilities are provided. Projects for improving farm animals in China will be endangered until veterinary facilities are developed. Lack of protection will continue to make difficult the reorganization of Chinese agriculture, particularly in the North, to include more animal husbandry to vary the sources of income and provide productive labor for a larger part of the year than at present.

RURAL ENGINEERING

Good roads, drainage, irrigation are engineering projects that have a direct bearing on both famine relief and famine prevention. A rural engineer should be able to advise with communities or officials and make recommendations as to how certain engineering projects should be developed. Much extension and demonstration work could be done and steady propaganda be kept up for good roads, deeper and more wells, utilization of wells and streams for irrigation purposes, conservancy measures, etc. The field for engineering work is so great that there would be no occasion for competition

or overlapping with other agencies. Instruction should be provided for College of Agriculture and Forestry regular and special students, with plenty of field work.

AGRICULTURAL EDUCATION

The first and fundamental step in rural progress is to produce a class of teachers that come from rural stock, are adapted to rural work, and are of such a type that they will enter into village improvement as a life work notwithstanding its discouragements, handicaps, low salary, etc. The rural school should become the center of community life and the focus of activities pertaining to better crops, sanitation, recreation, etc., as well as to spiritual and intellectual uplift.

The relation of such work of famine prevention is based upon the fact that the village school as a community center will be the vital connecting link between scientific agricultural workers and the farmers. This institution would be the focus of extension activity. The special value of boys' club work and home projects in reaching by demonstration a comparatively illiterate farming group has been most effectively demonstrated in the Southern States of the United States, and should be made one of the leading features of a rural school's activities.

With the idea of training for rural leadership teachers of this type, a special normal school is proposed of the same grades as the lower normal school recommended by the Educational Commission; viz., Junior Middle School. As the average age of such students is low, candidates will necessarily be carefully selected, taking only those of more mature years, as over eighteen, who have been retarded rather by circumstances than by intellectual qualifications. Care will especially be taken to choose those from a rural environment and possessing a practical knowledge of farm life and operations and those in whom the aversion of the traditional scholar to practical activities is not liable to prove a handicap. Consideration will also be given to taking only those whose circumstances and relationships are such that they cannot aspire to

further education but hope rather to go into the work permanently.

The training would cover a period of two years being equivalent to the last two years of Junior Middle School. It would consist of:—

- (1) review of and training in methods of teaching the elementary subjects in the best modern ways;
- (2) the study of the principles of education;
- (3) the study of general agriculture with emphasis upon school gardens, nurseries, crop improvement, pure seed production and distribution, etc.;
- (4) farm practice through the project method;
- (5) practice teaching in a model rural school;
- (6) participation in agricultural extension in the community through boys' clubs, home projects, fairs exhibits, entertainments, etc.

After graduation it would be the plan of the Department of Rural Education to establish a permanent link of relationship with the graduates, aiding them in various ways in their specific programs.

A further aim is to make the normal school a model for both government and missionary rural teacher training centers.

RESEARCH LIBRARY

1. Chinese Agricultural Literature.

It is not generally known that China possesses a fairly rich literature pertaining to agriculture; in horticulture, sericulture, irrigation, land tenure, botany, zoology, entomology, farm crops, forestry, animal husbandry, fish culture, etc., etc. Much of this old literature is as useful in many ways for China as the more modern books, and the possession of the knowledge which it contains will be not only valuable but should be considered an absolute necessity in any serious study of any phase of Chinese Agriculture. In carrying out

several minor investigations of Chinese crops, we have found that some of the most cogent information has come from this little known literature. Recently the University library prepared an exhaustive bibliography on Chinese agricultural literature which lists more than two thousand separate and distinct works. The Chinese "provincial," "fu," and "hsien" gazetteers are also full of important information relating to agricultural conditions and production.

The scientific cataloguing and indexing of this literature is necessary to make this material available. The indexing especially has never been seriously undertaken in China. The United States Congressional Library has done considerable not only in cataloguing and indexing, but also in developing methods. In 1921-1922, through a co-operative arrangement with the United States Department of Agriculture, Miss Katharine H. Wead, previously in the employ of the U.S.D.A., undertook the indexing of several of the better known agricultural works, with gratifying results. We believe the methods used are the best available to-day and that a very great extension of our knowledge of Chinese agriculture can be effected by securing this literature, cataloging and indexing it, and thus making the information contained therein available. At this writing the University Library is working out a Chinese bibliography on famines, to which there are many references, going back to the beginning of Chinese history. For example there have been found records of 1,068 famines between 1644 and 1911, that is, an annual average of four in the last 267 years. A study of these should reveal fundamental facts, useful in understanding contemporary famine conditions and in working out basis of relief and prevention.

2. Foreign Agricultural Literature.

The appropriation asked for the purchase of foreign books is not only for literature applicable to the work as called for by the several projects, but also for other departments in the College of Agriculture and Forestry. Since China lacks the personal connections possible in countries like the United

States, with its large technical personnel, its scientific societies, and its conventions, the only way of keeping in touch with what is going on in agriculture and forestry in the United States and foreign countries is through published literature.

SCHOLARSHIPS FOR AGRICULTURE AND FORESTRY STUDENTS

Agriculture and Forestry are not as well established in the minds of the students as are many other professions. This is particularly true of forestry. Many students with a proper background of rural environment and farm experience, particularly desirable for college training, are held back for financial reasons. Moreover an agricultural or forestry education costs more than a liberal arts education, because of greater costs of text-books, laboratory fees, etc. It is evident that progress in agriculture and forestry must depend upon trained men. The College of Agriculture and Forestry should increase its student body not only to increase the efficiency of its teaching faculty but also to provide increased trained leadership. A scholarship fund providing tuition fees in whole or in part would make it possible not only to increase the student body but also to give effective aid to worthy students. Two scholarship funds have been asked for, one a revolving fund, which shall be refunded by the students after leaving school and shall be used again for other needy students, and a second fund to be given outright after investigation to students who actually need, and are worth helping, for not more than one or two of the last years of the Senior College course.

PUBLICATIONS

AGRICULTURE AND FORESTRY SERIES

Volume One.

- Number one. School Nurseries. By John H. Reisner.
(Translated into Chinese by Kan Han).
- Number two. Roguing of Cotton. By J. B. Griffing.
(Translated into Chinese by Shao Teh-hsing).
- Number three. Cotton Culture. By J. B. Griffing.
(Translated into Chinese by Shao Teh-hsing).
- Number four. The Control of Plant Diseases and Insects.
By G. E. Ritchey.
(In Chinese also).
- Number five. A study of Weeds. By G. E. Ritchey.
(In Chinese also).
- Number six. I. Report of Three Years' Cotton Improvement work.
By J. B. Griffing.
- Number six. II. Observations on the Behavior of Cotton Plants especially during Acclimatization. By J. B. Griffing.
- Number seven. An Economic and Social Survey of 102 Farms near Wuhu. By J. L. Buck. (Translated into Chinese by Hsu Chen).
- Number eight. Summary Meteorological Records, University of Nanking, 1895-1923. By W. C. Lowdermilk and Shen Hsioh-li.
- Number nine. Famine Prevention Program of the College of Agriculture and Forestry as approved by the China Famine Fund Committee.

SCIENCE WORK IN SCHOOLS AND COLLEGES
OF THE
NANKING-SHANGHAI REGION

Assistant Professor S. D. Wilson
Department of Chemistry,
Peking Union Medical College

December 12, 1921.

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SCIENCE WORK IN SCHOOLS AND COLLEGES
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Electricity, Water and Gas Supplies

Adequate supplies of electricity, water and gas for the use of the laboratories in colleges in China have been very difficult to obtain. Schools within the limits of the foreign settlement in Shanghai have obtained these services from the city, but in all other schools these conveniences are lacking, either wholly or in part. The situation is especially acute in Nanking, where no public service of this nature is available, except a rather inadequate supply of electricity after six o'clock in the evening.

City Water in Nanking

The Nanking people think that within a short period an adequate water system will be installed for the city. Engineers are now studying the situation and it is expected that the plant will be installed shortly. The water will be obtained from the river, filtered and then furnished to the city. If this plant is installed it will relieve one of the difficulties of the Nanking colleges. If the city water is not installed the schools will be obliged to plan for their own installations. Since there is no adequate underground water, methods for collecting surface water will have to be provided, and pressure systems for the distribution of the water to the laboratories installed. Shanghai College has already installed such a pressure system, but takes its water from a deep well. Figures for the cost of this installation at Shanghai College will be given in connection with the power plant.

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Shanghai College Power and Water Plants

1	30 horsepower Blackstone crude oil engine		
	@ L600 sterling	gold	\$2,400
1	25 Kw generator G.E.	"	600
1	Switchboard G.E.	"	278
2	320 amp. hr. storage batteries	"	3,500
	Power house building	Mex.	2,000
	Motor and pump for water	gold	600
	Pressure tank for water	Mex.	800
	Artisian well and reservoir	"	2,500
	Installation	"	1,500

Cost of Operation of Above Plant:

Labor	Mex.	\$ 600
Interest and depreciation	"	600
Fuel	"	400

This plant has supplied all the water and power needed for the whole college community. The college authorities feel that the plant is a complete success.

Shanghai College Gas Plant

Shanghai College is also at the present time installing a crude oil gas plant. They estimate the cost of this plant as follows:

1	Mansfield gas producer (@ 3,400 rupees) about....	Mex.	\$2,000
2	1,500 cu. ft. tanks @ \$750	"	1,500
2	extra generators @ \$750	"	1,500
	Erection		1,000

This plant has not yet been installed, but contracts have been closed for all of the above items.

Cost of Operation, Estimated:

About \$3 Mex. per thousand cu. ft.
Crude oil for gas plant and engine, 105 shillings per long ton,
delivered on the campus.

The above should serve as a basis for estimating the cost of installing proper power, water, and gas plants in other institutions in China.

Shanghai College Power and Water Plants

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Department of Chemistry

Miss Ruth M. Chester, in charge

A. B. Smith, 1914

A. M. Smith, 1916

Taught two years in the United States, one of which was at Elmira College

Arrived in China, 1917

1920-1921, Columbia, specializing in physical, organic and food chemistry.

At the time of my visit the total registration in the chemistry department was 28 students in three courses. It is their policy to limit the registration of students to the number for which they have apparatus. At this time they were giving a course in general chemistry, qualitative analysis, and organic chemistry. The equipment is fairly adequate for the work which they are giving. I believe that the work is being carried out in a very satisfactory manner. However, the courses as planned are rather light. Personally I feel that more

REPORT ON THE SCIENCE WORK IN THE SCHOOLS

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extensive courses would produce better results. The courses, however, compare very favorably with those of Soochow University, and men have entered the Medical School from Soochow .

Department of Biology

Miss Cora D. Reeves, in charge
 Ph.D. University of Michigan, 1917
 Studied in Germany
 Several years teaching experience in U.S.A.

The department has enough apparatus to give the work in very good shape to the limited number of students allowed to elect the courses. Dr. Packard agrees with me that the courses as Dr. Reeves is giving them are very satisfactory.

Department of Physics

Miss Helen Y. McCoy, in charge
 A.B. Wellesley, 1915
 Graduate assistant in physics, Wellesley, 1919-1920
 Studied at Chicago University one summer
 Taught in U.S.A. four years
 Arrived in China, 1920.

The apparatus and equipment is fairly adequate for the very few students who are taking the courses offered in the department. I feel that as far as the work goes it is very satisfactory. At present they give a course based on Millikan and Gale for one year and another based on Kimball for one year.

The three women in charge of the sciences at Ginling are aggressive girls and I feel that they are making a success of the work. Much attention is given to details in the teaching, and careful supervision of the individual work of each student is carried out. Better library facilities are badly needed as soon as possible. The most pressing need is an assistant for the three departments. A locally trained man or woman who could do a lot of work for all three departments would make the work of the heads far more efficient. I found apparatus in good order and an effort to keep it under proper conditions. The instructors

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informed me that funds for new apparatus was fairly easy to obtain. In fact, they were "going" rather slowly in making purchases until they got into the new buildings, as it was very difficult to keep apparatus in good condition in their present quarters.

University of Nanking

The University of Nanking has very well built laboratories adapted to the teaching of the three sciences. Chemistry has adequate room for its present needs and for the probable growth for quite a period of years. On the other hand, physics and biology are much crowded for room. By dividing the classes up into sections the present space can be made to serve moderately well, but there is no room for expansion in these sciences. The supply of water, electricity and gas is inadequate for the work being carried on at the present time. A better arranged lecture table, larger blackboards, and means for darkening the large lecture room would also be of assistance to all the sciences. Another building for the sciences is planned for the immediate future. This will give biology and physics the space now occupied by botany and the agricultural sciences. If the new building is obtained and proper supplies of water, gas, and electricity can be furnished the plant should be adequate for the needs of the sciences for several years to come. Despite the present lack of room and a shortage of staff, to be discussed later, I believe these departments are succeeding fairly well at the present time.

Department of Chemistry

Jas. C. Thomson, Director
 B.S., M.S., B.D., Rutgers
 M.A., Columbia
 I. C. Folk
 B.S., Michigan
 M.S., Columbia
 3 full-time assistants
 1 part-time assistant

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M.A., Columbia
I. C. Foltz
B.S., Michigan
M.S., Columbia
3 full-time assistants
1 part-time assistant

Men trained in China, with equivalent of B.A.
degree. Are doing good work
10 men and boys in store and issue rooms

The storerooms, issue rooms and laboratories at the University of Nanking are splendidly organized. Everything is running on a business-like basis. I have never seen a better organization. Professor Thomson deserves great credit for his work in this line. Abundance of all kinds of apparatus and chemicals needed for the usual courses of college grade is in hand. In addition considerable equipment for research work and graduate instruction is on hand. In my judgment the courses are well arranged and are very adequate. I believe that this work, carried out as Professor Thomson plans it would receive full credit anywhere. In other words, his work is of university standard.

More help is really needed in the department. Professor Thomson goes to America on furlough next year, and there should be another foreigner to have charge while he is away. If the department had two foreigners and two returned students on its staff it would be in a position to take care of any emergency that arose and to accommodate a considerably larger number of students.

Department of Biology

J. T. Illick, Director

A. B., Taylor

A. M., Syracuse

Studied two summers at Woods Hole

Studied one summer at Cold Spring Harbor

Taught four years in U.S.A., three of them in the
Department of Zoology, University of Virginia

One part-time student assistant

Dr. Packard agrees with me that the equipment of the department is fully adequate for work of college grade. There is enough equipment for the present number of students and for the probable increase for the next few years. Illick says that the equipment is better than at the University of West Virginia, and Dr. Packard tells me that it is much better than it was at Syracuse when he took

Men trained in China, with equivalent of B.A. degrees. Are doing good work
 10 men and boys in store and issue rooms

The storerooms, issue rooms and laboratories at the University of
 Nanking are splendidly organized. Everything is running on a business-like basis.
 I have never seen a better organization. Professor Thomson deserves great credit
 for his work in this line. Abundance of all kinds of apparatus and chemicals
 needed for the usual courses of college grade is in hand. In addition considerable
 equipment for research work and graduate instruction is on hand. In my judgment
 the courses are well arranged and are very adequate. I believe that this work,
 carried out as Professor Thomson plans it would receive full credit anywhere. In
 other words, his work is of university standard.
 More help is really needed in the department. Professor Thomson goes
 to America on furlough next year, and there should be another foreigner to have
 charge while he is away. If the department had two foreigners and two returned
 students on its staff it would be in a position to take care of any emergency
 that arose and to accommodate a considerably larger number of students.

Department of Biology

J. T. Illick, Director
 A. E. Taylor
 A. M. Syracuse
 Studied two summers at Woods Hole
 Studied one summer at Cold Spring Harbor
 Taught four years in U.S.A., three of them in the
 Department of Zoology, University of Virginia
 One part-time student assistant

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 Dr. Packard tells me that it is much better than it was at Syracuse when he took

his work there. Packard also agrees that the courses as Illick plans them are quite adequate for college work anywhere, and he feels with me that Illick is a man who would succeed in his teaching.

The department needs much more room. This would give the present students better working facilities, and allow for increases in the student body. It would also allow for a better exhibition of the demonstration material which the department already has. The great need, however, is for another first class man in the department. Illick wishes to return to America for study next year, and he would like to be gone two years. Without another man of high grade I do not see how this department can keep up its standards while he is away. The college is trying to meet this need, but they were uncertain as to what they could do.

Department of Physics

L. C. Caldwell, Director

Ph.B., Yale

Graduated as a civil engineer, Yale

1 year's graduate work in sanitary engineering, Yale

1 year's work in theology, Yale

$\frac{1}{2}$ year's work, bacteriology, Montpelier University, France

Experience as instructor in summer courses and assistant in regular courses, Yale

Never taught physics before coming to China. Just arrived.

T. C. Ting, Instructor

University of Nanking, 1920

1 year's experience as instructor here

Appears to be a very good man and is certainly working hard to make a success.

The apparatus in the department appears to be fairly adequate for the number of students that they have at the present time. An increase in the number of students in the department will make it necessary to increase the stock of apparatus. This would be especially true of the advanced courses. It is fairly certain that such an increase in numbers will come shortly and that there will have to be a corresponding increase of supplies.

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Ph.D., Yale
Graduated as a civil engineer, Yale
1 year's graduate work in sanitary engineering, Yale
1 year's work in theology, Yale
 $\frac{1}{2}$ year's work, bacteriology, Montpellier University, France
Experience as instructor in summer courses and assistant
in regular courses, Yale
Never taught physics before coming to China. Just arrived.
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As I saw the courses, they seemed to be fairly well planned and quite well executed. This, however, means very long hours on the part of the two men in the department. They should have more time out of the actual laboratory and class-rooms.

The department needs very much indeed more room. The greatest need is another man in the department. Caldwell lacks experience and it is not certain that the work can be done successfully until he has gained this experience. Moreover, another man will be needed in the department anyway to do the work in the best manner. I feel that within a short time the department will require either one first-class foreigner and two returned students, or two foreigners and one returned student. This would enable them to give more courses and to take care of greater numbers of students in the present courses.

Southeastern University

The Southeastern University occupies a group of buildings formerly used by the Teachers' College. The buildings were never intended for laboratories. However, they could be built over to serve very well for this purpose. The point is that they have not been so built over. There is no gas, no electricity, and no proper water supply. Desks, tables, sinks, and drains are of the most flimsy construction. For instance, in the chemistry department, they have sinks and drains made of galvanized iron. It costs as much for labor to install these as it would sinks of lead. The lead sinks would last a very long time, while I do not believe that the iron sinks will last two months. This is illustrative of the general method of doing business. I was informed that the institution was not able to meet its bills when they fell due and that therefore they were obliged to purchase laboratory supplies where they could allow the bills to remain unpaid for about nine months. This means that such supplies have to be purchased in Shanghai. The result has been that the goods have cost a large amount and that a poor quality

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of supplies has been obtained. The procedure has not been business-like. The laboratories are very much crowded at the present time and any increase in the student body would make it impossible to accomplish work of any value at all.

The one fine feature of the situation is the spirit and enthusiasm of the teaching staff of the science departments. I am sure that the men are trying to make the work a success under very hard conditions. However, until more laboratory space, more fixed equipment and more laboratory supplies are obtained, I do not believe that the work here can be considered as the equivalent of first-class college teaching.

Department of Chemistry

T. Chang, S.B., Massachusetts Institute of Technology
C. Wang, Ch.E., Lehigh
C. L. Senn, B.S., Ch.E., Pennsylvania

6 graduate assistants, shared by departments of chemistry, biology and physics. All graduates of Southeastern.

The arrangement of having these assistants shared by the three departments seems to me unsatisfactory. Chang and Senn are fine men but they have too much work to be able to do it in a satisfactory manner. Senn lectures five hours per week, runs eleven hours of laboratory, and has twenty hours of administrative work. Besides this he reads some notebooks and has to do some planning for the laboratories. It is far too much for a young man until he has had several years' experience at teaching and has his subjects well in hand. Chang has about the same kind of a schedule. These men should be relieved from all administrative duties if the institution wishes to make a success of the science courses.

The textbooks employed are very satisfactory, and the courses as planned are good, but under the conditions it is impossible to carry out these courses in the laboratory, which is the most important part of the work. I found a section of forty students working in the laboratory one afternoon. There was

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only one instructor present, where there should have been two, at least. This was a class in general chemistry and only three balances were provided for their quantitative experiments. There should be at least ten balances for forty students in this type of work. The balances were dirty and the weights were in bad condition. In other words, the students were getting the worst kind of habits in this laboratory. Very few chemicals were provided on the students' desks, and this meant that there was a very great loss of time on the part of the student while he was waiting at the storeroom window for supplies. I estimated that about half of the class was at the window all the time, which meant that each student was spending about half of his time away from his work. The notebooks were not properly planned and kept by the students. Although these had been corrected by the staff, much more rigorous standards should be applied here.

The storeroom was in complete disorder when I visited the school. No catalogue or list of apparatus belonging to the department was available, and even the small amount of apparatus on hand was not arranged in any logical order. No effort to repair the apparatus or to protect it from the effects of climate or the chemicals in the laboratory could be observed. The apparatus on hand was entirely inadequate for the work being carried out. The greatest lack was in the matter of chemicals. The department has absolutely no pure chemicals. This makes analytical work of any kind impossible, though they claim to be doing both qualitative and quantitative analysis. Such work could have but little value. On the other hand, the department has spent some money foolishly. They have a \$300 (gold) thermostat which it will be impossible for them to use until they have a continuous supply of electricity. This money should have been used for the purchase of ordinary laboratory supplies.

All things considered, I do not feel that these courses are at all satisfactory. I should prefer to take the students before they had had these courses

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rather than afterwards. It should be remarked that the faculty have had very little, if any, experience before coming to China.

Department of Physics

K. F. Hsi, Ph.D., Harvard University
C. L. Hsun, M.S., Illinois
W. Y. Chew, M.S., Massachusetts Institute of Technology

In addition to the above men the department gets some assistance from the six assistants who are shared by the three sciences. These men are also worked too hard. I found 24 students in a laboratory with no instructor and but one assistant present. There should have been more help present. But worst of all, this man was not working with the students. He was seated at a table in one corner of the room correcting a set of mathematics papers. Students obtained assistance only when they came to the man, who appeared irritated when disturbed by students. In these laboratories students work in groups of three to one piece of apparatus. Two students to one piece of apparatus is as many as should be worked and only one student would be much better. In their first course in physics they have only five sets of apparatus for 80 students. Other institutions which I visited have from one set for every two students to one set for every eight students taking the course corresponding to this one. This is quite a contrast to the one set for every sixteen students which they have at Southeastern. Their apparatus for any advanced work is very meagre, consisting in most cases of only one or two sets of each item. Under these conditions I feel that the work cannot very well succeed. It should be remarked that the men in the department have had little, if any experience before arriving in China.

Department of Biology

C. Ping, Ph.D., Cornell University
T. S. Chen, M.S., University of Illinois
E. H. Hu, B.S., University of California

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Department of Biology

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T. S. Chen, M.S., University of Illinois
E. H. Ho, B.S., University of California

This department was only organized last spring, and is not yet well under way. Ping is a man of much energy and should make a success of the work. There is not room for the work at present under way and any increase in registration in this department would make laboratory work impossible. Much energy is apparent in the collection of native material, and large supplies of this are on hand. On the other hand, the supplies of needed apparatus are very short. There is not a single microscope with an oil immersion in the institution, and only one microtome is available. Most of the colleges have from five to fifteen oil immersions and either two or three microtomes. I have confidence that if Ping had a proper opportunity and proper apparatus he would be able to do good work. But under his present conditions I feel that he cannot hope to succeed. Ping has been at Wistar Institute for quite a time, and I should say that he was the best man in the school, but even he lacks teaching experience before arriving in China.

Soochow University

At present physics, biology and part of the courses in chemistry at Soochow University are given in one building, while the remainder of the work in chemistry is given in another building. This makes the work in chemistry somewhat more difficult to manage than it would be if there was space in a single building for all of the work. With this division of the chemistry department between two buildings, the laboratory space is just barely usable. Space for stock and issue rooms is lacking, and there is also a lack of room for offices. In fact, the institution needs a new building for sciences as soon as possible. When I visited the college I was informed that they expected to begin the construction of such a building very shortly. Since returning to Peking, however, I have learned that this construction will not be commenced until next spring.

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The building as planned will give adequate room for the departments for many years to come. If they have money enough to install proper gas and water supplies the institution should then have a first-class physical plant for the sciences.

Department of Chemistry

E. V. Jones, in charge

B.A., 1905, Morrisville College

M.A., Vanderbilt, 1909

Ph.D., 1912, Vanderbilt

Studied $4\frac{1}{2}$ quarters at the University of Chicago

Four years' college teaching experience in U.S.A.

Arrived in China, 1913

Studied at Columbia, 1920-1921

J. M. Plan, Asst. Professor of Chemistry and Physics

B.A., 1914, Soochow University

B.S., 1915, Soochow University

1915-1919 taught in Soochow University Middle School

1919 to date, taught in college sciences

C. H. Hsü, Assistant Professor of Chemistry and Physics

B.S., 1915, Soochow University

M.A., 1917, Soochow University

1917 to date taught at Soochow University. Most of his time has been given to the laboratory work in the college.

Has recently begun to give lectures.

Mr. Chen, B.

B.S., Chemical Engineering from University of Michigan

Is on way to Soochow to become a member of the department.

In addition to the above there are three full-time assistants, all graduates, and two M.A. candidates who spend half time assisting in the laboratories. This makes a fairly adequate staff where they are giving only four courses with a total registration of about 50 students. The department has adequate apparatus for all courses given at the present time except that there is a shortage for the course in organic chemistry. A \$2,000 (gold) order which is now on the way from America will enable them to equip all courses completely. The Chinese members of the staff appeared to me to be unusually able and loyal men.

The courses as planned are short and the amount of ground covered must be small, but the work seems to be very well done, judging by the men who have

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J. M. P'ien, Asst. Professor of Chemistry and Physics
B.A., 1914, Soochow University
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come from Soochow University. The addition of another foreigner would make the department stronger. Possibly a returned student could fill this place. It is planned to send P'an to America for a year or two of study and they feel that when he returns to Soochow another foreigner would not be required. A better organization of stock and issue rooms is needed but this will doubtless come when they move into the new building. When the new building becomes available I would say that the chemistry department here would be in a position to do first-class work.

Department of Physics

W. F. Keye, in charge

B.A., 1913, Fargo, N.D.

M.S., 1920, University of North Dakota

C.E., 1921, University of North Dakota

1913-1915, instructor in mathematics and physics, Syrian Protestant College, Turkey

1915-1917, Assistant City Engineer, Fargo, N.D.

Taught descriptive geometry and surveying at Fargo College

1917-1919, Engineering Corps, U.S. Army

1919-1921, Studied at University of North Dakota and also taught a class in analytics.

C. Z. Yang, Acting Assistant Professor in Physics

B.A., B.S., Soochow University

Has taught at Tsing Hua College

Mr. R'an and Mr. Hsu, who have been described under the Department of Chemistry, and one other assistant.

Professor Keye is just on the field and is doing very little work this year. Only two courses are being given in the department. The first is an elementary course based on Millikan and Gale, while the second is a college course for a half year which will be followed by another, making up a whole year's work in the subject. The laboratory space, apparatus and equipment is somewhat short, but I expect that the work is being done in a satisfactory manner. With Professor Keye on the ground the work of the department will be extended, and as soon as the new building is finished space will be far more adequate, and more apparatus will doubtless be obtained. Under these changed conditions the work of the department should be of a good grade.

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 M.S., 1920, University of North Dakota
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Department of Biology

N. Gist Gee, M.A., Professor of Biology

At present away, but either he is coming back to Soochow or the money for his salary will be employed in obtaining another man in his place.

J. W. Dyson,

A.B., Central, 1910

M.A., Central, 1911

M.S., University of Chicago, 1919

Has had 8 years' teaching experience in junior college work in the U.S.A. Has studied 7 quarters in Chicago. Arrived in Soochow, 1919.

W. S. Chang, Assistant Professor of Biology,

B.S., 1917, Soochow University

1917-1918, taught in Middle School

1918 to date taught at Soochow University

Teaches Middle School biology and college zoology

T. K. Wang, Fellow and assistant in Biology

B.S., 1920, Soochow University

1 senior student assists in the laboratory in zoology

At present six courses are being given and this staff must have to work very hard to offer the needed instruction. However, some of the classes are very small. Apparatus and equipment is quite adequate for all work now offered and for a small increase in the student body. Laboratories are too crowded and more room must be available. The new building will take care of this. Quite a large amount of local material is on hand and if they had more room they could easily obtain and keep this in large amounts.

With Gee or another man in his place at work here I should feel that they would be in a position to do first-class teaching as soon as the new building was open for use.

Shanghai College

The science departments at Shanghai College have a new building nearly ready for use. They expect to move in at the beginning of the second semester of this college year. However, I believe that they will not be able to get in before next September. This building will be equipped with electricity, gas, water, hot water, steam heat, steam under pressure for laboratory use, and

Department of Biology

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 of this college year. However, I believe that they will not be able to get in
 before next September. This building will be equipped with electricity, gas,
 water, hot water, steam heat, steam under pressure for laboratory use, and

compressed air. There will be adequate room for all departments for many years to come and the arrangement of all parts of the building is first-class. At present none of the sciences have adequate equipment, but they hope to obtain money for this within a short time. I would estimate that \$20,000 to \$25,000 gold would be needed for this in order to give all departments a very thorough equipment.

At present the departments seem to be somewhat disorganized. I suspect that this has been largely due to lack of space. But it may be due also to lack of an organizer in the departments. I feel that Kennard of the Chemistry Department will prove to be a good organizer, and that after they enter the new building things will run in a more business-like shape.

Department of Chemistry

F. C. Maboe, Professor

B.A., 1904, McMaster University

M.A., 1905, McMaster University

Studied at Harvard, 1905-1906, and 1907-1909

Studied at Massachusetts Institute of Technology,
1906-1907 and 1917-1918

Studied at Columbia University, summer, 1918

Taught at Mt. Union, 1909-1910.

R. B. Kennard, Assistant Professor

Chemical Engineer, Columbia School of Mines

M.S., Massachusetts Institute of Technology

M.A., in science teaching, Teachers' College

Served in Photographic Division of the army during the war.

F. C. Chow, Assistant Professor of Physics

Also teaches a course in organic chemistry

Has degrees from Columbia and Lehigh.

T. W. Zee, Instructor in Chemistry

B.S., 1918, Soochow University

M.S., 1919, Soochow University

Maboe and Kennard are two very able and well trained men. A department under their direction should be able to do much work of a very high grade. New apparatus will have to be obtained as soon as they get into the new building to make this possible, however. They will also need more assistants and instructors to make the work of the department go along as it should with the

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increased enrollment which they will then have. The courses as planned are rather light, but they will probably be increased when the department moves.

Department of Biology

G. C. Chen, Professor
 B.A., Shanghai College, 1913
 M.A., Brown University, 1915
 Ph.D., Yale, 1919
 C. F. Yao, Instructor in Botany
 3 part-time assistants (senior students)

This is an inadequate staff, but only a few courses are given. The professor never gives more than six lectures per week. Chen seems to be an aggressive man and has the confidence of the foreigners on the staff. It will be necessary to increase the staff in this department as soon as they enter the new building. More equipment will also be demanded. Chen's methods of teaching seemed very fine and the work seemed well carried out. As soon as the new building and equipment is available a larger number of courses should be offered.

Department of Physics

F. C. Chow, in charge
 M.A., M.S., Columbia and Lehigh
 Has had very little experience but is working very hard.
 Gives two courses in physics, with a total registration of 11 men. In addition he gives the lectures to the class of 10 men in organic chemistry
 Next year there will be a foreigner in the department. At present he is in his second or third year of graduate work at the University of Illinois

No very definite conclusions can be arrived at in regard to this department until this foreigner arrives and he makes his plans. If he proves to be a good man and is able to obtain proper apparatus and enough assistance there should be a good department.

St. John's University

The science departments at St. John's have a new building nearly ready for use. Within a few months this will be occupied and then the problem of space

increased enrollment which they will then have. The courses as planned are rather light, but they will probably be increased when the department moves.

Department of Biology

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B.A., Shanghai College, 1913
M.A., Brown University, 1915
Ph.D., Yale, 1919
C. F. Yao, Instructor in Botany
3 part-time assistants (senior students)

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for this work will be adequately settled for some time to come. The building is very well adapted to the purposes in mind, though I believe that certain changes would have made it more valuable. At the time of my visit the two men at the head of the Biology Department were in America studying, and the head of the Physics Department was absent from the campus. I was not well impressed with the situation there. Too much of an attitude of allowing things to run themselves was manifest for the best results to be obtained. There seemed to be a lack of energy on the part of the men whom I met in these departments. Had I seen the rest of the men I might have drawn a very different conclusion, however.

Department of Chemistry

W. H. Taylor, Professor

B.A., 1910, University of Virginia

B.S., 1912, Massachusetts Institute of Technology

3 years' industrial research in America

1920-1921, Columbia. All work done and examinations passed for Ph.D., but thesis is not yet printed.

Y. T. Van,

B.S., 1917, St. John's University

Teaching at St. John's since graduation.

P. S. Loh,

B.S., St. John's University

Teaching at St. John's since graduation

1 part-time student assistant.

The department's supplies are in some confusion at the present time, but plans for store and issue rooms in the new building are well under way. This should be well attended to immediately on moving. This year they have 45 students registered in five different courses. With this number of courses there should be more teaching staff. The addition of either another foreigner or a first-class returned student is imperative. The library facilities here are the best that I have found. The increase in staff indicated and a little better organization of the department should make it possible for this school to do first-class work in chemistry. The courses as planned are quite satisfactory at the present time. Laboratory equipment for the present student body is fairly adequate, but more

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will have to be obtained for the natural increase that will take place on entering the new building.

Department of Biology

W. M. Potterfield, Professor

M.A., Franklin and Marshall

Is studying in America this year, but is expected to return next fall.

C. N. Wu

At present is studying at Cornell. He will have his Ph.D. next spring, and will then return to St. John's next fall.

Y. T. Chu

B.S., 1920, Soochow University

1920-1921, taught at St. John's

In charge of all work this year. An industrious hard-working man, but lacks experience,

It is not fair to pass judgment on the department with the two leading men away. Apparatus somewhat lacking even for the present number of students. Will have to increase this as soon as enter the new building.

Department of Physics

F. M. Walters

Ph.D., University of Missouri

Taught several years in U.S.A. and has worked in Bureau of Standards.

D. Y. Lee

B.S., 1915, St. John's University

1915-1917, taught St. John's Middle School

1917-1918, Physics Department, St. John's

1918-1919, studied at Cornell, and received M.S.

1919 to date, taught at St. John's.

S. H. Chow

B.S., 1918, St. John's University

1918 to date, taught at St. John's.

Since Professor Walters has just arrived on the ground and has not had time to develop his ideas, it is hardly fair to pass judgment upon the department. I suspect that Lee feels that Walters should not have been brought out here and placed over him. Lee will very likely leave the department within a year or so, if my judgment is correct. At present there is a lack of equipment for the laboratory work in the

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St. Mary's School

At present St. Mary's is not in a position to do science to any extent. They can do a little middle school science, but not enough to be of great value. They are building a new plant and there they plan for much better science equipment and facilities. When this is available their work should be much improved.

The McTyeire School

At present the McTyeire School is building a dormitory. When this is completed they will be able to move their other classes and have very good laboratory facilities for middle school science in biology, physics and chemistry. Their laboratory apparatus already on hand is fairly adequate for this work. Even at present they are doing some very nice work. It would be my judgment that their graduates should be able to enter the second year of the premedical school with credit.

Futan College

Although Futan College is making an effort to give some work in science, I feel that it cannot be considered worth much at the present time. They have practically no laboratory equipment and indeed very little time is devoted to laboratory work.

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Wayland Academy

Wayland Academy is a middle school where the teaching is practically all in Chinese. The teachers are practically all graduates of colleges here in China.

They have very good equipment for a middle school course in physics and are probably giving the work fairly well. After they have had more experience they will be able to give it in a much better manner. Except for the physics they attempt only a course in general science. This probably of much value to the average student that they have, but is certainly a very light course as far as any real understanding of science is concerned. However, such a course in general science should be developed for the middle schools, and I believe that Wayland Academy is doing a big service to education in general here in China in attempting to develop such a course.

Hangchow Christian College

At present Hangchow Christian College has neither the laboratories, equipment, nor men to give much work of college grade. They expect to build a new science hall very shortly, and when this is finished they will have the needed room for work of this kind. However, they will need apparatus and larger staffs than they have at the present time. Some new men in science have come onto the staff this fall, which will strengthen the science teaching if the men become permanent members, and if they prove to be the right kind of men. I am somewhat

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in doubt about the physics man, Evans, however. His judgment of what should be taught does not seem to be very good. This year he is teaching a course in Relativity. Howe, the new man in chemistry, is probably better material, but is very young and needs more experience. He is somewhat in doubt about staying permanently in China. As their courses are given at present, I do not feel that their students could enter our Medical School.

NOTES

Some method of presenting to the students in the schools and colleges the responsibilities, duties, opportunities, and rewards of the medical profession would be a very valuable move, I am certain. In this way we could attract to the profession many able men who are in doubt about what they want to go into. As it is, such men are reached by the more active and progressive departments of their own institutions and turned into other channels. One institution told me that last year several of their men had in this way been turned from medicine to industrial chemistry.

Along this line I feel that some method should be found by which the Union Medical College could get into correspondence with men who are planning to enter medicine, either here or elsewhere. They could be encouraged and given advice about schools where they could obtain proper premedical training, and even given advice as to just what this training should consist of. Later the advantages of the various medical schools could be presented to them for their decision as to which one they would attend. In this manner we could keep in touch with the men entering medicine and to a certain extent could be able to influence the more able men to come here. I am not certain whether this can be worked out or not, but it has been done in the United States, and is being done by some of the colleges here in China, so I have been informed.

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SCIENCE WORK IN PEKING AND TIEN-TSINYenching University

All of the work of the Yenching University is at present in temporary quarters, and since they expect to move within two or three years, it is very desirable not to spend money on the present plant. In the fall of 1923, or at the latest, in the fall of 1924 it is expected that the new plant will be ready for use. In the new plant they expect to have adequate supplies of water, electricity and gas. At present these supplies are not very adequate. The present water supply is obtained from the city and the pressure is too low for laboratory use. The supply of electricity also comes from the Peking City plant and is also uncertain. Acetylene gas is used and this is not very satisfactory here.

The space devoted to the sciences at present is quite adequate. The lighting and laboratory furniture are also satisfactory for the number of students now taking the courses. When the new buildings are completed the laboratory space will be abundant and the arrangements will be suitable for the work as planned. At present the science work is somewhat handicapped by the fact that it has to be given in several places. Most of the work for the men is given at the Men's College, while most of the work for women is given in another place. One course in biology is given in the Premedical School of the Peking Union Medical College. This is attended by both men and women. The result of this situation is that in several cases parallel courses have to be given for the men and for the women. A saving of the faculty's time would be the result of uniting the men and women in one class. They inform me that another year they expect to be able to do this to a greater extent. Probably another year they will be able to have union classes in all subjects in the sciences beyond the freshman year.

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Department of Chemistry

John MacGregor Gibb, Professor

A.B., 1904, Wesleyan University

1911-1912, 1919-1920, University of Pennsylvania

Has taught chemistry at Peking University since 1904.

At present in charge of the construction of the new buildings. I feel that Gibb has been more interested in other subjects than in teaching chemistry.

Miss Jessie Payne, Acting Head of Department

B.A., University of South Dakota

M.A., 1920, University of South Dakota

Taught high school three years in the United States

Has taught chemistry in China since 1906. Most of this has been at the Woman's College in Peking.

E. O. Wilson,

B.A., 1914, Hillsdale College

B.S., Chemical Engineering, 1921, Purdue

One summer quarter, University of Chicago

Specialized in chemistry as an undergraduate, and was assistant in senior year at Hillsdale

Taught English for five years at National University, Peking

Is interested in applied and industrial chemistry.

Ts'ao Ching Pan,

B.A., 1913, Peking University

Has been in the department since graduation. At first was an assistant, but now has charge of some courses. He is a good man and has the confidence of the foreigners on the staff.

Wang Tsan Ching,

B.A., 1917, Peking University

For the last two years Wang has been working with Miss Embrey.

When her work is finished he will return to the University.

He will then be a valuable man.

At the time of my visit the three instructors who are working this year were giving six different courses, with a total registration of seventy. This is too much work for three teachers, especially when one of them has never taught chemistry before. If it had been possible in all cases to have united the men and women and thus to have avoided duplication of classes, there would have been only four classes. This would have been much better. Another year they expect to be able to do this.

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satisfactory. I would feel that under the present arrangements their students should be able to enter the Medical School, as far as the chemistry is concerned. An increase of staff in this department will be imperative very shortly, as there will be an increase of students.

The present staff should receive credit for the business-like manner in which they are carrying on their work. Apparatus and chemicals have been properly catalogued, and storerooms have been cleaned up and nicely arranged. The laboratories are also much cleaner and in better condition than they used to be. The improvement is very marked over the condition of the department up to this year.

The department has a fairly good library for the work given and the faculty makes some use of the P.U.M.C. library.

Department of Biology

Miss Anna M. Lane, Acting Head of Department
A.B., B.S., 1912, Nebraska Wesleyan University
University of California, one year graduate work
University of Washington, one summer graduate work
Four years' teaching experience in high schools in
United States

Mrs. Chamberlain,
A college graduate who has had considerable experience
in teaching in the United States before coming to China
Is teaching one class this year.

Miss Edna Wolf, Premedical School P.U.M.C.
Miss Wolf is teaching one course for the department this year.

Dr. Packard visited this department with me, and agrees with me in regard to the conclusions which I am stating.

We found the laboratories well arranged and in very neat order. Apparatus and equipment are fairly adequate for the number of students taking the courses. The methods used in the classes and laboratory seemed to be right and care was observed with the notebooks. As at present given the courses are hardly sufficient for entering the Medical School. However, the quality of the work as given is satisfactory. More demonstration material and local collections should

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Dr. Packard visited this department with me, and agrees with me in

regard to the conclusions which I am stating.

We found the laboratories well arranged and in very neat order. Apparatus and equipment are fairly adequate for the number of students taking the courses. The methods used in the classes and laboratory seemed to be right and care was observed with the notebooks. As at present given the courses are hardly sufficient for entering the Medical School. However, the quality of the work as given is satisfactory. More demonstration material and local collections should

be obtained. Library facilities are entirely inadequate, but certain books have been ordered that will assist very much. The fact that the school is so near the Peking Union Medical College allows them to make some use of the library of this institution.

The greatest need for the department is for more staff. The present members are doing their best, but two members are only temporarily connected with the department, and Miss Lane has not had experience in college work. A properly trained man or woman should be added to the department as soon as possible. The addition of some assistants and locally trained members to the staff will also be necessary.

Department of Physics

C. H. Corbett,

A.B., 1901, College of Wooster

B.D., 1907, Union Theological Seminary

Now on way to University of Chicago to study in

Department of physics for three quarters

Two years' teaching experience in United States and
about twelve years' experience in China.

Hsieh Yu Ming,

A native trained man with considerable experience

Is studying in the Department of Physics of the Pre-
medical School of the P.U.M.C. this year.

In this department there are three courses being given at the present time. One is an elementary course for men who have had no work in physics, and the other two are college courses based on Kimball. Two years' work covers Kimball. The elementary course has sixty students, while the other courses have only five and four students respectively.

The elementary course is based on local conditions and no textbook is used. The laboratory work is also based on local tools and conditions here in China. For this reason the ordinary apparatus used in a corresponding course is not so necessary. However, even this local apparatus is very short for the number of students taking the work. I believe, however, that this course as it is being

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worked out is the most valuable course of its grade that I have seen in China. Professor Corbett deserves much credit for his work here.

Apparatus for the more advanced courses is also only partially adequate, even for the small number of students that are taking the work. More should be obtained as soon as possible in order to make this work efficient.

The laboratory space for this science is not well adapted to the work, but can be made to do for a short time, until the new buildings are ready. Library facilities are also too small for the work, but this is compensated for to some extent by the fact that the instructors can use the library at the Peking Union Medical College.

The most pressing need of the department is an increased staff. If this can be obtained I believe that work of college grade can be done under Professor Corbett's direction. Of course more equipment must also be found in order to care for the increased enrollment that will come in these courses.

Tsing Hua College

Tsing Hua College has recently constructed a new building for their science departments. The Departments of Physics and Chemistry have adequate and well arranged space for the work given at the present time and all that will be given for many years to come. The Department of Biology has very inadequate space allotted to it, and even what room there is available is on the west side of the building, which is the worst possible situation for microscopic work. The building is well supplied with water, but electricity is available only occasionally in the day time. This is a serious handicap as the building is equipped with forced ventilation which can be used only when electricity is available. The chemistry laboratories will not be really satisfactory for use until day current is made available. I am informed that the college does not feel that it can

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ly in the day time. This is a serious handicap as the building is equipped with

forced ventilation which can be used only when electricity is available. The

chemistry laboratories will not be really satisfactory for use until day current

is made available. I am informed that the college does not feel that it can

afford to furnish day current at the present time, and that while they are installing a new power plant no plans for a day service are being made. Although the building is piped for gas, at present there is no gas plant, of any kind. I expect, however, that they will install some kind of a gas plant within a year or so. Their original plans called for a gasoline gas plant, but this idea has been abandoned, I believe. I expect that they will finally install a crude oil gas plant.

To my mind the lack of organization within the departments is the most serious drawback to the work at Tsing Hua College. I am informed that there are no heads to the departments, and that each man teaches what he pleases, as he pleases, without regard to the other men in the same department. This is a serious situation, and I am of the opinion that science cannot be given properly without an efficient organization in each department. The Department of Chemistry does not suffer from this, since Pierle and Young are good friends, and agree in detail as to how the work should be carried out. In most of the other departments there is a lack of this spirit of co-operation and therefore their work suffers.

Department of Chemistry

C. A. Pierle, Professor

B.A., 1909, DePauw University

M.S., 1911, Lehigh University

Ph.D., 1919, University of Wisconsin

Instructor at Lehigh University, 1909-1911

At Tsing Hua, 1912-1917, 1919-date.

K. P. Young

B.S., 1916, University of Wisconsin

M.S., 1917, University of Wisconsin

Taught at Tsing Hua since 1917

Is a first-class man, probably one of the best in China.

John E. S. Han

Graduated in chemistry at Yali some years since

Has assisted at Yali and has had some industrial experience.

Recently joined the Tsing Hua faculty.

The department has all the equipment, chemicals, and apparatus needed

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Department of Chemistry

G. A. Pirie, Professor
B.A., 1909, DePaul University
M.S., 1911, Lehigh University
Ph.D., 1919, University of Wisconsin
Instructor at Lehigh University, 1909-1911
At Tsing Hua, 1912-1917, 1918-date.

K. P. Young
B.S., 1916, University of Wisconsin
M.S., 1917, University of Wisconsin
Taught at Tsing Hua since 1917
Is a first-class man, probably one of the best in China.

John E. S. Ham
Graduated in chemistry at Yale some years since
Has assisted at Yale and has had some industrial experience.
Recently joined the Tsing Hua faculty.

The department has all the equipment, chemicals, and apparatus needed

for the courses offered. At the present time they offer courses in general chemistry, qualitative analysis, and quantitative analysis. No course in organic chemistry is given, and none is contemplated for the immediate future. In my judgment, the courses given are the equivalent of first-class university courses in America. The work is distinctly of a very high grade in all respects. The library facilities are fairly adequate for the work undertaken.

Department of Biology

C. C. Chen

B.S., 1919, Cornell University

M.S., 1920, Maryland

In college Chen specialized in agriculture, plant pathology and the cotton industry. While at Maryland assisted in laboratory instruction for one year. Is not especially interested in general work in biology. My impression is that Chen is a man of no great energy or force of character, and that he is working in a line in which he has neither profound knowledge nor interest.

Except for sixteen compound microscopes the apparatus and equipment of the department is entirely inadequate. One course in general biology is given at the present time and one course in farm crops is also offered. It would be my judgment that these courses were of relatively little value. Dr. Packard agrees with me on this point.

Department of Physics

Y. C. Yen

A.B., 1917, Harvard University

M.A., 1918, Harvard University

Ph.D., 1920, Harvard University

Research instructor at Harvard, 1920-1921.

C. T. Sun

B.S., 1915, Electrical Engineering, Purdue University

Worked in Westinghouse about one year

Studied at Harvard about one-half year, but he told me that his studies there were not a success

Taught at Nankai three years

Last year was principal of a middle school in Shantung and also taught in a college.

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For several years past the physics at Tsing Hua College has been in charge of Y. C. Mei. Those of us who have been acquainted with the work, have been of the opinion that Mei was doing very well indeed. However, this year he is studying in America, and there is some doubt whether he will return to Tsing Hua College, on finishing his work there.

My impression of the two men in charge there was not favorable. Yen especially made a very unpleasant impression. He was suspicious of my purpose in making inquiries, and was very critical of other people's work. For an inexperienced man he was far too "sure" of himself, and far too certain that others were in the wrong. I expect that the work is not done very well in this department this year. Library facilities for the department are very satisfactory.

Nankai College

The college department at Nankai has been organized only three years so that at present there are only three classes; the freshman, sophomore and junior. Next year they will have their first senior class. The sophomore and junior classes are very small, while the freshman class is much larger. So far only one building has been built for the sole use of the college as distinguished from the middle school. If the cost which they quoted for this building is correct, they are able to build very cheaply. It is expected that the college will shortly move from the town to the country in the neighborhood and that an entirely new plant will be

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constructed, while the present plant will be used for the middle school. The middle school has a registration of about 1,200, and appears to be in very prosperous condition.

I was very favorably impressed with the college. There was an air of solid work and quiet accomplishment about the place. Class-rooms were neat and well arranged. Laboratories were found to be clean and in splendid order. Stock and storerooms were properly arranged, and card indices for the goods in hand were available. There was evidence that apparatus had been properly cared for and protected from the fumes of the laboratories. Balances and weights were neat and clean. Chemicals and apparatus had been bought partly from local sources, but efforts were being made to obtain them from foreign sources. In fact some had already been so obtained. This is a proper method as it allows the money to be spent to better advantage. Several of the men in the sciences had obtained teaching experience in the United States. However, even at that, the lack of experience on the part of these men is one of the great handicaps of the institution. They lack especially the knowledge of proper organization within the departments. Instructors are doing storeroom work that should be done by untrained men. A little experience will enable them to employ their time to far better advantage in these matters. At present the school has no gas supply and even water is not available in all places where they should be. I do feel, however, that the students are being taught very good laboratory habits and that the work will be of good quality as far as they go at the present time. Lack of supplies of all kinds, however, handicaps the college work in sciences very much.

If this institution can obtain the new building which they are planning and can also find the means to get adequate apparatus, and can at the same time maintain their present esprit de corps and attitude towards the work on the part of both students and faculty, they should then be in a position to do some very fine science work.

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C. Y. Chang

B.A., 1915, Peking Government University

Ph.D., 1920, Cornell University

C. Y. Chiu

B.A., 1915, University of California

M.A., 1917, Clark University

Ph.D., 1920, Clark University

Instructor in chemistry, Clark University, 1918-1919

Two student assistants

Chang and Chiu seem to be very fine men, and I feel that they should make a success of the work, in case they can obtain the equipment needed.

At present only general chemistry and qualitative analysis are given. Classes are rather large and laboratory facilities are too inadequate for the best results, but I feel that good work is being accomplished. They plan to add other courses another year. The library at present on hand is more than we find in most places.

Department of Biology

H. H. Chung

B.S., 1917, Harvard University

M.A., 1918, Harvard University

Supplies in this department are scanty, but there is a total registration of only eighteen in three courses, so the work probably goes along much better than the small amount of apparatus would indicate. At present the work given consists of a year's work in general biology, with eight students. This is followed by a year in botany with three students, and finally there is a half year's work in heredity and evolution with seven students. This last course includes no laboratory work. This leaves two groups, one of eight, and one of three for laboratory work. With these small numbers they can succeed very well, since they have a total of eight microscopes. Other pieces of apparatus are in sufficient numbers for the present registration.

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Ph.D., 1920, Cornell University
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M.A., 1917, Clark University
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Department of Physics

Y. T. Yao

B.A., 1918, University of Chicago

M.A., 1919, Yale University

Candidate for Ph.D. in physics, and assistant in physics at Princeton University. Will arrive in Tientsin next fall. Is said to be a good man.

(C. C. Lu)

At present studying at Lehigh University

Has not yet agreed to come, but has been approached on the matter.

No work is being given in physics this year, and so next year the class will be large. No adequate laboratory has been provided, but some temporary arrangement will be made during the summer. Apparatus is inadequate since there is only about \$1,500 (gold) worth on hand at the present time. It is impossible to make an estimate of the physics department at the present time, since none of the men are on the ground.

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