NOT FOR PUBLICATION

INSTITUTE OF CURRENT WORLD AFFAIRS

CHGO-40
Visits to Chinese Universities.

27 Lugard Road,
The Peak,
Hong Kong.

January 8, 1965.

Mr. R.H. Nolte,
Institute of Current World Affairs,
366 Madison Avenue,
New York 17, N.Y.

Dear Mr. Nolte,

Although unable to visit the University of Peking, I did see some of the scientific departments at Nanking University, Fu Tan University in Shanghai, Sun Yat Sen University in Canton, and the Hangchow Agricultural University. These first three Comprehensive Universities are generally considered to be among the best half dozen in China. At each university I was given an "introduction" by an administrator, in company with one or two scientists. Afterwards we all toured the departments together, and the scientists would explain their work. However, it was quite noticeable that decisions such as which laboratories to show, and whether I could take photographs (I always could) were almost always referred back to the administrator.

The information which I was given at the introductory talks and in answer to questions is compiled in Table 1 and in the following sections:

(a) Communist Party Policy for Higher Education

Wang Der-jy, Director of Teaching Affairs at Nanking University outlined aspects of the higher education policy of the Communist Party. He said: "This is a socialist university run on the basis of the educational policy of the Communist party. The university aims to train all-round developed students, with a high social consciousness, and a high degree of culture and knowledge. In brief we train the students morally, intellectually, and physically.

(i) Moral training:
We carry on the policy of education in ideology and politics. All students must learn the works of Chairman Mao, Marx and Lenin. In addition the students must be concerned with important issues both national and international. They must take part in productive labor so that they are enabled to have the viewpoint of labor. Every student takes part in this labor for one month a year. It can be in a factory or in the countryside. It is considered an important part of their education.

(ii) Intellectual training:
Teaching is done according to plan and the characteristic feature of teaching is as follows: First, theory must be combined with practice.

Table 1.

STATISTICS RELATING TO UNIVERSITIES VISITED IN EAST CHINA

	NANKING	FU TAN SHANGHAI	SUN YAT SEN CANTON	HANGCHOW AGRICULTURAL
Founded	1902	1905	1924	1910 (Sch.) 1952 (univ.)
No. of students	(1949) 600 (1964) 6,000	(1949) 2,000 (1964) 5,000	(1952) 994 (1957) 2,000 (1964) 4,300	(1952) 200 (1964) 2,500
No. of teaching staff	(Before 1949) 200 (1964) 1,000	(Before 1949) 200 (1964) 1,000	(1952) 202 (1957) 380 (1964) 750	(1964) 420
Duration of courses	5 years	5 years	5 years	4 & 5* years
Departments: Numbers in parenthesis are number of students in each dept. + number of post grad. students	Chinese lang. Foreign lang. History Politics Physics (1100 + 20) Chemistry (700) Geology (600) Mathematics Geography Biology Meteorology Astronomy (200 + 5)	Chinese lang. Foreign lang. History Journalism Philosophy Economics Politics Mathematics) Physics) Chemistry)[1] Biology)	Chinese lang. Foreign lang. History Philosophy Geography Mathematics Biology Chemistry Physics (900)	Agriculture Plant protection Soil & fertilizer Horticulture Tea planting Sericulture Agricultural mech. * Livestock & vet.*
Time spent in study of politics by all students	3 periods per week + reading & discussions	10% for Nat. scientists 20% for Soc. scientists	12% for Nat. scientists 18% for Soc. scientists	10%
No. of Research students	100	180	?	Few. e.g. the soil & fertilize dept. has 3
Floor space (sq. metres)	?	160,000	120,000	80,000
Library (no. of books)	?	1.1 million	1.65 million	220,000
Time spent in labor per year	One month	5 weeks	½ day per week & some time at harvest	?

1 70% of students at Fu Tan University are in the Science departments.

This means the students must make experiments in the laboratory and also field experiments and demonstrations in their specialities. Secondly we follow the policy of giving as much basic theory as the student can master, i.e. we stress quality rather than quantity. Thirdly, we teach the students to be self reliant and show them how to educate themselves. There are only three or four periods a day so that the students have time to study on their own.

"Students are also trained for research work. In the lower classes they are divided into groups for simple research. For example in biology they make collections of plants and specimens. They also participate in seminars. In the higher classes they begin to do independent research. Every student must write a thesis before graduation. The principle purpose is to train students to be in a position to master the latest science.

(iii) Physical training:
Physical training is given in the lower classes, but there is no formal instruction in the higher classes, although everyone still does some physical exercises each day. Also many students take part in recreational sport." *

(b) Entrance Requirements

To be admitted to a university, students must first of all be graduates from a middle school. They must then sit for a State examination. Students are admitted to a particular university on the basis of the needs of the State, the examination results, the inclination of the students, their health, and politics, "we look for all round development", said Wang Der-jy. I found it hard to assess the part played by politics in the selection of students but the percentage of children from peasant families at Sun Yat Sen University in Canton increased from 17% in 1953 to 64% in 1963, and in Nanking I was told that most students are from peasant families. Other things being equal a student from a peasant family stands most chance of selection. The ratio of the number of students admitted to the number who applied for admission varied from about one in four at Nanking University, to the one in twenty from Anhwei Province who applied to go to Fu Tan University in Shanghai.

(c) Course work

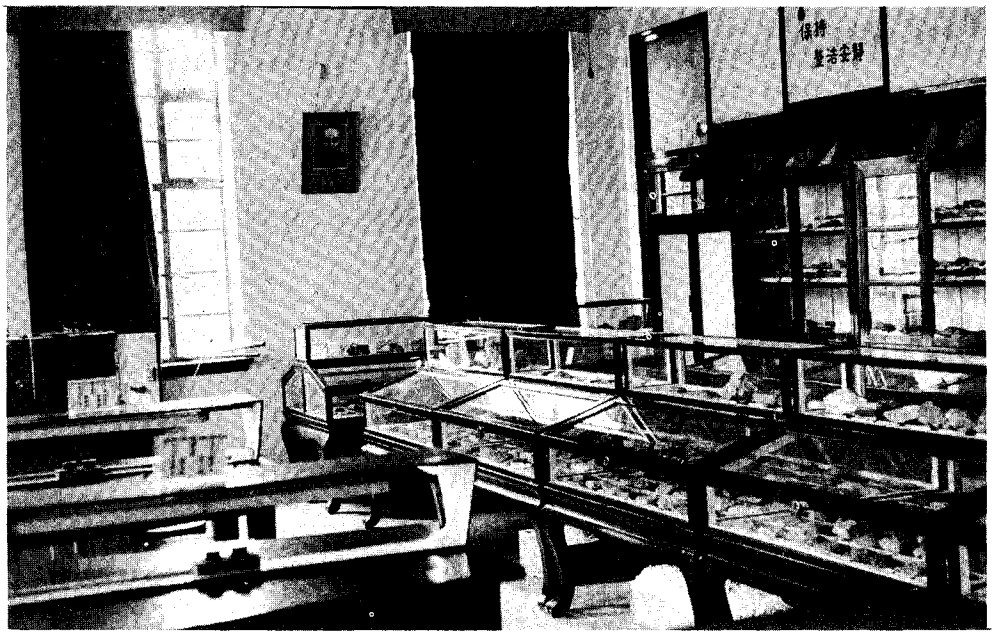
Once admitted, the students study for five years. The first three years are usually general with students from one department having some lectures in other subjects. For example, for the first three years students in physics would also take mathematics and chemistry. For the final two years the students specialize on one branch of their principal subject and in their final year they must write a thesis based on the work done in their speciality.

* This passage is reproduced from the verbatim notes I made of the translation to Mr. Wang's introductory talk.

Examinations are set annually, but if a student fails he can usually sit for the examination again. Once admitted very few students are obliged to leave the university before completing their course. These examinations are internal university examinations, but the curriculum is set by the State. Occasionally in some subjects the university sets its own curricula, but this must also be approved by the State. One foreign language is compulsory for all students, and a second one optional. English and Russian were the most common languages, although French and German were also offered at most universities. It seemed that English was the most popular.

(d) Job Assignment

After graduating, some of the best students are selected to remain for three more years to do post-graduate work, but the rest are assigned to jobs according to the needs of the State. The students can express a preference but when I asked if the students could change jobs once assigned, Mr. Wang at Nanking replied, "Most students offer themselves unconditionally to the State. I have never heard of any wanting to change jobs, I'm not sure whether it would be possible for them to do so if they did". However, in Canton I got a different story. Here I asked what contradictions the university had faced. (This was always a useful question, since Mao Tse-tung has written that there will always be contradictions, and most people felt obliged to tell their problems when the question was couched in his terms). I was told that one of their biggest contradictions was that some students wanted to choose their own jobs, they did not want to be assigned by the State.



A Petrology laboratory at Nanking University.
The man in the photograph is Chang Hung-Chao - the first director of the

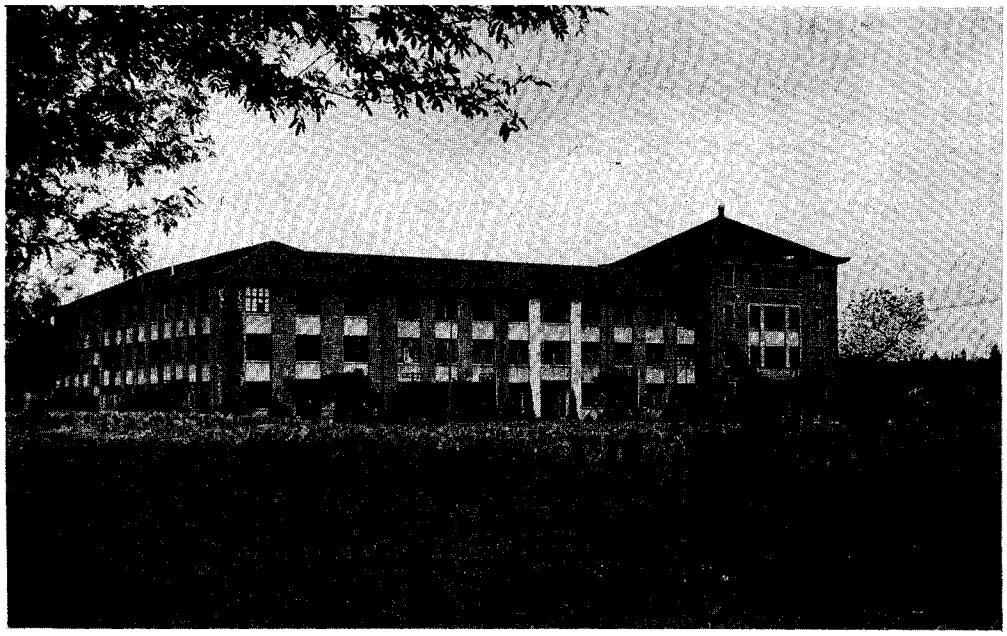
(e) Research

In the comprehensive universities most staff are expected to do some research, and each department had a handful of research students, but compared with most North American and British universities the amount of research was very small. For example the Physics Department at Nanking University had 1,100 students, but only 20 were post-graduate students.

Most of the research effort over the past five years in all the university departments I visited had been concentrated in designing and building teaching apparatus for fourth and fifth year laboratories. Only once, in the Geology Department at Nanking University, was there any reluctance to discuss research work. When I pressed for details I was told that it was research to do with socialist reconstruction. I asked whether this meant a study of economic minerals, and was told, " .. and rocks"!

(f) Politics and the Student

The amount of time which the student must spend in politics varies from university to university, but averages 10% of total study time for a natural scientist and 20% of total study time for a social scientist.



A part of Hangchow Agricultural University.

Once when I suggested that this was rather excessive, I was told "We consider political education of our youth to be most important. The Western countries realize that they can do nothing with our present leaders, but they say that within two or three generations capitalism will return to China. We are determined to make sure it will not".

The month of productive labor which all students and junior staff members must do, is usually at harvest time, although some students in Canton were spending half a day a week during the 36 week university year, and another two weeks at harvest time. Those I saw doing this work all seemed to be enjoying themselves, and I noticed one girl at Hangchow University lightheartedly sprinkle a couple of boys with her watering can as she passed them. However, it was freely admitted that some students were reluctant to do manual work. The Oriental tradition of the scholar who refuses to dirty his hands dies hard even in Communist China.

(g) Student Life

Students pay no tuition fees and many (75% at Sun Yat Sen) receive maintenance grants from the State. Most textbooks are provided free and medical care is also free. All the students at Nanking University lived in halls of residence. A wide range of clubs exist for extra-curricular activities. These are organized by the students themselves through their students' union.

About one-quarter of the students are women. When I asked about dating and student marriages I was told there was very little, ".. the students are educated not to talk about love," - and there appeared to be little action either. Western style dances are never held at Nanking, I did not enquire at the other universities.

I saw most evidence of extra-curricular activities at Sun Yat Sen University. After the formal visit I suggested to my interpreter that we stroll through the very delightful campus. It was late afternoon and we passed a group practising folk dancing, another group doing militia training (with fixed bayonets), and a large group of students practising for a political display they were to perform the following week at the University's fortieth anniversary celebrations. Biggest surprise, however, was to see several men practising dirt track racing with motor cycles.

(h) Staff Conditions

There are four grades of teaching staff, professor, assistant professor, lecturer, and assistant lecturer. University staff receive a comparatively good salary for China - a full professor for example, earns more than 300 Yuan a month (U.S. $125). This is six times greater than the average salary of factory workers or a commune director, and almost three times the top salary paid in the Shanghai textile factory I visited. In addition university staff are provided with a house at a rental of only 3% of their salary and all receive free medical care. (Dependents must pay 50% of medical costs). The professors are also eligible for free vacations at holiday resorts.

Some of the senior staff carry out their research at nearby research institutes of the Chinese Academy of Sciences. Fu Tan University has its own "spare time college" where staff members can take extra courses in their spare time to improve their knowledge. At Sun Yat Sen University the senior staff spend more time on research with the junior staff doing more lecturing.

I found all the academic staff I met extremely affable and all seemed delighted to show off their laboratories. I visited Nanking University on the afternoon following the announcement of the Chinese atomic bomb explosion, and all the scientists there seemed in a particularly good humour and were obviously excited by the news.

Photographs on left. Sun Yat Sen University, students practise for a display of motor cycle racing to be staged on the 40th anniversary of the founding of the University in November, 1964.

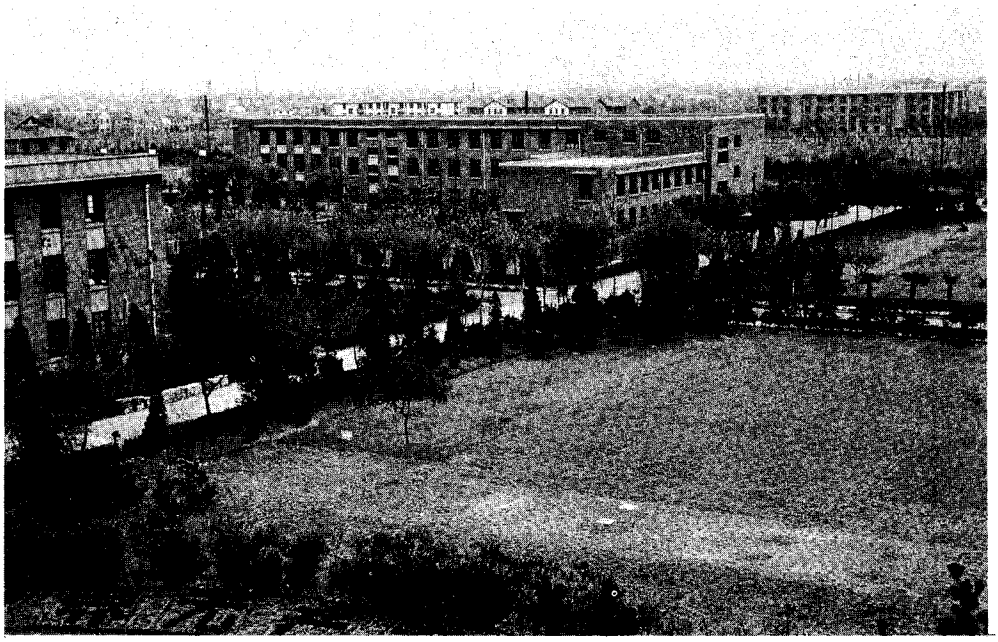
(i) Campus Conditions

Sun Yat Sen University in Canton has an extremely delightful campus. Spacious grounds, hills, ponds, trees, gardens and lawns divide the teaching buildings and provide a pleasant academic atmosphere. Nanking University was also well laid out. New buildings have been constructed in the same architectural style as the old with curved Chinese roofs. Fu Tan University in Shanghai was strictly functional.

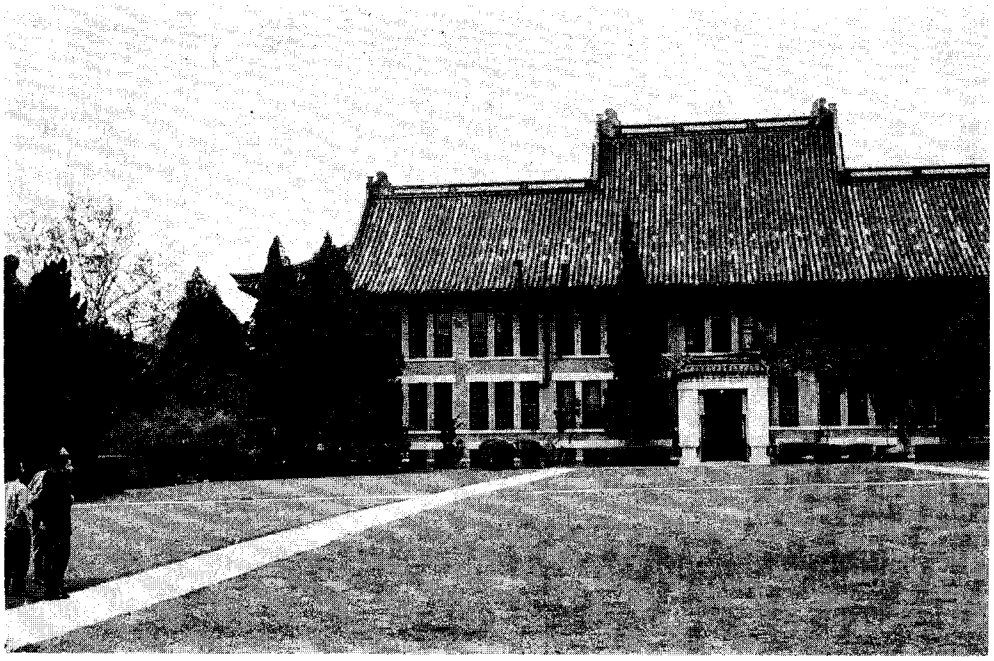
(j) Academic Standards

This is one of the most important aspects of any university and at the same time the most difficult to judge on a superficial visit. There are two clues to standards which I will discuss here. One is the experimental work which I saw in the laboratories, and the other is the academic standards reached by students from China who later studied at the University of Hong Kong.

The first and second year physics laboratories of all the universities I visited were equipped with similar basic physical experiments to those which were performed in first and second year laboratories at Toronto University when I was a demonstrator there twelve years ago. The fourth



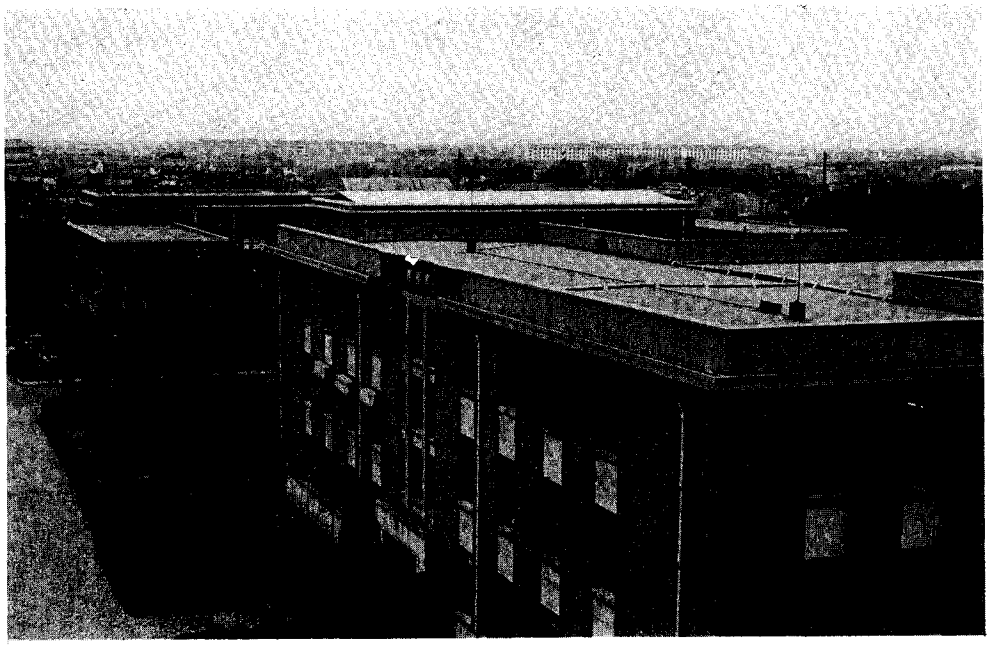
General view of classroom blocks at Fu Tan University. Photograph taken from Physics Department.



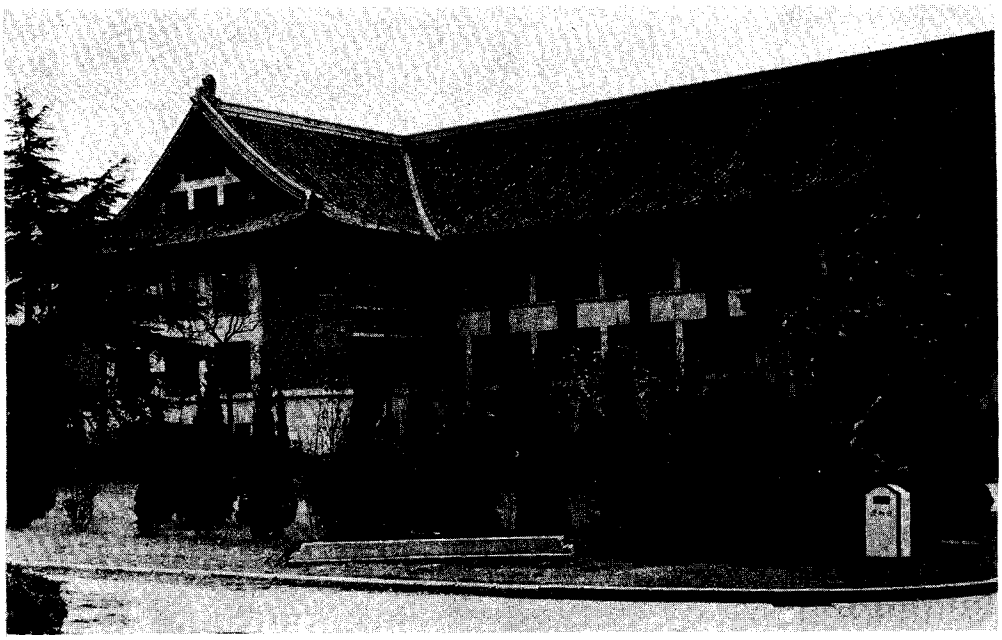
Chemistry Department at Nanking University.

The library, Nanking University.

CHGO-40



The Chemistry Department at Fu Tan University, Shanghai.

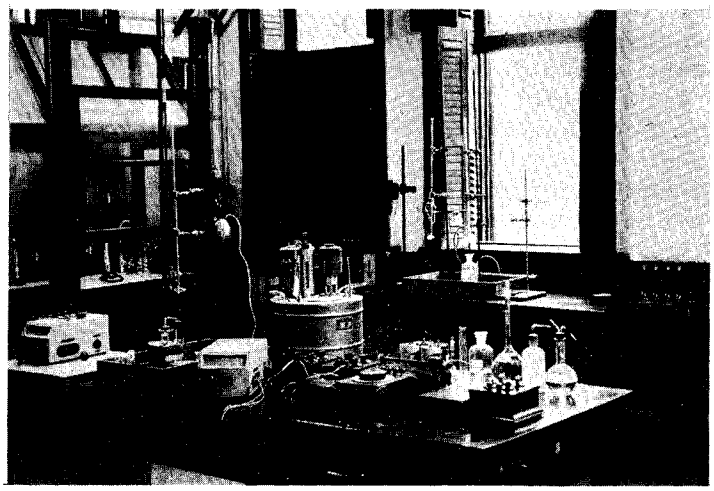


The Geology Department, Nanking University.

and fifth year laboratories were quite advanced, emphasis in physics was mainly on applied physics, but since none of the laboratories were in my own speciality I will reproduce my notes so that scientists can make their own judgement.

Nanking University

Geology Department: Saw petrology, optical mineralogy, paleontology, sedimentary petrology, and economic minerals laboratories. Sedimentary petrology had specimens with English language labels, obvious relics of pre-1949 days. I noted one specimen labelled "Ordovician Sandstone, North Dakota". Department has 100 petrological microscopes, many made in China. Saw spectroscope for chemical composition of minerals, and German X-ray apparatus for crystal structure determination.



A 5th year experiment (involving a thermostat) at the Chemistry Department, Nanking University.

Chemistry Department: I was shown the fourth year laboratory for experiments in electrolysis and spectroscopy. Students learn how to repair instruments. Chemistry students seemed proficient at electronics. Fifth year laboratory contained a polarograph, sensitivity 10^{-10} gms. (Chemists at the University of Hong Kong tell me this is high, but likely to be genuine since Nanking University has a noted Chinese expert on polarography on the staff). Also saw quartz prism spectrometer made in Nanking for use of students. In the next room there was a glass prism spectrometer for staff use and research. Was told both instruments could determine all elements in the periodic table.

Physics Department: Saw only first, second and third year laboratories as time was running short. Therefore given option of seeing Astronomy Department or the senior year physics laboratories. Chose the former.

Astronomy Department: has 28 cm. diameter refracting telescope built before 1949, but all spare parts made at the University. It is mainly used for studying the brightness and spectrum of fixed stars. Also saw smaller 16 cm. diameter telescope used for sunspot studies. Department has close scientific ties with the nearby Purple Mountain Observatory.

CHGO-40

Fu Tan University, Shanghai

Physics Department: This was the best equipped department that I saw in any university in China. It has 200 oscilloscopes. I was shown the micro wave laboratory for fourth year students. All apparatus had been designed and built in the University. It had taken one and a half years and was completed in 1961. The fifth year semiconductor laboratory had experiments which are performed individually by each of the 70 students specializing in solid state physics. The experiments included: parameters of transistor amplifiers; effect of temperature on transistors; the electrical capacity of transistors; the maximum oscillatory frequency of transistors; and transistor noise characteristics. In another room there were experiments to measure the life times of semi-conductors. Four methods were used; photomagnetic effect; lens diffusion; double pulse; and photo conductivity decay. Also saw another laboratory where dislocation studies of germanium were carried out with a Zeiss metallurgical microscope. The final laboratory I was shown was equipped for plasma spectroscopy. It contained a grating photometer and was a part of the fifth year course, to study the fundamental properties of plasma. This equipment had taken a year to build and was completed in 1960.
Chemistry Department: I saw only the kinetics laboratory. Most of the equipment had been designed and built at Fu Tan.
Biology Department: I was shown the biology museum which was well stocked with specimens, nearly all of which were indigenous to China.
English Language Section of the Foreign Language Department: This section was well equipped with phonetics laboratory, soundproof rooms, classrooms with earphones arranged in eight rows so that each row could have different instruction. The walls of the classrooms were covered with English language slogans, including an enigmatic "Foreign languages are a weapon in the struggle for life". I was also shown the library and students' reading room. The only English language magazines available to the students that were not published in China were the American Science and Society, and Marxist-Leninist journals from Australia and New Zealand. The teachers' library however, had a good supply of philology journals from Western countries.

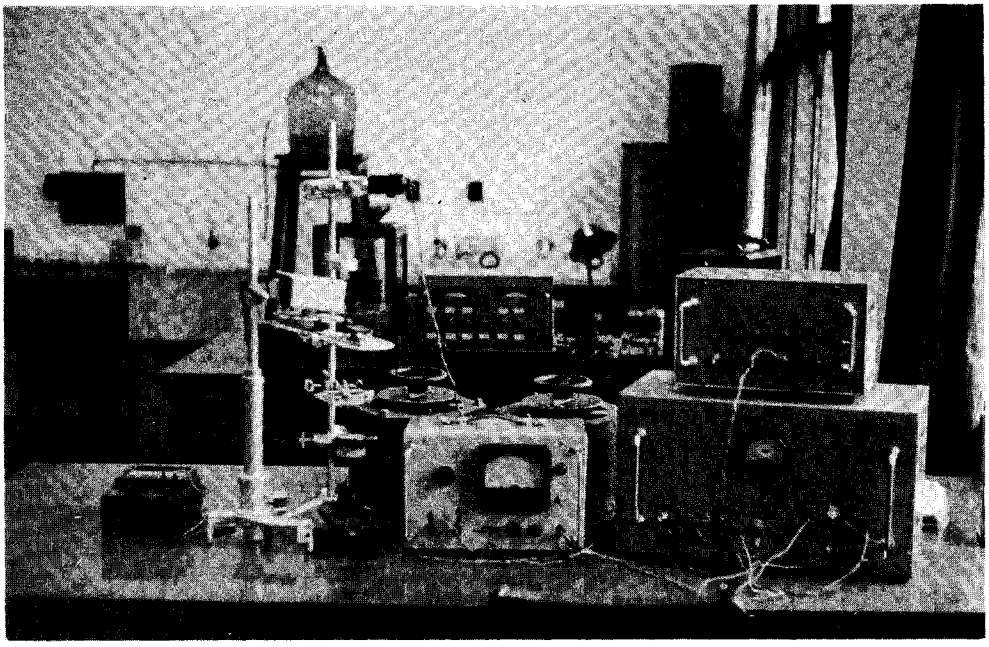
Hangchow Agricultural University

The science laboratories of this university were not advanced. The best equipped department that I saw was the soil science department.

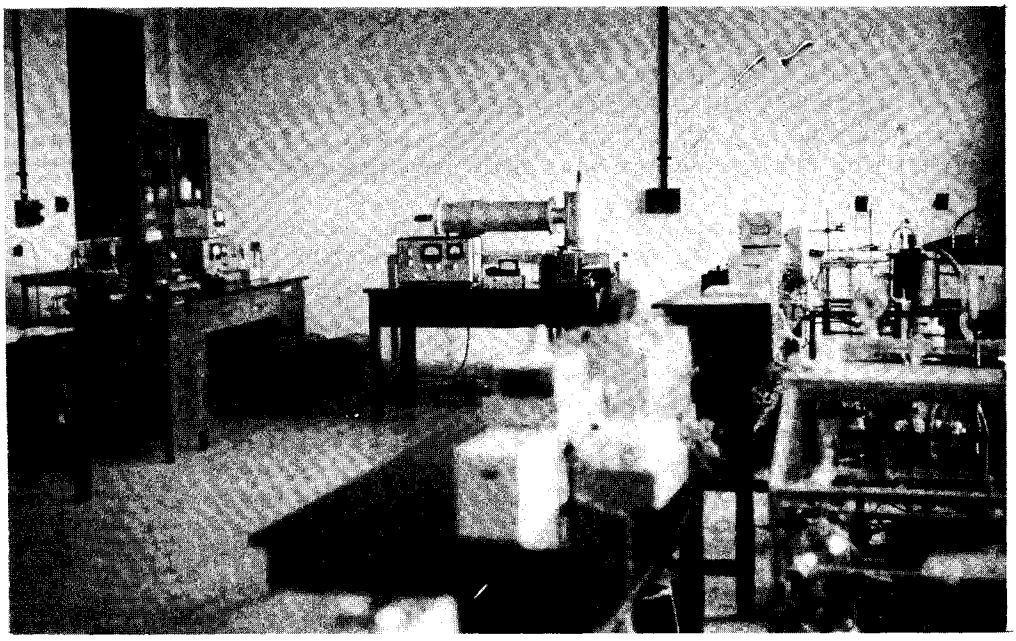
Sun Yat Sen University, Canton

Physics Department: The elementary laboratories were well equipped, with students working in pairs on most experiments. In the fourth and fifth year laboratories I saw experiments in progress in molecular spectroscopy, with all the apparatus built by the University staff.

CHGO-40



A 5th year experiment to measure the "life time" of semi conductors at Fu Tan University, Shanghai.



A 5th year physics laboratory at Fu Tan University, Shanghai.

CHGO-40

I also saw a Zeiss micro-photometer and fifth year students studying emission spectra with a Raman spectrometer. There was Japanese equipment for the study of molecular absorption spectra, as well as several laboratories devoted to metal physics.

Another clue to standards can be gained from the academic achievements of those Chinese students from the Mainland who have later studied an experimental science at the University of Hong Kong.

The University of Hong Kong is modelled after British universities with English as the medium of instruction, and in Science offers a three year course leading to a General Honours B.Sc. Degree, plus a one year Special Honours B.Sc. Degree. These degrees are recognised in Britain as of equivalent standard to those of a British university, and an external examiner, usually from Britain, assesses all degree examination papers and scripts. The University may admit students from other universities for the one year's Special course if the Head of the Department concerned and the University Senate regard them as sufficiently qualified. In the Chemistry Department this course consists of advanced courses in all branches of Chemistry, resembling the First Year Ph.D. Course at a U.S. University, plus experimental work which, since the 1961/62 session, has consisted of a research project in one branch of Chemistry on which a thesis is written. Professor J. Miller, Head of the Chemistry Department has admitted to the B.Sc. Special Course in the period 1960/64 a number of graduates from other universities including eight students who had previously studied at Mainland Chinese universities, and a further five have been admitted in the current session. The results are shown in table 2.

The sampling is too small to draw firm conclusions from these results, and in assessing their significance the following factors must be born in mind: (a) The date of graduation from the Mainland Chinese University, and the time which elapsed between this date and admittance to the University of Hong Kong, (b) The type of work done in the intervening years, (c) The problem of language difference, especially in a one year course (d) The fact that the students with the best results went to secondary school in Hong Kong before going to China for higher education. Nevertheless the results do indicate that students trained in Mainland Chinese universities can fit satisfactorily into advanced degree courses at a university with British standards.

Yours sincerely,

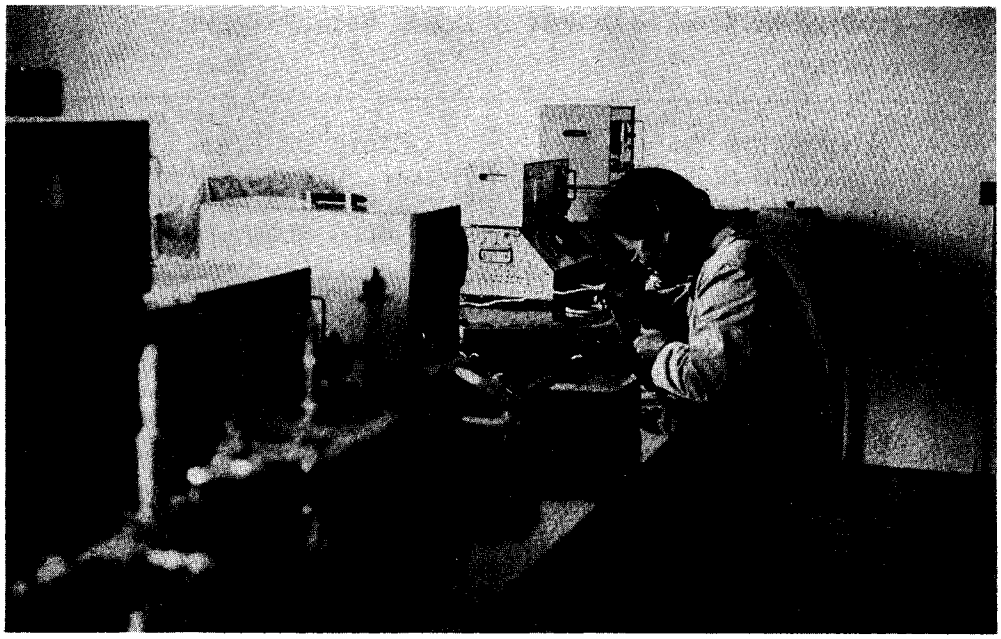
C.H.G. Oldham.

C.H.G. Oldham.

TABLE 2.

CHGO-40 Results of B.Sc. Special Honours degrees of the University of Hong Kong in the Department of Chemistry obtained by graduates from Mainland Chinese universities.

SESSION	UNIVERSITY IN CHINA AND DATE OF GRADUATION	RESULT OF B.Sc. SPECIAL HONOURS DEGREE OF THE UNIVERSITY OF HONG KONG	ADDITIONAL REMARKS
1960/61	Sun Yat Sen, Canton (1953 or 1954)	3rd class honours	Since obtained M.Sc. of the U. of H.K. (a 2 year research degree)
1961/62	Nil		
1962/63	Sun Yat Sen (1949)	3rd class honours	Now completing an M.Sc. of U. of H.K.
	Shantung, Tsingtao (1956)	2nd class honours - lower division	- do -
1963/64	Sun Yat Sen (1959)	2nd class honours - upper division	Secondary school in H.K. Now enrolled for M.Sc. of U. of H.K.
	Sun Yat Sen (1956)	3rd class honours	-
	Sun Yat Sen (1959)	1st class honours	Secondary school in H.K. Now enrolled for Ph.D. of U. of H.K.
	Fu Tan, Shanghai (1961)	2nd class honours - lower division	Now enrolled for M.Sc. of U. of H.K.
	Sun Yat Sen (1960)	1st class honours	Secondary school in H.K. Now enrolled for Ph.D. of U. of H.K.
1964/65	5 students graduates of Fu Tan, Sun Yat Sen & Tientsin universities	Results not available until June, 1965.	



A 4th year student in the Physics Department, Fu Tan University, Shanghai.

Outside auditorium at Sun Yat Sen University.
Students with buckets are 3rd year German language students doing their ½ day a week of productive labor.
Students in background have just finished practising a folk dance.

Received in New York January 13, 1965.