Proposed
Course of Study - Yenching
1917

20 19 18 17 16 15 14 13 12

20 19 18 17 16 15 14 13 12

23 24 23 22 21 20 19 18 17

University Courses

Graduate Study. Master's & Doctor's Degrees. 1 to 3 years or more

Philosophy | Chinese Literature | English Literature | History Pol. Sci | Economics Sociology | Math. Astronomy | Physics | Chemistry | Biology | Geog. Geol.

College of Theology | College of Education | College of Arts | College of Sciences

Senior Colleges 3 years.

Literary Course | Scientific Course

Junior College 2 years.

College 3 Years.

U.S.A. Schools.	Year in School		Age
11	11		16
10	10		15
9	9		14
8	8		13
		Middle School. 4 Years	
8	7		12
7	6		11
6	5		10
5		Higher Elemementary School. 3 Years	
	4		9
4	3		8
3	2		7
2	1		6
1		Lower Elementary School 4 Years	

Proposed Course of Study in Peking University in Relation to China's School System.
Prepared by Howard S. Galt. 23 Oct-1917.

A REVIEW OF THE FIRST YEAR OF PREMEDICAL WORK AT YENCHING UNIVERSITY

1926-27

Yenching on Trial. Yenching began its premedical work officially in the fall of 1925-26 with the closing of the Premedical School and the transfer of all its students to Yenching, but delay in construction prevented removal to the new site that fall and consequently the work was conducted in Lockhart Hall with the P.U.M.C. equipment, the only change being in some of the faculty.

The academic year just ended, 1926-27, is, therefore, the first year of premedical work for which Yenching has been entirely responsible- the first one to test Yenching's ability to maintain successfully the original standard of the Premedical School. We have had our new plant to work with and try out - campus, buildings, equipment, courses and faculty. The physical features of this were far from finished at the beginning of the year, so that the work has been carried on under a real handicap. For instance, the gas plant is not yet finished and chemistry without gas would be considered almost impossible in America. The Biology Department had no running water until Christmas. But space, equipment, staff and students were our own and if we could make good under difficulties we should do much better in the future when these disappear.

Besides being a test of the new plant, 1926-27 has been a test of the effect on premedical students of the University atmosphere as against that of the small specialized, technical school. The premedical students have been part of a group of 600 students, very few of whom have had a professional outlook. They have even had science students other than premedical in their science classes. They have had a wide range of delightful cultural courses going on around them while they slaved in the laboratories. And they have been exposed to the whole gamut of extra-curricular activities of a modern University. Has this impaired their premedical training? Has this made them healthier individuals with broader interests? Only the facts of several years can answer these questions, but the facts for the year 1926-27 are encouraging and speak for themselves.

Students. The final test by which premedical work may be judged is the students - objectively, by their numbers and records and subjectively, by their enthusiasm for their own special studies and their loyalty to the institution. The members of last year's third year class were the last transfers from the P.U.M.C., having had one year in the Premedical School and one year in Lockhart Hall under Yenching teaching. Sixteen of this group stayed with Yenching and finished creditably. Three other students who had had three years at Yenching took the P.U.M.C. examinations and passed well, so that Yenching has sent 19 of the 24 students in the present first year medical class. We hear that those who took examinations to compete for scholarships and the three who were not transfers did us credit in the examinations. The second year premedical class for 1927 numbered only 14. They started work the fall after the closing of the Premedical School when people as yet had not much confidence in Yenching. But the first year premedical class started with 42; as many as 30 still held on by the end of the year and 25 have returned this year as second year students. The first year registration this fall is 20, even though the total freshman registration is exceptionally small because of unusual political and economic conditions. The premedical students still constitute about one fourth of the freshman class. Evidently the supply of premedical students is not going to fail.

But since numbers are not so important as quality it was very gratifying to find that the P.U.M.C. professors were satisfied with the results of the examinations given in August. Within the University we have found the premedical students a bulwark of strength, for the most part being students of good mentality with a professional outlook and anxious to do good work. Their enthusiasm for medicine has been expressed by the organization of a Premedical Club with a membership of over 50 which has met regularly twice a month to listen to some member of the P.U.M.C. staff lecture on some feature of medical work or some premedical problem. The members of this club have also been active in the work of a health center organized for the village of Chengfu which lies alongside the Yenching campus.

Science Departments. Such success as the above facts may indicate for this first year is due primarily to Yenching's science departments, their buildings, equipment, courses and staff. The premedical students spend a large part of their time in the two science buildings, one of which was the gift of the China Medical Board. These buildings have proved adequate for the work, with plenty of light and air. The three departments are near together, placed on two sides of one Chinese court with the library between them on the third side. However, the departments have also provided reading rooms in their own buildings so as to have the books alongside the laboratories and to encourgge students to read and work in groups which may enjoy discussing problems that arise in connection with their work.

The fundamental equipment was taken over from the P.U.M.C. but has had to be added to in order to provide for necessary University courses which are not distinctly premedical. For instance, the Biology Department prepares students for agriculture, leather tanning, home economics and nursing as well as medicine and tries to give a biological training as varied as possible to those who wish to major in this subject. Major students usually go into teaching or technical jobs.

Chemistry also offers courses for agriculture, home economics and nursing and has started a well organized course for leather tanning as the first of several industrial chemistry projects. But the fundamental courses have changed so little that the training is essentially what the old premedical students received. The transfer of several of the P.U.M.C. faculty to Yenching has secured continuity of method and plan.

Science Faculty. More important than buildings, equipment or curriculum for premedical work is the faculty. The Yenching science faculty is as good as any in China. More than half of them are Chinese, and a Chinese has just been elected chairman of the Biology Department. To indicate their calibre the following facts may be signicant.

In Biology, Mr. C.F. Wu, now chairman of the department, is a Ph.D. from Cornell, was head of the Biology Department of Soochow University for three years, built up the biological supply service inaugurated by the C.M.B., is now active in the Natural History Society in Peking and is throwing his energy into the task of identifying and classifying the invertebrates of China, especially insects.

Mr. K.Y. Lu of Grinell College is building up a Herbarium of local Flora. He has decided not to return to America for a higher degree at present as his absorbing interest is Chinese Flora and therefore he is

willing to sacrifice all the perquisites dependent on a Ph.D.degree even though he comes from an old and wealthy family and could easily indulge in any amount of graduate study.

Mr. J.C. Li is a young Ph.D. who was given the Zoology Graduate Fellowship at Columbia University ahead of ten Americans. He is interested in genetics and will furnish the experimental element in the department. His wife is also a biologist and very useful in the department.

Mr.T.Y. Chen is working for his Ph.D. at Columbia on a scholarship provided partly by the C.M.B. and partly by Yenching.

Miss A.M. Boring,Ph.D., is the only foreigner in the department. She organized it and got this Chinese staff together. Her 15 years of teaching in America adds an element of stability to the group.

All these people besides being good scientists are good teachers and the department has a splendid student morale. The general biology class has grown from 25 in 1925 to 63 in 1926 and 104 in 1927. The Biology Club has begun enthusiastic collecting. Some of the students took part in the mosquito and fly campaigns conducted last summer on the Yenching campus and vicinity by the P.U.M.C. and Yenching in cooperation. There are 17 students majoring in biology.

In Chemistry, Mr.S.D. Wilson, a Ph.D. from Chicago, is especially conversant with premedical work and premedical requirements as he has taught in the Premedical School of the P.U.M.C. all the years of its existence and has spent considerable time in America studying premediaal problems. He has now been made Advisor for the premedical students at Yenching so that every possible attention may be paid to planning schedules and offering encouragement to premedical students. His special fields are organic and physical chemistry. He has done considerable practical work in making coal and water analyses for P.U.M.C. and Yenching and occasionally for the Y.M.C.A. and several hospitals at Paotingfu and Cheefoo. He also is advisor on water softening at P.U.M.C.

Mr.E.O. Wilson, M.A. from Massachusetts Institute of Technology, is an industrial chemist and hopes to develop work in paper and vegetable oils as well as leather tanning. He has been a year and a half in America for special traihing and will return in February.

Mr. C.P. Tsao and Mr. T.C.Wang are both men who have been trained in the Yenching Department and are very good teachers. The department has a large number of students and these two men have carried a large share of the teaching burden. Mr. T.C. Wang was at Ohio State University for one year on a C.M.B. fellowship.

Miss Kao has just joined the department with an A.B. from Cornell and an M.A. from Columbia. Her specialty is food chemistry and she will take care of the Home Economics and prenursing girls, as well as helping with the organic classes. The chemistry department has 22 major students.

In Physics, Mr. P.A. Anderson, the present chairman of the department, is a Ph.D. from Harvard, worked a year at University College, London under Donnan, and two years in the Eastman Kodak Co. Research Laboratory. He is at present carrying out research on the standard electrode potentials, determination of heats of reaction by a new method, and the thermodynamics of the hydrogen electrode.

Mr.Y.M.Hsieh took his Ph.D. at Chicago after holding a C.M.B. fellowship for two years. He is an experienced teacher and with Mr. C.H. Corbett has written a textbook in particular to introduce Chinese students to the principles of physics. His field of research is light.

Mr.D.K. Yang,B.S. Yenching, is at present studying in Chicago on a C.M.B. fellowship and will return at the end of the year. He is an experienced teacher.

The Physics department while keeping up the standard of premedical physics in the narrow sense is making a special effort to interest its advanced students in original work and to develop the environment which only this type of teaching can supply. Though they are not specializing in physics, the premedical students have shown a marked interest in this research work and there seems to be cause for the belief that its reaction upon them will be a favorable one. The registration just completed shows nine new major students in Physics, the maximum in previous years being three.

Conclusion. These science departments and this scientific faculty form the basis of the Yenching premedical work. Judged by the number, quality and enthusiasm of the students, this first year of premedical work has been a success. Considering the real handicaps experienced this year, the premedical work should become still better. From the number of transfers from other institutions this fall, it begins to look as though students wanting to enter the P.U.M.C. were instinctively turning to Yenching for preparation. This is a real challenge to Yenching. The science faculty are all eager to meet it.

Alice M. Boring

YENCHING UNIVERSITY

Please put this sheet of information in a convenient place for consultation in time of illness.

Medical

The University provides free medical service by the University Physicians for all full time members of the staff including wives and children under the age of 22 living with them. When recommended by one of the University Physicians, the University will also be responsible for hospitalization under the following regulations :

(a) One of the University Physicians must be consulted and permission obtained before going to the Hospital

(b) The University pays Hospital fees up to P. U. M. C. rates as given below for staff members of instructor's rank* or higher :

Fees for Semi-private Ward Service

Deposit on Admission :— $100.00
Rooms :— Two patients in one room, $4.00 per day each (less $1.00 per day for food).
Professional service :— $20.00 per week or fraction of first week :
$3 per day for fraction of week thereafter
Laboratory examinations (blanket charge) :— $15.00
Operations :— Minor, $20.00 up
Major, $75.00 up
Operating Room Fee :— $15.00
X-rays :— $15.00 up

(c) Bills should be made out to and paid by the patient who will be reimbursed by the Treasurer after the bill has been approved by the University Physician from whom permission to go to the hospital was obtained.

(d) The University expects the individual concerned to pay for the following items.

(1) $1.00 per day for food (as mentioned above)
(2) Drugs, eyeglasses, etc.
(3) Ambulance

(e) The University refunds only P. U. M. C. Public Ward rates to employees not provided for in (b). As a rule, faculty children under nine years are also to go to the public ward. The University takes no responsibility for hospitalization of part time members of the staff or teachers in Fu Shu Hsueh Hsiao.

Fees for Public Ward Service

Deposit on Admission :— $25.00
Rooms :— $1.00 per day
Operating Room Fee :— $5.00

As a matter of information for members of the staff who desire more expensive service at the hospital the following rates are quoted though the University assumes no responsibility for refunding fees higher than the rates for Semi-private ward service.

Fees for Private Ward Service

Deposit on Admission :— $150.00
Rooms :— Single, $10.00 to $14.00 per day
Two patients in a room, $7.00 per day each
Professional service :— $30.00 per week or fraction of first week :
$5 per day for fraction of week thereafter
Laboratory examinations (blanket charge) :— $25.00
Operations :— Minor $ 25.00 up
Major $100.00 up
X-rays :— $20.00 up.

This information is correct in so far as we are able to ascertain at present but changes in rates may be made by the hospital at any time.

*Note :— Divisional Officers and Secretaries (salary range from $145-$205 per month) may enjoy the same privileges as Instructors.

December 1932.

THIRD ANNUAL REPORT

CERAMIC PROJECT

YENCHING UNIVERSITY

1936—1937

THIRD ANNUAL REPORT

CERAMIC PROJECT

1958–1959

YENCHING UNIVERSITY

CONTENTS

STAFF.

E. O. Wilson,	D. Sc.,	Director
C. C. Lin,	B. S.,	Consultant
S. M. Dean,	M. E.,	Advisor
J. B. Tayler,	M. S.,	Advisor
C. Y. Lin,	M. S.,	Research Associate
C. C. Chen,	B. S.,	Research Assistant

As much of the work planned involved semi-commercial scale production the number of skilled workmen was increased from two to four. The following constitute our production staff.

Pei Wen-ming,	Technician
Shen San-yang,	Potter
Liu So-pen,	Potter
Liu Yao-cheng,	Decorator

In connection with decorative designs applied to the experimental table ware we are greatly indebted to Mrs. E. O. Wilson and Miss Ch'en I (of the Yenching Home Economics Department). These ladies have supplied most of the designs used and have given valuable suggestions as to color combinations.

STUDENTS

Student interest in the Project has continued and increased during the year. Two graduate students have problems well underway. One of these has to do with plasticity and related properties of clay. Another deals with base exchange capacity. Problems undertaken by senior students include the following:

1. A Study of the Texture of Clays.
2. The Development of a White ware Body.
3. A Study of Matte and Majolica Glazes.
4. The Application of Enamels on Copper.
5. Clays Suitable for Oil Refining.

GENERAL.

The new laboratory building and coal fired test kiln are described in Report No. 2. Conctruction work was carried on during the summer and we were able to move into the new laboratory in September. All heavy equipment has been set up in this building. This includes crushing and grinding machinery, a mixer, ball mills, power driven jigger, a locally made kick wheel, two small test kilns (gas and oil fired respectively), a small fritting furnace, a coal fired test kiln. The finer work is still carried out in the main laboratories of the Chemistry building, which is equipped with electric furnaces, ovens etc. Some of this equipment is shown in the photographs attached to this report.

As stated in Report No. 2, the main objective of this year's work is the production of table ware on a semi-commercial scale. It is difficult to describe the

results obtained in a brief report. It would be more satisfactory to demonstrate to visitors at the laboratory through personal inspection. To a considerable extent this has been done as a large number of people have visited us during the year. Much interest has been expressed in the work that we are doing; we have had for more orders for goods than we can possibly fill with the size of equipment available. We have no intention to make the production of ware for sale an important part of the project. It is of considerable interest, however, to determine what types of ware can be sold. It has also been demonstrated that semi-commercial production, with a few sales, greatly stimulates the interest of the commercial potteries. It is expected that the commercial potteries will take over the production of any designs that show favorable possibilities.

We are now ready to proceed with the type of extension work contemplated when the project originated. Some work of this character has already been done:

Mr. Cha Liang-chow, vice president of the Western Hills Orphanage, has made arrangements for one of his potters to practice in our laboratory. He has been coming in one day each week for instruction.

Mr. Kao Chung-kwei is eastablishing a modern pottery at Chü-Yang. We have studied his raw materials. He has visited us several times and will make use of our results.

Mr. Wang Huan-yen, mine and pottery owner, will erect a modern fire brick factory and pottery on the narrow gange railway near Peng Cheng. He has recently visited our laboratory and we expect to cooperate further in the development of his enterprise.

Arrangements have just been completed for two of the smaller pottery owners at Peng Cheng to come to our laboratory for a brief intensive period of training. Instruction will be given in making molds, operating a jigger, and in compounding bodies and glazes. A hand power jigger is being built for their use. This machine will probably be shipped to Peng Cheng.

E. O. Wilson and C. Y. Lin have visited various research institutes in Nanking during the year. C. C. Lin and E. O. Wilson also visited the Ceramic laboratory of the Academia Sinica in Shanghai. In both Nanking and Shanghai much interest was expressed in our work. Willingness to cooperate was expressed and there did not seem to be any serious over lapping of interests. In some quarters it was suggested that we devote more time to refractories and to high temperature thermal insulators. We plan to initiate work of this kind next year if funds are available.

Lin Cho-yuan's departure.

Mr. C. Y. Lin, who has been working on the Project since 1934 will leave in July for a year's study in America. Mr. Lin has been unusually honored during the past year. For a paper on "Roofing Tile Glazes" he received from Mr. Yen Chih-yüo's memorial fund a prize of $100.00.

From the "China Foundation for the Promotion of Education and Culture" he has received a fellowship of $600. U. S. currency for study abroad. The Pennsylvania State College has also appointed him to a graduate assistantship in Ceramics with a stipend of $700.

This financial assistance will make it possible for Mr. Lin to continue his studies abroad and to return to China equipped for further important work in Ceramics. The University, and particularly the staff in Ceramics, wish him much success.

A request has just been received from the Department of Education of Fukien province, requesting that Mr. Lin visit Fukien in connection with certain important developments in Ceramics.

All of the above are very satisfactory endorsements of the work that we are doing and also indicate the growing interest in Ceramics in this country.

PLAN OF WORK.

The main purpose of the year's work may be included under three heads :

(a) **Semi-commercial scale production of articles, chiefly table ware.** The object of this work is to determine the practical workability of the bodies used when formed on a jigger, and especially to note the effects of firing in a coal fired kiln under conditions approximating those encountered in the large potteries. It was also thought that if goods could be produced on a large enough scale it would be possible to determine the market value of new designs. There is great need in many of the Chinese potteries for more care and improvement in the matter of design and decoration.

(b) **Continued research on raw materials and the development of new bodies and glazes.** It was planned to carry on with a flexible program of research along these lines, depending on the results obtained in (a) above and on the types of new raw materials made available.

(c) **Student research.** In addition to the work carried out by the staff plans were also made to utilize the work done by students in connection with their thesis problems. It will be understood that the problems undertaken under this heading are limited by the available equipment and by the background and previous training of the students.

SUMMARY.

(a) Semi-commercial development work.

Our attention was first directed to the production of ware made from the AJ_2 body, which is described in Report No. 2. This body when fired to cone 8-9 has a porosity of about 18% and, under a transparent glaze, a light buff color. This body proved to be workable on the jigger and no difficulty was experienced in casting. The color however has a tendency to go to grayish buff and considerable difficulty was

experienced with warpage. Tea sets, mugs, water pitchers etc. were made from this body. Various underglaze decorations were used. A brief description of the designs used will be given elsewhere in this report.

No difficulty was experienced in selling ware made from this body but considering the trouble with warpage and the fact that the color is somewhat "off" from the typical pale buff it was decided to try out a new body. The experiments leading up to the production of AQ body are given later in the form of tabulated data. This body contains 47% A clay, 1% Shan-tung (X_a) clay, 34% flint, and 18% feldspar. It differs from AJ_2 body in that H clay has been eliminated and a potash feldspar substituted for the albite (W. G.). The "A" clay is a flint fire clay of a rather pure kaolin type. It has been subjected to grinding and purification at Peng Cheng. This clay is rather non plastic, and to improve the plasticity of the mass a small amount of (X_a) Shan-tung clay was added. The Shantung clay is of the beidellite, montmorillonite type and has the valuable property of greatly improving the plasticity and binding power of bodies to which it is added.

From one to three percent seem adequate for this purpose. A detailed study of this clay, including thermal curve, analysis of the whole clay and fine fraction, particle size analysis etc. has been made. Results are reported in the data sheets.

The AQ body has been quite successful. Since this body has been so largely used in the laboratory this year and with such satisfactory results, a summary of its properties is included at this point.

Water of plasticity	28.05 %
Linear drying shrinkage	6.9 %

Cones	9	11	12
Porosity %	6.53	4.12	0.41
Firing shrinkage %	12.40	11.90	9.60
Transverse strength lbs./sq..in.	5940	4500	5600

The color is a very light buff, a decided improvement on the AJ_2 body. There has been very little trouble with warping over a range of cones 8 to 12. It is thought that the trouble of warping in the case of the AJ_2 body is caused by the use of the impure albite. Substitution of the purer potash feldspar eliminates this defect. The improvement in color is largely due to the elimination of H clay. Our experiments show that even small amounts of this clay tend to produce a grayish tint in partially vitrified bodies. Attempts to purify H clay by deflocculation and sedimentation have met with no success.

We are convinced that the AQ body, properly glazed and fired, would be commercially successful. A sufficient number of people have seen, bought and used this ware to confirm this opinion. The ware is strong and has a very attractive color.

Much of course depends on the designs and decorations used. We have no professional designer on our staff but the attempts that we have made have been very favorably received. One of our most popular patterns is an underglaze decoration using the Peach-blossom design, in dark brown and reddish brown. A bamboo design has also been quite popular.

We have probably carried experimentation with this body as far as possible with our present equipment, and should now like to see one of the commercial potteries take up the matter on a large scale. It is true that competition with cheaply produced porcelain will have to be met. Our experience indicates that there are large groups of people who prefer this type of ware, for ordinary use, to porcelain. The possibility of a foreign market should also be considered.

We have also conducted some experiments with raw materials from Chü-Yang (曲陽). Some interesting results have been secured which throw some light on our difficulty with color in the case of the Peng Cheng clays. From Chü Yang we have received two clay samples. Z clay is a fire clay of the kaolin type, the raw color is gray and the analysis and properties of this clay show that it is quite similar to the A clay from Peng Cheng. The R clay sample is a very dark, almost black, coal like shale. The chemical analysis is similar to Z clay except for a higher loss on ignition and the presence of only 0.06% of TiO_2 as compared with 0.93% in the case of Z clay. The abnormally high loss on ignition is due to the carbon content.

A body was made up as follows, R clay, 47%, flint 34%, feldspar 19%. It will be noted that this is the same as A Q body except for the substitution of R clay for A clay. This body was made into cups and fired to cone 8 in a muffle test kiln. The ware produced (under a transparent glaze) was a pure white, the first really white ware produced in this laboratory. It seems that the color must be due to the absence of TiO_2. The iron content of R clay is 1.73% Fe_2O_3 as compared with 0.93% in A clay, while respective TiO_2 contents are 0.06 for R and 0.89 for A. As a confirmatory test we repeated the experiment with the R clay body adding 0.5% of TiO_2 as rutile. This gave about the same TiO_2 content as with the A clay mixture. The fired color with the R clay mix containing TiO_2 was again a grayish buff similar to that of the AJ_2 body.

This experiment indicates that the fired color of the Peng Cheng clays, which all carry about one percent of TiO_2, is very largely due to their content of Titania. Further experiments should be made along this line as the matter is of much importance.

It should be mentioned that the AR_2 body when fired to cone 12 is not only white but also translucent, indicating that it can be used in porcelain bodies. On the other hand thick test bars of the material fail to burn out white due to black carbon spots that remain unoxidized. The clay cannot be used alone as it cracks badly on firing. No trouble with cracking was experienced with the clay, spar, flint mixture. The R clay is not very plastic and for practical uses needs to be purified and aged. The addition of one or two percent of the Shantung X clay would probably promote plasticity but we have had no time to test this point.

(b) Research on raw materials. Development of new bodies and glazes.

Some of this work has been mentioned above. Thermal analyses have been made of the two samples of Chü Yang clay (R and Z), of Shan-tung (Xa) and of a new sample from Tang Shan (Y). The method used is the same as was described in the previous report.(1)

Chemical analyses were also made of these clays and of two feldspars. One sample from Chü Yang and one from Chee Hsin (Tang Shan). Thin sections of the Chü Yang spar were also examined under the polarizing microscope. Two samples were taken from the same bag. One proved to be albite and the other orthoclase. The analysis also would indicate that both orthoclase and albite are present. Accurate P.C.E. tests were not made but cones placed in the muffle kiln and fired to cones 8 and 10 showed no deformation. At cone 12 both the Chü Yang and Tang Shan spars were melted to a clear white mass. The Chü Yang spar was not as white in the fired state as the Tang Shan spar. It is probable that the latter spar has been more carefully selected. It will be recalled that the Peng Cheng W.G. albite spar melts at about cone 7.

The physical properties of the above new clay samples have been determined and experimental bodies of various compositions made up and fired. The numerical data are given elsewhere in this report. The most satisfactory results, from the viewpoint of table ware production, were given by the AQ body.

A considerable amount of time was spent in the development of underglaze and overglaze colors. The formulas for some of these are given in the following pages. In our experimental laboratory we heve limited ourselves to rather simple designs, and have used chiefly underglaze decoration.

We have successfully prepared a number of overglaze colors, including red, blue, green, black, and yellow. These have been applied to glazed tile for experimental pruposes, but not to any manufactured articles. We would like to report at this point our plea for a cooperative effort between technicians and artists in the matter of ceramic design and decoration.

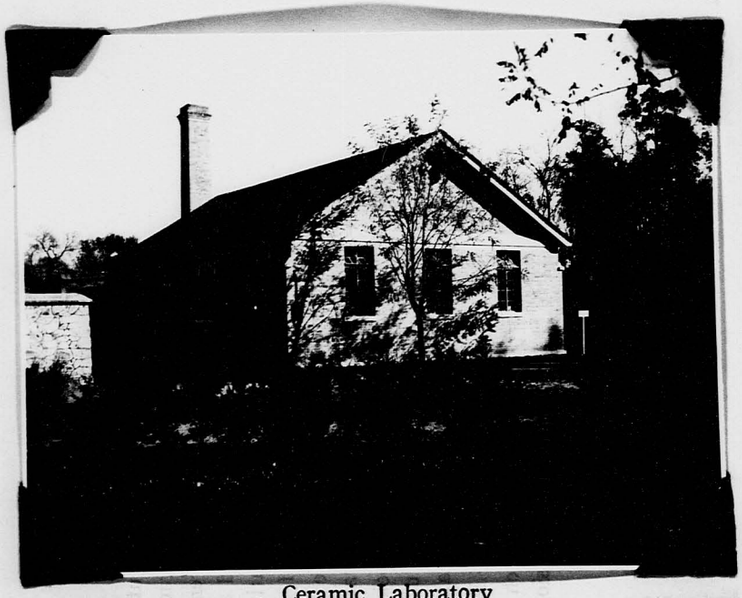
The topics undertaken by students have been listed in the introduction. Space does not permit a detailed discussion of their work.

An apparatus was constructed for the determination of plasticity by a torsion method. This apparatus is similar to that described by E. O. Wilson (2), except that larger specimens were used and certain minor changes were made in the design. A large number of clays and ceramic bodies were tested with this apparatus. Certain related properties were also determined. The results are tabulated in the following pages and representative curves are given. The plasticity curves are autographic stress strain diagrams. The slight plasticity of A clay is shown by the absence of a yield

(1) Second Annual Report, page 4.
(2) Jour. Amer. Ceram. Soc., Vol. 19. No. 4., pg. 115.

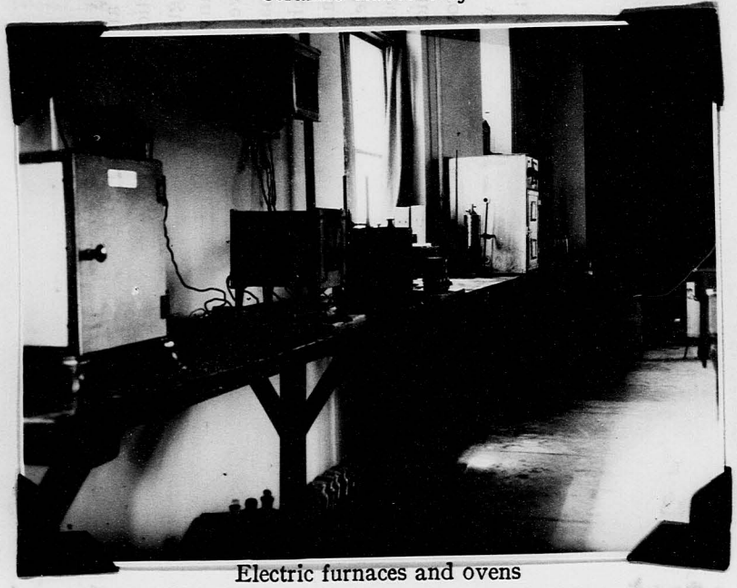
point as compared with the decided yield point and long period of angular deformation of Xa clay. W clay, from Fang Shan, has practically no plasticity. The results show a linear relationship between dry transverse strength and base exchange capacity. No such relationship is obvious between plasticity and any one other property. The apparatus has practical usefulness in testing the relative plasticity of clays and their binding power. The Xa clay from Shan-tung is of particular interest as it may be used in small quantities to promote plasticity. The chemical analyses of raw clay and of a refined fraction are give. The rational analysis is also calculated Petrographic studies showed the material to be of the beidellite, montmorillonite type. The Tzü-hsien clays are also of this type and may be used as adsorbents for the decolorization of oils. We have not tried to add them to ceramic bodies. It is possible that this could be done if the rather dark fired color did not prove objectionable.

It is expected that some of the research work done by students will be reported in the technical journals. No further discussion can be included here.

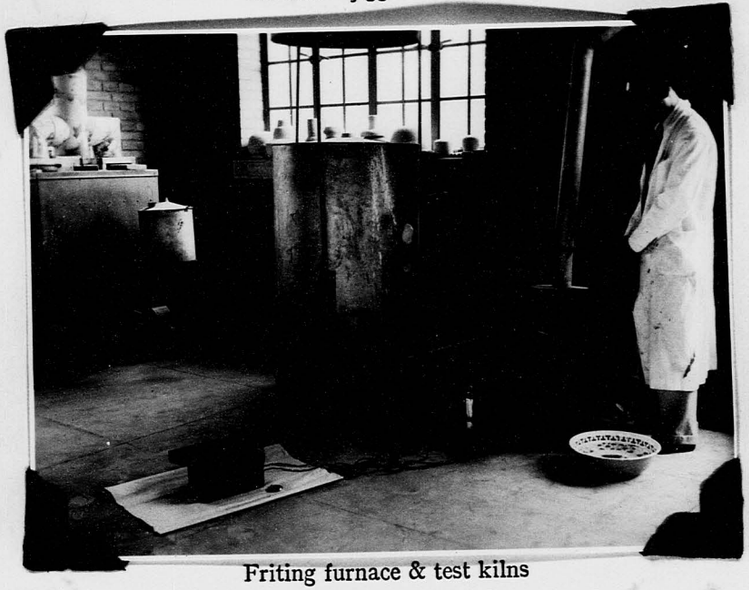


Ceramic Laboratory

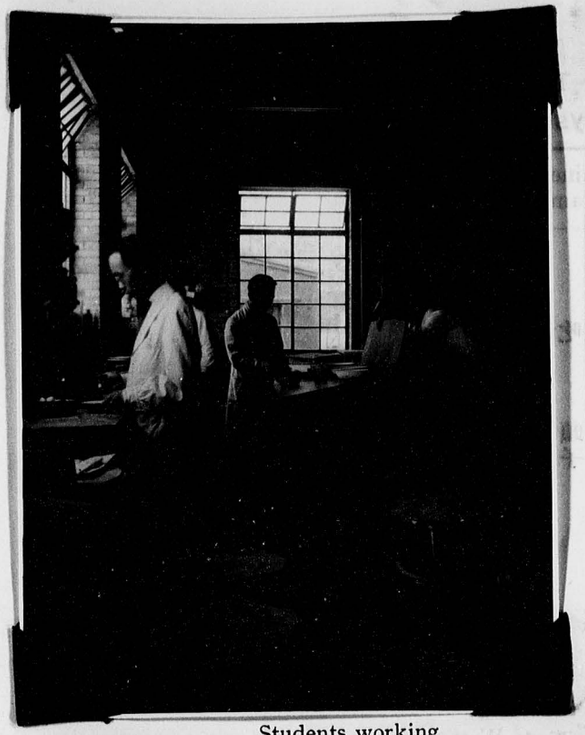
Interior—jigger & wheel



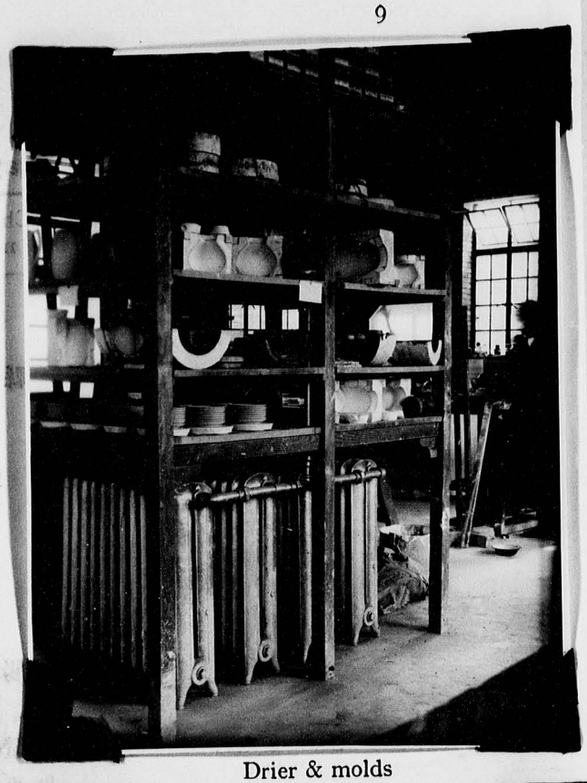
Electric furnaces and ovens



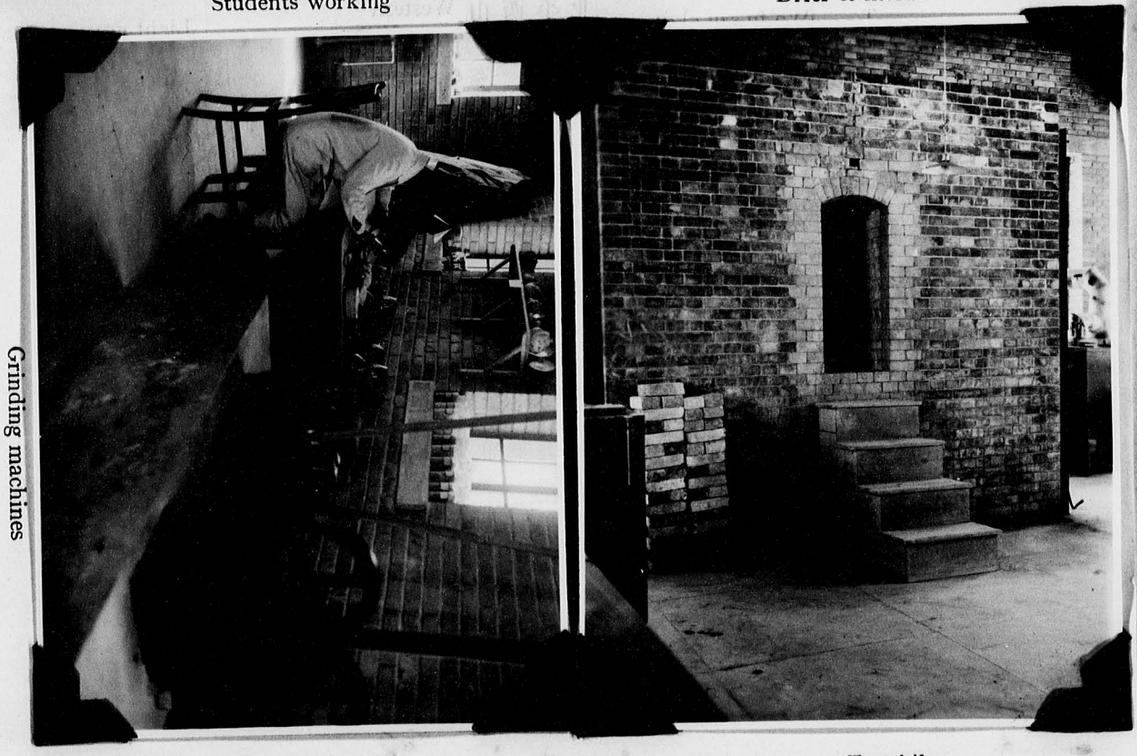
Friting furnace & test kilns



Students working



Drier & molds



Grinding machines

Test kiln

TABLE I
A list of clays and other materials

Symbol	Name	Chinese name	Source	Price (per 100 catties)	Remarks
A	Pei-chien	白城	Pengcheng	$1.00	Purified
BW	Tzu Hsien white clay	磁縣吃油紙	Tzu Hsien		
Bp or T.H.	Tzu Hsien pink clay				
C	Pei-tu	白土	Pengcheng	$0.10	
G	Kan-tze-tu	門頭溝干子土	Mentoukou		
H	Tsing-tu	青土	Pengcheng	$0.35	
I	Chien-tze	城子	,,	$0.25	Gray shale
R	Chuyang black clay	曲陽褐土	Chuyang	$1.71	Very dark coal-like shale
S	Benbitien clay	半壁店土	Benbitien		
T	Wo-fu-szu clay	北平西山臥佛寺土	Western Hills		Light gray
U	Pa-ta-chu clay	八大處土	,,		Light yellow
V	Mentoutsen clay	門頭村土	,,		Red
W	Fangshan clay	房山土	Fangshan		
Xa	Shangtung clay	山東土	Yentai	$0.40	Gray
Y	Tangshan clay	唐山干子	Tangshan		Purplish gray
Z	Chuyang clay	曲陽白土	Chuyang		
WG	White glaze	彭城白釉	Pengcheng	$1.80	
T.P.S.	Tsiao Pao Shih	博山焦寶石	Poshan Shantung		
C.Y.F.	Chuyang spar	曲陽長石	Chuyang		
C.H.F.	Chee Hsin spar	敞新長石			
T.S.F.	Te Shen spar	德盛長石			
P.T.F.	Peitaiho spar	北戴河長石	Paitaiho		

TABLE II

Chemical Analyses

Dry basis

	R clay %	Y clay %	Z clay %	Chuyang spar %	Chee Hsin spar %
Loss on ignition	16.38	15 99	13.54	0.27	0.45
Silica	44.30	40.05	45.12	63.97	62.19
Fe_2O_3	1.73	1.58	1.46	2.24	0.72
TiO_2	0.06	0.70	0.93		
Al_2O_3	35.03	38.51	35.67	17.65	23.43
Cao	0.75	1.01	0.42	0.31	0.45
Mgo	0.28	1.19	0.91	0.49	1.97
K_2O	1.26		1.34	11.84	7.19
Na_2O	0.21		0 43	2.90	2.52
Total	100.00	99.03	99.82	99.67	98.92

	A Clay %	H clay %	Xa clay %	Xa clay Purified %
Loss on ignition	13.40	6.88	3.43	5.65
Silica	44.70	63.60	73.47	69.43
Fe_2O_3	0.93	0.59	1.06	1.42
Tio	0.89	0.77	0.27	
Al_2O_3	37.21	25.49	16.46	18.27
Cao	0.72	0.39	0.59	0.83
Mgo	1.08	0.91	1.06	0 42
Ko	1.14	1.43	3.83	2.27
Nao	0.26	0.45	1.04	1.66
So_3	0.49	0.64		
Total	100.82	101.15	101.21	99.95

Table III gives the data obtained on clays and bodies tested on the torsion plasticity apparatus. The data in columns 7, 8, and 9 are taken directly from the stress strain diagrams. For example, clay A has a maximum strength at fracture of 11.9 X 10^2 gm. cm., the angle of deformation is 127.2 degrees and the area under the curve is 95 sq. cm. Plasticity is proportional to the angle of twist and also to the area under the curve. The more plastic clays such as X and TH also show a definite yield point. Samples of a few of the plasticity curves are shown in the following pages. A curve is also given showing a linear relation between base exchange capacity and dry transverse strength.

The columns headed effect of water and effect of particle size give data for a detailed study of clay A. Plasticity increases with increasing water content to a certain maximum value and then decreases. The finer fractions have a greater plasticity than the coarser fractions but best results are obtained by a mixture of coarse and fine particles.

TABLE III.

Some properties of clays.

Material	Water of Plasticity (%)	Pore water (%)	Dry volume shrinkage (%)	Dry linear shrinkage (%)	Water film thickness cm x 10^{-5})	Max. strength (g – cm. x 10^{-2})	Angle of twist (degree)
A	25.93	18.53	13.03	4.16	1.06	11.9	127 2
C	23.29	13.86	17.60	5.51	2.03	6.9	150.2
H	24.94	15.83	17.05	5.38	1.85	7.1	159.0
V	33.92	13.39	40.81	12.08	3.10	5.4	161.5
TH	49.28	28 76	29.90	9.11	0.39	6.3	188.0
W	34.73	28.55	9.10	2.96	1.90	2.9	60.5
X	25.16	9.11	33.87	10.18	2.40	5.9	157.7
T.P.S.	19.51	13.62	11.20	3.60	——	3.5	32.8
Y	28.93	19.20	17.00	5.35	1.15	10.8	105.8
AJ_2	24.84	16.73	14.53	4.61	——	5.5	84.6
AQ_1*	25.14	18.74	11.15	3.67	——	7.7	55.5
AQ_2	25.87	18.95	11.97	3.85	——	7.9	88.6
AQ_3	26.55	19.26	12.55	4.02	——	7.2	90.3

* Clay mixtures $AQ_{1,2,3}$ contain 1,2, and 3% of Xa clay respectively.

See page 16 for composition AQ.

TABLE III (*Continued*)

Area under curve (cm^2)	Dry Porosity (%)	Dry Transverse strength (kg/cm^2)	True sp. gr.	Average Particle size (dia. cm x 10^{-4})	Base Exchange capacity (milliequivalent at pH = 7)
95.0	32.15	13.63	2.60	6 00 (2.68)*	0.020
66.2	24.93	15.38	2.66	8.5 (3.32)*	—
78.3	26.76	15.45	2.68	8.0	0.025
66.0	24.57	94 63	2.78	6.0	0.150
83.6	41.52	37.80	2.61	1.0	0.110
10.5	36.75	7.88	2.65	15.0 (5.24)*	—
76.8	13.33	94.40	2.62	5.5	0.190
6.7	24.52	—	2.60	—	—
74.9	32 51	25.14	2.58	5.0	—
22.4	26.61	11.61	2.66	—	—
26.8	31.12	—	—	—	—
35.8	32.28	—	—	—	—
35.4	33.00	—	—	—	—

TABLE III

Symbol	A. Effect of Water				B. Effect of Particle Size			
	A1	A2	A3	A4	AI	AII	AIII	AIV
Water content (%)	30.45	26.83	25.93	23.76	51.84	32.42	35.10	21.31
Average Particle size (dia. cm. x 10^{-4})					2.17	2.26	2.80	3.32
Pore water (%)	19.14	18.63	18.53	17.69	36.53	24.32	24.93	16.43
Dry volume shrinkage (%)	19.80	14.51	13.03	10.80	20.18	14.02	15.74	9 00
Dry linear shrinkage (%)	6.17	4.60	4.16	3.49	6.29	4.47	4.97	2.95
Max. strength (g-cm x 10^2)	6.6	8.7	11.9	13.3	6.4	11.5	9.0	10.3
Angle of twist (degree)	131.1	117.4	127.2	108.2	116.0	92.0	74.0	54.7
Area under curve (cm^2)	52.1	68.9	95.0	85.6	56.4	54.7	41.1	34.7
Dry Porosity (%)	33.70	32.13	32.15	30.40	49.54	37.81	38.56	27.98
Dry transverse strength (kg/cm^2)	11.22	13.94	13.63	11.17	—	—	—	—

* Determined by the heamcytometer method, assuming particles spherical in shape.

Experiments with A clay and Chuyang (Z) clay

Material \ Serial No.	AL_1	AL_2	AL_3	AL_4	AL_5	AL_6	AL_7	AL_8	AL_9	AL_{10}	AL_{11}	AL_{12}
Chee Hsin spar	16	18	20	16	18	20						
Te-shen spar							16	18	20	10	10	15
WG										6	8	5
A clay	45	45	45				45	45	45	45	45	45
Chuyang clay (Z)				45	45	45						
Flint	37	37	37	37	37	35	37	37	35	37	37	35
Whiting	2			2			2			2		

	AL_{13}	AL_{14}	AL_{15}	AL_{16}	AL_{17}	AL_{18}	AL_{19}	AL_{20}	AL_{21}	AL_{22}	AL_{23}	AL_{24}
Chee Hsin spar												
Te-shen spar	16	18	20	25	30	35	25	30	35	25	30	35
WG												
A clay	22.5	22.5	22.5	50	50	50				25	25	25
Chuyang clay (Z)	22.5	22.5	22.5				50	50	50	25	25	25
Flint	37	37	35	25	20	15	25	20	15	25	20	15
Whiting	2											

Series AM

	AM_1	AM_2	AM_3	AM_4	AM_5	AM_6	AM_7
H clay	10	10	10	10	10	10	5
A clay	40	40	40	40	40	40	45
Te-shen spar	20		10	15	5	15	15
Chee-Hsin spar		20					
WG			10	5	15	10	10
Flint	30	30	30	30	30	25	25

Series AN

	AN_1	AN_2	AN_3
A clay (purified)	50	50	50
Flint	30	25	20
Chee-Hsin spar	20	25	30

Results: Series AL, AM and AN
Fired to cone 11.

Mark	% Porosity	Color	Mark	% Porosity	Color
AL_1	1.06	Very light buff	AL_{20}	0	Buff
AL_2	0	,, ,, ,,	AL_{21}	0	,,
AL_3	0	,, ,, ,,	AL_{22}	0	,,
AL_4	0	Light buff	AL_{23}	0	,,
AL_5	0	,, ,,	AL_{24}	0	,,
AL_6	0	,, ,,			
AL_7	0.70	Very light buff			
AL_8	0.60	,, ,, ,,	AM_1	0	Buff
AL_9	0	,, ,, ,,	AM_2	0	,,
AL_{10}	0	Light buff	AM_3	0	,,
AL_{11}	0	,, ,,	AM_4	0	,,
AL_{12}	0	,, ,,	AM_5	0	,,
AL_{13}	0.77	,, ,,	AM_6	0	,,
AL_{14}	0.28	,, ,,	AM_7	0	,,
AL_{15}	0	,, ,,			
AL_{16}	0	,, ,,			
AL_{17}	0	,, ,,	AN_1	0	Buff
AL_{18}	0	Buff	AN_2	0	,,
AL_{19}	0	,,	AN_3	0	,,

Experiments with Chuyang (Z) clay, Tangshan (Y) clay and Shantung (Xa) clay

A. Plastic properties

	Chuyang Z	Tangshan Y	Shantung Xa
Raw color	Yellowish white	Purplish gray	Gray
Water of plasticity %	29.70	30.50	20.50
Drying linear shrinkage %	7.35	7.85	9.62

B. Results of firing at cone 9.

Porosity %	27.47	18.25	9.14
Firing linear shrinkage %	7.71	11.42	3.28
Transverse strength lbs/in^2	345	728	2620
Color	Yellowish white	Yellowish white	Yellowsih gray

C. Results of firing at cone 11.

Porosity %	29.40	20.50	9.42
Firing linear shrinkage %	8.20	11.60	1.90
Transverse strength lbs/in^2	300	383	2590
Color	Yellowish white	Yellowish white	Yellowish gray

Experiments with A clay, Shantung Xa clay, Tehsheng feldspar.

Series AQ—Body compositions.

	AQ_1	AQ_2	AQ_3
A clay	47	46	45
Shantung clay	1	2	3
Flint	34	34	34
Feldspar	18	18	18
	100	100	100

Properties

	AQ_1	AQ_2	AQ_3
Water of plasticity %	28.05	28.30	26.95
Drying linear shrinkage %	6.90	5.65	7.51

Results of firing at cone 9.

Porosity %	6.53	3.88	6.72
Firing linear shrinkage %	12.40	11.62	10.55
Transverse strength lbs/in²	5,940	5,610	6,850
Color	Very light buff	Very light buff	Very light buff

Results of firing at cone 11.

Porosity %	4.12	6.44	4.63
Firing linear shrinkage %	11.90	10.60	11.00
Transverse strength lbs/in²	4,500	4,090	5,010
Color	Very light buff	Very light buff	Very light buff

Results of firing at cone 12.

Porosity %	0.41	0	0
Firing linear shrinkage %	9.60	13.10	10.30
Transverse strength lbs/in²	5,600	5,700	7,040
Color	Very light buff	Very light buff	Very light buff

Cone fusion tests with feldspars.

Test cones were made of Chuyang, Chee Hsin, and Teh Shen feldspars. These were fired in a gas fired muffle kiln at cones 8, 10, and 12. No deformation of the cones occurred at cones 8 or 10. When fired to cone 12 in 15.5 hours all three spars were fused. The Teh Shen spar had the best color, the Chuyang spar showing a grayish tint.

Chyuang gray clay (R) and Teh Shen feldspar

Body compositions.

	AR_2	AR_3	AR_4
R clay	47	46	46.0
Flint	34	30	29.5
Feldspar	19	14	24.0
TiO_2			0.5
	100	100	100.0

Tea cups were made from the above bodies and fired in a muffle kiln to cone 8.

AR_2 and AR_3—very white, slightly translucent.

AR_4—grayish buff.

Experiment with purified H clay

H clay was purified by adding 0.25 % Na_2CO_3 and blunging for half an hour. The supernatent slip was then decanted off, flocculated and dried (yield 86.5 %).

Composition of body.	AR_1
A clay	26
Purified H clay	25
Teh Shen spar	14
Shantung clay	2
Flint	33
Total	100

Properties

Water of plasticity 29.45 %
Drying linear shrinkage 7.50 %
Results when fired at cone 9.
Porosity 0 %
Firing linear shrinkage 10.50 %
Transverse strength 5,405 lbs/in^2
Color grayish white

Results when fired at cone 11.
Porosity 7. 93 %
Firing linear shrinkage 9 90 %
Transverse strength 4,520 lbs/in^2
Color grayish

Experiments on color-improvement. A high grade feldspar obtained from the Chee Hsin pottery was used.

Compositions of bodies.

	AA_4	AA_5	AA_6	AA_7
A clay	40	40	40	20
Flint	40	20	0	40
Feldspar (Cnee Hsin)	20	40	60	40

	AB_4	AB_5	AB_6
A clay	40	40	20
Flint	20	0	40
Feldspar (Chee Hsin)	20	30	20
WG	20	30	20

	AC_3	AC_4	AC_5	AC_6	AC_7
H clay	60	40	40	40	20
Flint	0	40	20	0	40
Feldspar (Chee Hsin)	40	20	40	60	40

	AJ_4	HL	AK_1	AK	AK_3
A clay	25	35	77	74	70
Feldspar (Chee Hsin)	20	35	23	26	30
H clay	25	20			
Flint	30	10			

Firing results (cone 8)

	% porosity	Color
AA_4	7.82	Light buff
AA_5	12.30	,, ,,
AA_6	14.23	,, ,,
AA_7	21.20	,, ,,
AB_4	21.50	Yellowish white
AB_5	15.05	,, ,,
AB_6	15.60	,, ,,
AC_3	15.20	Gray
AC_4	6.92	,,
AC_5	0.28	,,
AC_6	2.06	,,
AC_7	17.90	Light buff

	% porosity	Color
AJ_4	4.16	Cream
HL	6.12	Gray
AK_1	4.11	Yellowish white
AK_2	0.00	,, ,,
AK_3	0.00	,, ,,

The feldspathic glaze MI_6 was applied to most of the ware produced during the year. This glaze may be used on either AJ_2 or AQ bodies. The molecular formula and batch weights are given below. The glaze matures at cones 8 – 10.

Formula :

$$\left.\begin{matrix}0.064\ K_2O\\0.292\ Na_2O\\0.580\ CaO\\0.064\ MgO\end{matrix}\right\}\ 0\ 543\ Al_2O_3\ \left\{\begin{matrix}\\3.85\ SiO_2\\\\\end{matrix}\right.$$

Batch :

Tang Shan feldspar	17.8
W. G. feldspar	49.0
Flint	15.2
Whiting	13.4
A—Clay	4.6

Lead Glazes.

A few of the lead glazes used during the year will be described.

Glaze E_{60}

Base glaze, molecular formula

$$\left.\begin{matrix}.05\ K_2O\\.15\ CaO\\.80\ PbO\end{matrix}\right\}\ 0\ 12\ Al_2O_3\ \left\{\begin{matrix}\\1.0\ SiO_2\\\\\end{matrix}\right.$$

Batch	
Feldspar	28
$CaCO_3$	15
PbO	179
A—Clay	18
Flint	20

The above glaze matures at cone 08. It was applied to tiles made from H clay and AJ body, previously biscuited to cone 8.

A satisfactory yellow glaze was made by adding 2% of antimony oxide to the above base glaze.

Glaze E_{61}

Base glaze

$$\left.\begin{matrix}0.20\ K_2O\\0.30\ Na_2O\\0.50\ PbO\end{matrix}\right\}\ \left.\begin{matrix}0.257\ Al_2O_3\\0.400\ B_2O_3\end{matrix}\right\}\ 2.1\ SiO_2$$

Frit

$$\begin{matrix}0.217\ K_2O\\0.335\ Na_2O\\0.448\ PbO\end{matrix}\quad\begin{matrix}0.217\ Al_2O_3\\0.448\ B_2O_3\end{matrix}\quad 1.67\ SiO_2$$

Frit batch		*Glaze batch*	
Feldspar	122	Frit	80
Flint	22.2	A-clay	4.5
Borax	85.7	Pb_3O_4	6.9
Pb_3O_4	103.0	Flint	8.6
Na_2CO_3	11.8		

Glaze E_{61} matures at cone 07, with 5% of antimony oxide an excellent yellow was obtained. The glaze is glossy, of good color, and did not craze when applied to AJ_2 body.

Glaze K_{167}.

$$\left.\begin{matrix}0.044\ KNaO\\0.605\ PbO\\0.176\ CaO\\0.044\ BaO\\0.131\ ZnO\end{matrix}\right\} 0.132\ Al_2O_3 \left\{\begin{matrix}1.76\ SiO_2\\.055\ SnO_2\end{matrix}\right.$$

Batch %	
W. G. spar	9.00
A clay	8.40
Red Lead	49.14
Whiting	5.45
Barium Carbonate	3.15
Flint	18.10
Tin Oxide	2.92

Glaze K_{168}

$$\left.\begin{matrix}0.050\ KNaO\\0.685\ PbO\\0.200\ CaO\\0.050\ BaO\\0.279\ ZnO\end{matrix}\right\} 0.15\ Al_2O_3 \left\{\begin{matrix}2.00\ SiO_2\\.062\ SnO_2\end{matrix}\right.$$

Batch %	
W. G. spar	8.80
A clay	8.15
Red Lead	47.70
Whiting	5.30
Zinc Oxide	6.50
Barium Carbonate	3.06
Flint	17.65
Tin Oxide	2.84

The above glazes mature at cone 02.

The gloss is excellent and no trouble was experienced with crazing.

Three percent of copper oxide with either of the above glazes gives a good green.

Underglazes

10 Dark brown

Pure ferric oxide	80.0
,, chromic oxide	76.2
,, alumina	206.0
Total	362.2

11 Red-brown

Pure ferric oxide	80.0
,, chromic oxide	76.2
,, zinc oxide	194.4
Total	350.6

Underglazes (*continued*)

# 12 Light-reddish-brown	
Pure ferric oxide	80.0
,, chromic oxide	76.2
,, alumina	51.5
,, zinc oxide	243.0
Total	450.7

The above stains were ground dry and calcined to about 1000°C.. After adding 20% of glaze MI_6 the material was ground wet in a ball mill for three hours and they passed through a 200-mesh sieve. Soluble salts were removed by washing.

The above underglazes mature at cones 8—10 and give a very pleasing effect under the MI_6 glaze. A combination of 10 and 12 were used on the peach blossom design.

Underglazes (*continued*)

# 13 Banding blue		
CoO	30.0	(or Co_2O_3 33.1)
$CaCO_3$	28.0	
SiO_2	20.0	
White Lead	22.0	
Total.	100.0	
# 14 Blue		
CoO	12.0	
ZnO	44.0	
A clay	44.0	
Total	100.0	
# 15 Medium blue		
Cobaltous phosphate	10.0	(or Co_2O_3 6.8)
Alumina	50.0	
ZnO	35.0	
Total	95.0	

Added 20% MI_6 to the mixtures. Ground wet for 1 hour, dried and calcined (#13 to cone 10, #14 and #15 to cone 8). Ground wet for 8 hours, washed and dried.

Firing results (cone 8): All good blue.

Underglazes (*continued*)

	# 16	# 17	# 18
Chromic oxide	20	25	28
Cobalt oxide	10	5	2
Zinc oxide	15	15	15
Borax	20	20	20
Flint	35	35	35
Total	100	100	100

Calcined to 1000°C., ground for four hours and passed through a 200-mesh sieve.

Firing results = (cone 9) All good bluish green

# 19	German	U 98	yellow	+ 20% MI_6
# 20	,,	U 7	Rose strong	,, ,, ,,
# 21	,,	U 60	Celadon	,, ,, ,,
# 22	,,	U 82	Victoria green	,, ,, ,,
# 23	,,	U 87	Dark brown	,, ,, ,,

# 24	Chrome oxide	23.1	
	Flint	76.0	+ 20% MI_6
	Whiting	0.9	
# 25	chrome oxide	24.5	+ 20% MI_6
	Feldspar	10.2	
	Flint	65.3	
# 26	Chrome oxide	25.00	
	Cobalt oxide	4.17	
	Zinc oxide	8.34	
	Whiting	12.50	
	Borax	8.34	
	Flint	41.65	

Firing results: (cone 9) #19 color too light; #20 good, if not too thick; #21 good; #22 good green; #23 good brown; #24 grayish green; #25 grayish green; #26 greenish blue.

Overglazes

1. Black (Seger's)

Color		Flux	
$CuSO_4$	35	Quartz	22
$MnSO_4$	40	Red Lead	67
$CoSO_4$	25	Borax	11

The color was prepared by dissolving the ingredients in water, the solution was then made alkaline with Na_2CO_3, the precipitate which forms was filtered off and ignited at a dull red heat.

The flux was prepared by fritting in the usual way.

Twenty parts of color and eighty parts of flux were mixed with thick oil and turpentine. The maturing temperature is 770°C.

2. Copper green.

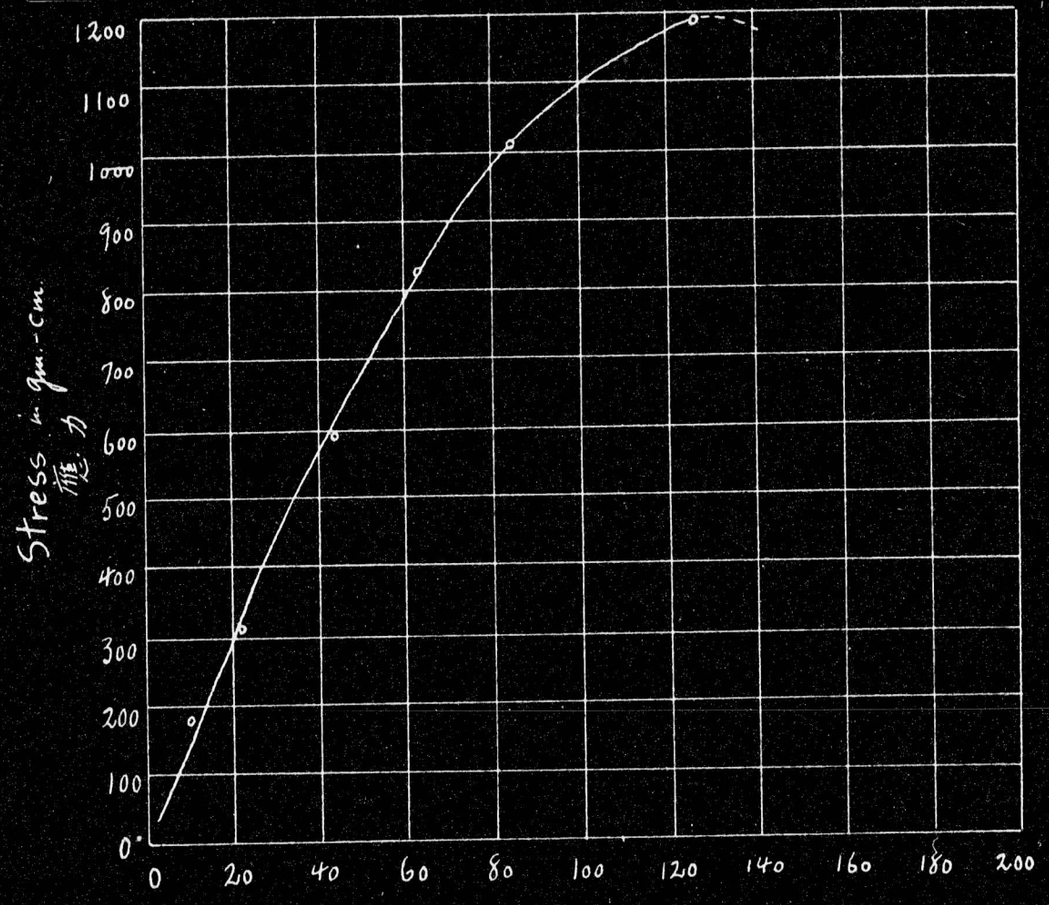
Color : Copper oxide

Flux :		Batch :	
.484 PbO	.920 SiO	Red Lead	114.0
.183 NaO	.548 BO_3	Fused borax	37.5
.333 RO		Boric acid	22.5
		Flint	55.9

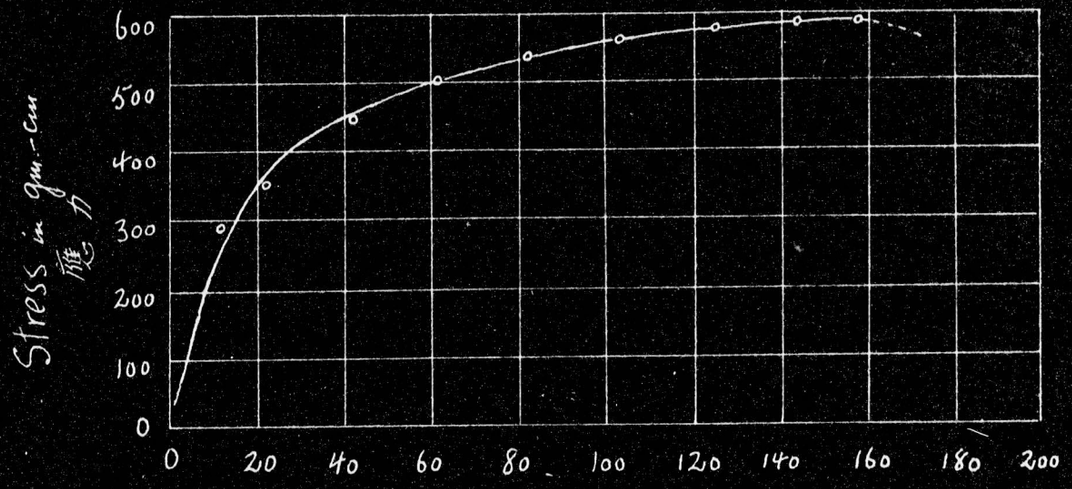
Five parts of color with nintyfive parts of flux gave a good green when fired at 820°C.

3. Blue, yellow, brown and red over glaze colors have also been prepared, using standard formulas. Little use has been made of the overglaze decoration up to the present time.

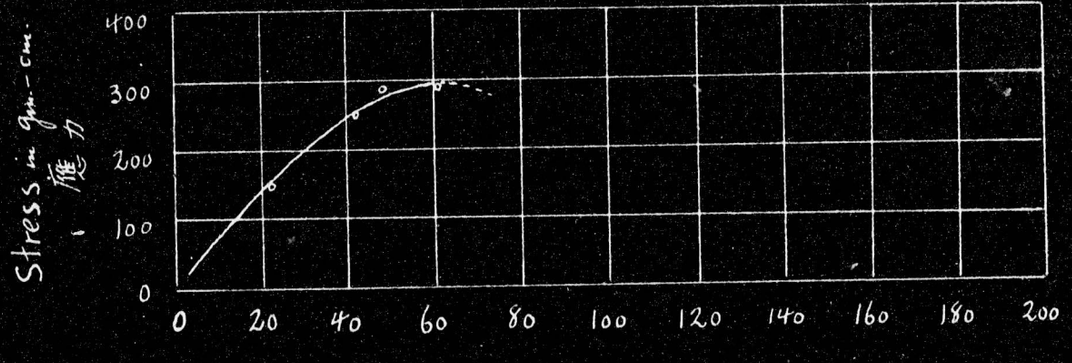
A clay



Xa clay

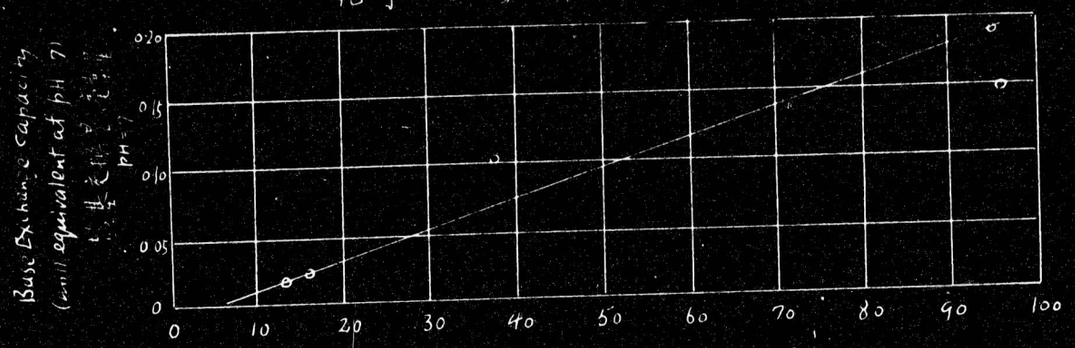


W clay



Relation Between Dry Transverse Strength and Base Exchange Capacity

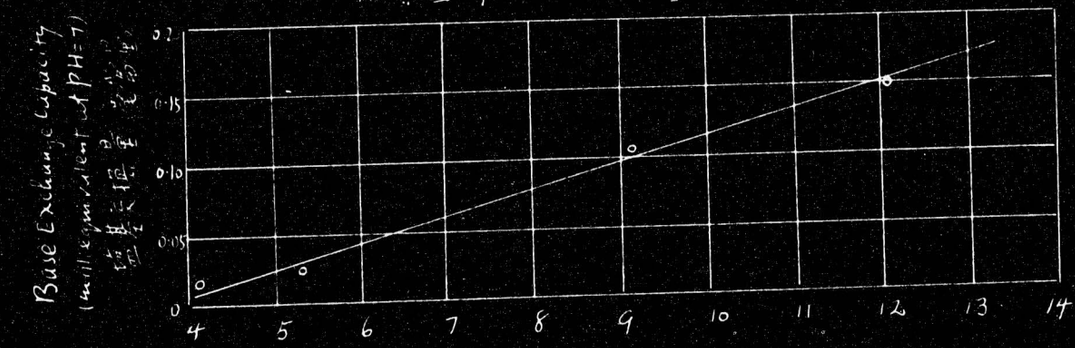
乾燥[illegible]與鹽基交換量之關係



乾燥橫斷強度

Relation Between Dry Linear Shrinkage and Base Exchange Capacity

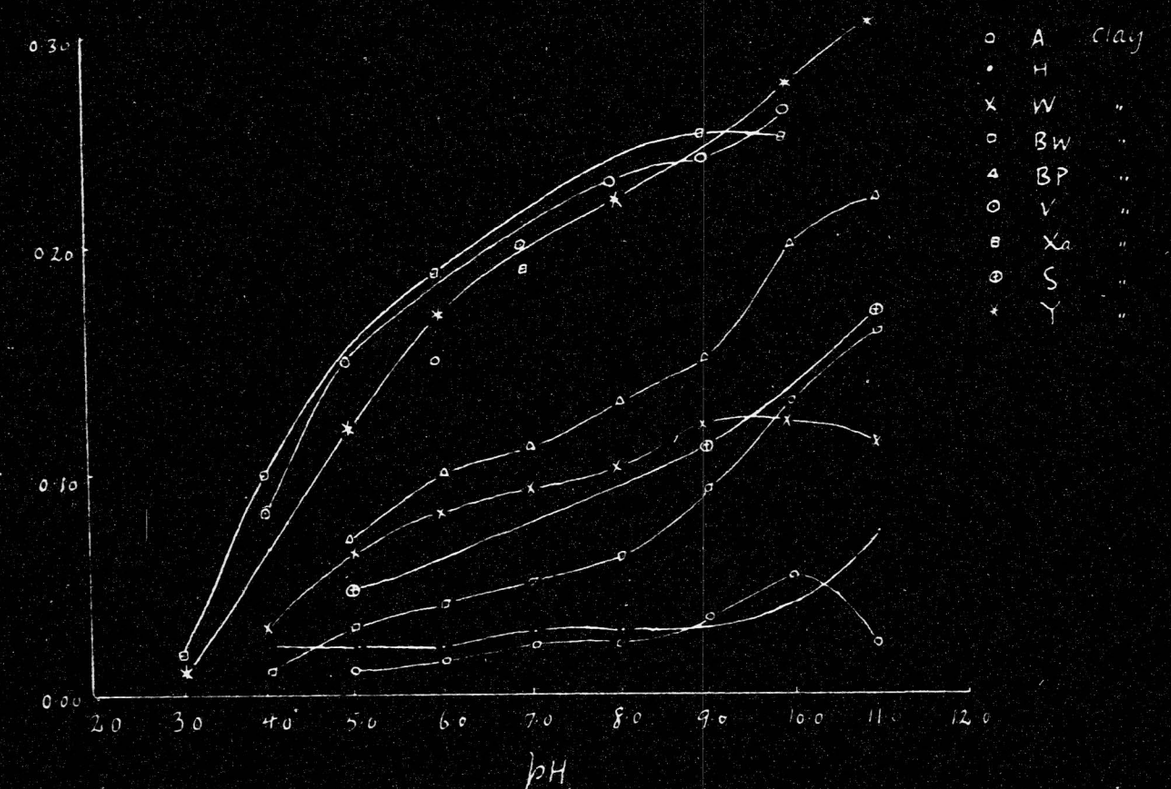
乾燥直線收縮與鹽基交換量之關係



乾燥直線收縮

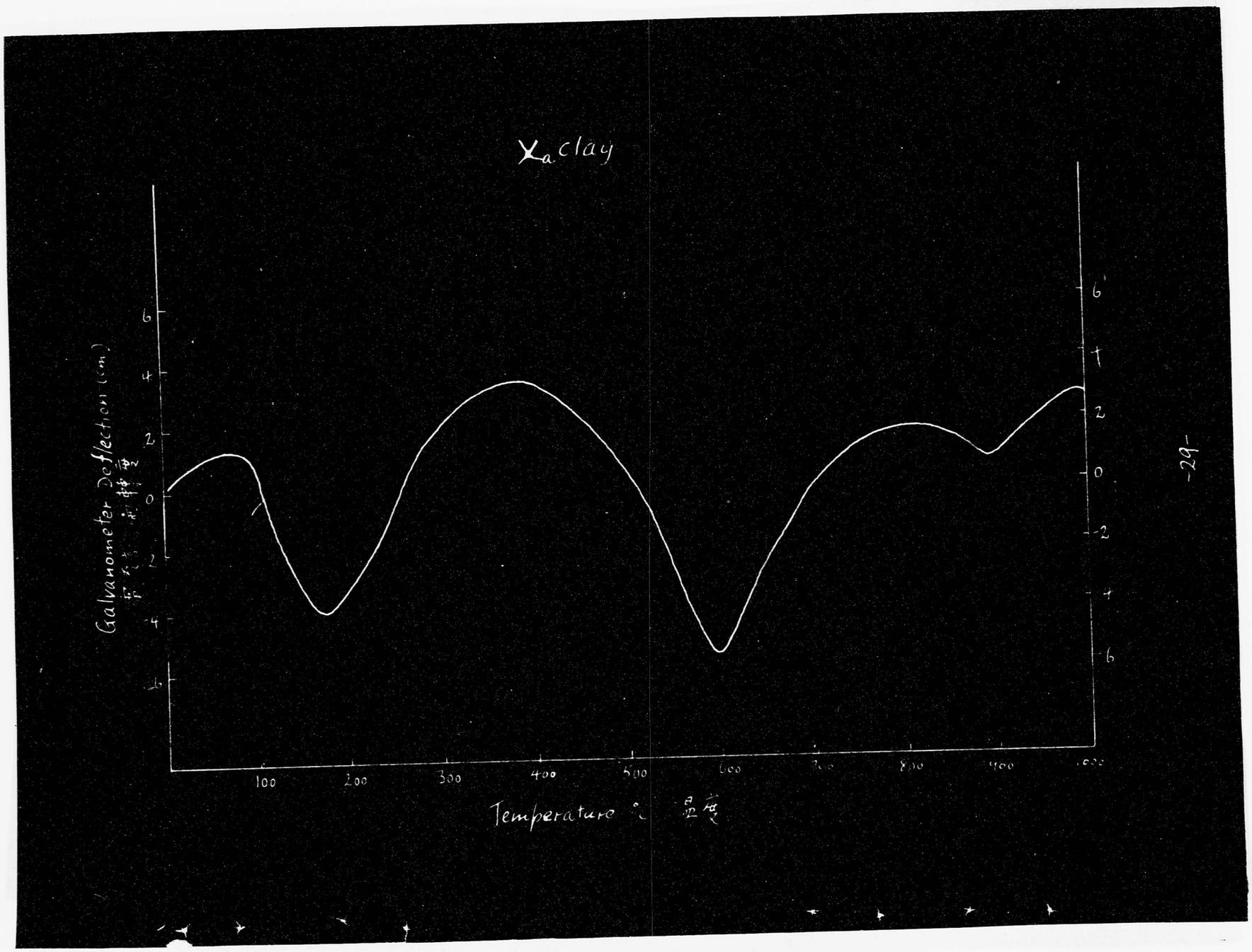
各種粘土之鹽基交換量與 pH 值之關係

Relation Between Base-Exchange Capacity and pH of Different clays

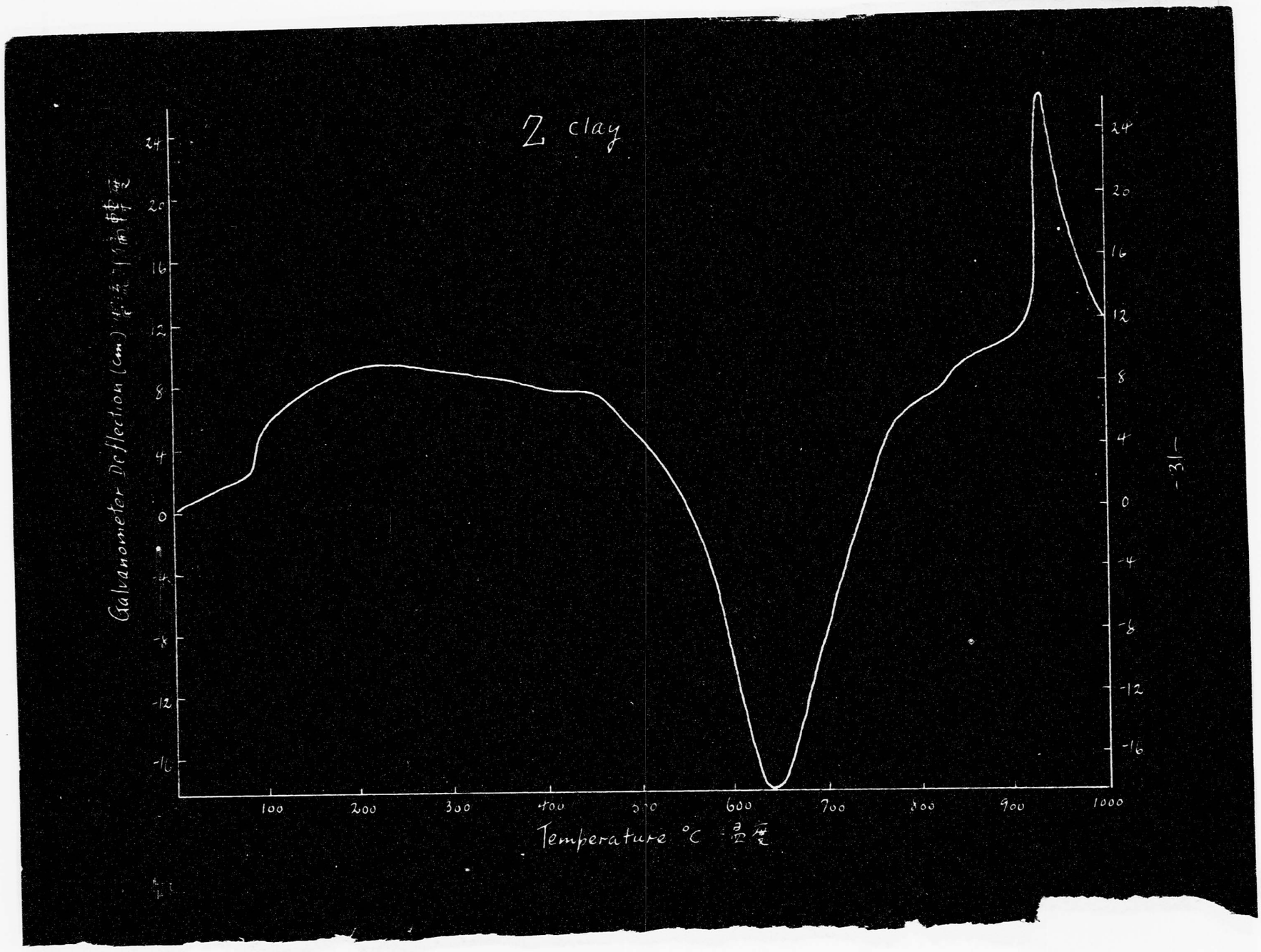


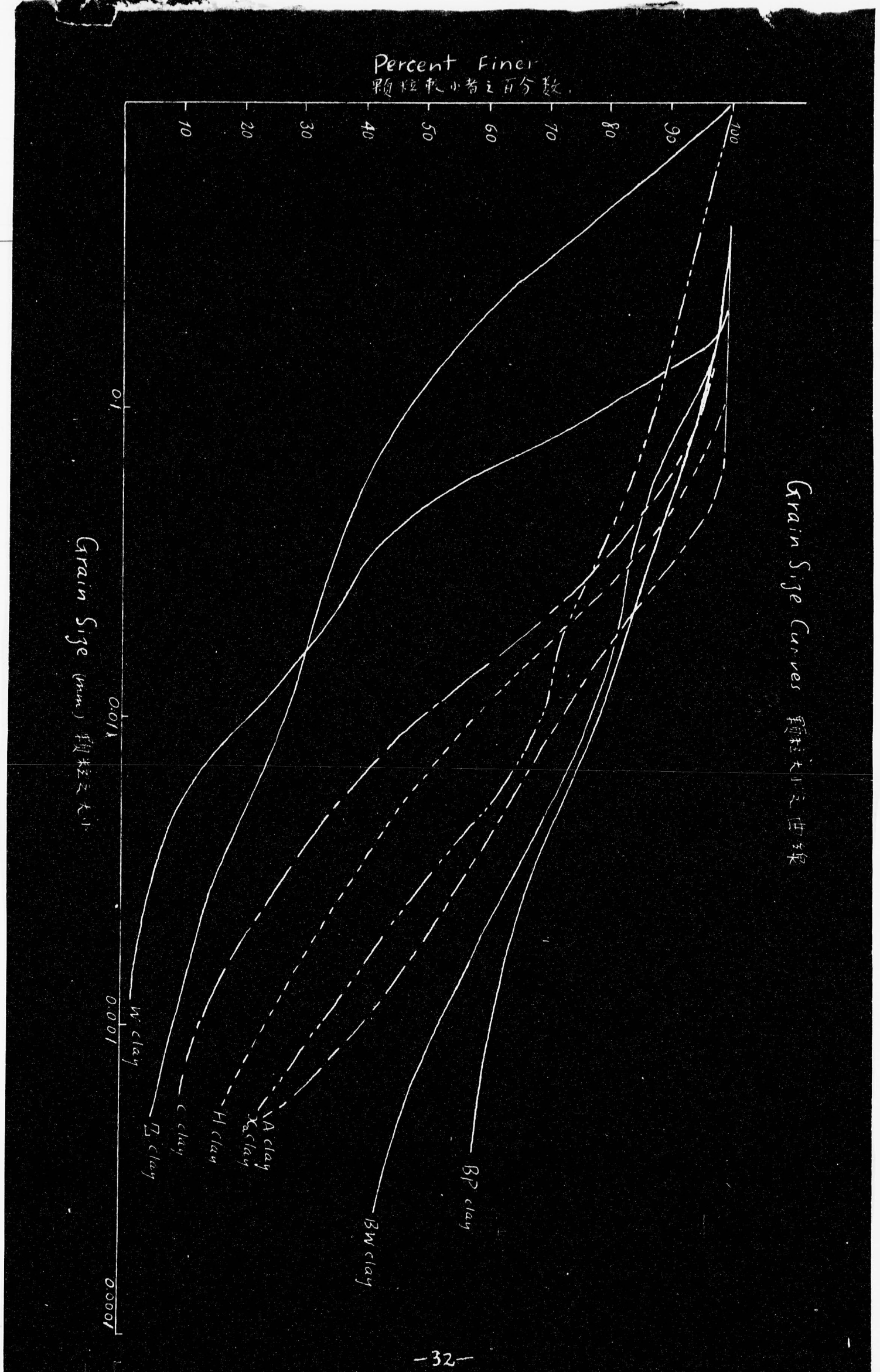
-27-

Galvanometer Deflection (cm.) 電流計偏轉度
16
12
8
4
0
-4
-8
-12
-16
-20
-24
100
200
300
400
500
600
Temperature °C 溫度
R clay


Xa clay
Galvanometer Deflection (cm)
Temperature °C
100
200
300
400
500
600
700
800
900
1000
6
4
2
0
-2
-4
-6

Galvanometer Deflection (cm.) 電流計偏轉度
-20
-16
-12
-8
-4
0
4
8
12
16
20
100
200
300
400
500
600
700
800
900
1000
Temperature °C 溫度
Y clay


Z clay
Galvanometer Deflection (cm) 検流計偏倚
24
20
16
12
8
4
0
-4
-8
-12
-16
100
200
300
400
500
600
700
800
900
1000
Temperature °C 温度


Percent Finer
顆粒較小者之百分數
10
20
30
40
50
60
70
80
90
100
0.1
0.01
0.001
0.0001
Grain Size (mm) 顆粒之大小
Grain Size Curves 顆粒大小之曲線
W clay
B clay
C clay
H clay
A clay
X clay
BP clay
BW clay

民國二十八年秋季季考時間表

EXAMINATION SCHEDULE—FALL SEMESTER, 1939

時間 \ 月日	一月八日 Monday, Jan. 8th.	一月九日 Tuesday, Jan. 9th.	一月十日 Wednesday, Jan. 10th.	一月十一日 Thursday, Jan. 11th.	一月十二日 Friday, Jan. 12th.	一月十三日 Saturday, Jan. 13th.	一月十五日 Monday, Jan. 15th.
8:00-10:00 八時至十時	化學 Chem. 117 化學 Chem. 123 經濟 Econ. 5 教育 Educ. 127 教育 Educ. R5 英文 Eng. 1 英文 Eng. 161 德文 German 101 新聞 Journ. 119 數學 Math. 65 音樂 Music 7 哲學 Phil. 49 物理 Phys. 21 物理 Phys. 251 心理 Psych. 101 心理 Psych. 141	生物 Biol. 109 國文 Chin. 77 經濟 Econ. 21 歷史 Hist. 23 數學 Math. 5 數學 Math. 55 音樂 Music 3 音樂 Music 27 政治 Pol. Sc. 33 心理 Psych. 117	化學 Chem. 3 經濟 Econ. 141 教育 Educ. 155 英文 Eng. 27 法文 French 3 德文 German 3 家政 H. Econ. 3 新聞 Journ. 101 數學 Math. 31 音樂 Music 51 哲學 Phil. 71	英文 Eng. 69 歷史 Hist. 51 歷史 Hist. 79 歷史 Hist. 137 家政 H. Econ. 7 新聞 Journ. 113 數學 Math. 27 政治 Pol. Sc. 75	化學 Chem. 151 經濟 Econ. 151 教育 Educ. 125 歷史 Hist. 1 音樂 Music 23 哲學 Phil. 183 心理 Psych. 5 社會 Soc. 111	生物 Biol. 101 化學 Chem. 31 國文 Chin. 55	法文 French 1 家政 H. Econ. 122 數學 Math. 1 心理 Psych. 151
10:15-12:15 十時十五分至十二時十五分	英文 Eng. 3 英文 Eng. 5 英文 Eng. 93 法文 French 101 新聞 Journ. 125 音樂 Music 5	化學 Chem. 21 國文 Chin. 21 國文 Chin. 53 教育 Educ. N3 英文 Eng. 31 歷史 Hist. 19 新聞 Journ. 1 哲學 Phil. 121 物理 Phys. 23 政治 Pol. Sc. 131	生物 Biol. 51 國文 Chin. 41 國文 Chin. 59 經濟 Econ. 3 經濟 Econ. 71 教育 Educ. 149 教育 Educ. 205 英文 Eng. 11 法文 French 111 歷史 Hist. 169 家政 H. Econ. 31 哲學 Phil. 125 物理 Phys. 11 物理 Phys. 109 物理 Phys. 123 物理 Phys. 209 政治 Pol. Sc. 27 社會 Soc. 21 社會 Soc. 51	生物 Biol. 3 化學 Chem. 146 國文 Chin. 81 經濟 Econ. 41 教育 Educ. 133 英文 Eng. 17 歷史 Hist. 61 日文 Jap. 1 音樂 Music 11 物理 Phys. 105 政治 Pol. Sc. 111 社會 Soc. 163	化學 Chem. 121 國文 Chin. 95 教育 Educ. 103 教育 Educ. N1 英文 Eng. 15 歷史 Hist. 91 歷史 Hist. 107 物理 Phys. 129	生物 Biol. 165 化學 Chem. 153 教育 Educ. 169 教育 Educ. 173 教育 Educ. N9 國文 Chin. 15 社會 Soc. 131	國文 Chin. 47 國文 Chin. 97 歷史 Hist. 119 哲學 Phil. 143 物理 Phys. 213 社會 Soc. 77
1:30-3:30 一時三十分至三時三十分	國文 Chin. 1 國文 Chin. 57 Foreigner Chinese 歷史 Hist. 21 歷史 Hist. 73 機械畫 Mech. Drawing 音樂 Music 25	生物 Biol. 1 音樂 Music 131 政治 Pol. Sc. 3	經濟 Econ. 31 歷史 Hist. 29 歷史 Hist. 167 歷史 Hist. 175 物理 Phys. 1 物理 Phys. 3	國文 Chin. 17 國文 Chin. 31 國文 Chin. 91 歷史 Hist. 75 音樂 Music 101	經濟 Econ. 33 歷史 Hist. 161 日文 Jap. 3 音樂 Music 55 社會 Soc. 115 社會 Soc. 161	英文 Eng. 35 音樂 Music 1 政治 Pol. Sc. 51 社會科學 Soc. Sc. 1	1:30—4:30 經濟 Econ. 11
3:45-5:45 三時四十五分至五時四十五分	化學 Chem. 139 教育 Educ. 3 法文 French 151 德文 German 151 物理 Phys. 107 社會 Soc. 135	國文 Chin. 33 歷史 Hist. 187 政治 Pol. Sc. 105 心理 Psych. 1	經濟 Econ. 7 教育 Educ. 143 家政 H. Econ. 15 政治 Pol. Sc. 91	化學 Chem. 1 化學 Chem. 11 歷史 Hist. 11 新聞 Journ. 109 音樂 Music 21	國文 Chin. 43 國文 Chin. 99 德文 German 1 哲學 Phil. 21	新聞 Journ. 123 政治 Pol. Sc. 35 心理 Psych. 9	衛生 Hygiene

Yearbook Programs.

1934

REPORT OF THE HEALTH DIVISION
YENCHING UNIVERSITY
FALL SEMESTER 1944-5

The Health Service of Yenching-in-Chengtu is ususually satisfactory under the circumstances. Yenching has the moost complete Health service personnel im comparison with all the other universities. There are 3 and 1/3 persons: one ½ time resident medical doctor, two full time nurses, one man and one women, one ½ time recorder, and I am the 1/3 of an officer in charge of the Health Administration.

Our Health Program consists of daily clinical routine, visiting patients in dormitories and faculty home, haspitalization, physical and medical examination, follow-up work, medical social work, and improvement of community and personalh hygiene. At the beginning of each academic year, each student, faculty, and servant must take a physical and medical examination and a fluroscopic examination. Students can not register unless the above examinations are completed. The university treasurer will hold up a faculty or a servant's salary if he has not completed his examination. Every year, Yenching is the only university wich is able to have a complete record according to the schedule.

We have a clinic room in the Chuen Yen E.N.T. Haspital. The following table represents the daily work of the clinical routine.

RECORDS OF THE YENCHING CLINIC
September 1944 to January 1945

Class of patients	No. of Medical cases	No. of Surgical cases	Phy. & Med. Examination	Haspital zation
Faculty members and families	145	98	20	10
Students	419	584	357	17
Workmen	52	56	32	1
Total	616	738	409	28

Summary:

1. Total of medical and surgical cases under the university clinic care 1354.
2. Students and faculty come for eye treatments (not in the table) are 83 cases per week.
3. 27 cases have been sent to stay in haspitals. The kinds of sicknesses include: tuberculosis seven cases, 5 bronchitis, 2 pneumonia, 4 typhus, 2 malaria, 1 typoid, 2 dysentery, one compound freacture of left arm, 1 eye operation, 1 acute nephritic, and one pancreatitis.

For community hygiene, the university has ahp spent quite a great deal of money on improving toilets, kitchens, and drainage,

and water source (wells). Each semester both mens and women ~~dormtd~~ dormitories have a cleaning day. Inspections follow after cleaning. For seasonal diseases, we give ~~inj~~- preventive inoculations. Public lectures are given occassionally on preventing deseases and personal hygiene.

The "bed bug" problem is very serious in interior China and Yenching can not be an exception. After some research work, we have designed a boiler with a long rubber tube for shooting bed bugs with stream. The method is comparatively economical, clean, simple, and it is very effective if done thoroughly. This is the best method we have known so far.

Finally, I like to mention about the importance of relief work in those days. When a person gets sick, there is always financial problem. A third class bed in all hospital cost over $50.00 per day with only very poor food and not including medicine and lobrartory fee. A student ~~by~~ staying in the T.B. sanatorium costs him at least $20,000.00 for a month while most of the students don't even have enough money to pay board and tuition fees. Fortu ately, the U.C.R. is helping a great deal on medical relief. For faculty, cash is allowed $10000.00 each semester for medical aid and for students, there is no limit on the amount, but depends upon the case itself. Usually the relief money is not enough to cover all bills. Nourishing fild after sekn sickness is very important and the patient is responsible for this expense. Selling things for a pound of milk or a few eggs, is a very common p practise in these days.

Feb. 12, 1945

Submitted by:

Lu Hui-Ching

Lu Hui-Ching X
Acting Chairmen
Health Division, Yenching University

SUMMER SCHOOL AT PEKING.

Under the joint supervision of ~~Peking~~ Yenching University and Shantung Christian University, we have just closed a very successful month's session of a joint Summer School, held during the month of July. The month was divided into two terms of two weeks each. One hundred forty students were enrolled, among them about forty women. The aim of the school was to give additional study to pastors and evangelists, but mainly to teachers of middle schools who desire to increase their efficiency for the coming year.

The co-directors of the joint Summer School were Dr. Adolph of Shantung University and Dr. Luce of ~~Peking~~ Yenching University. A choice of some thirty-six varied courses was offered. The list of teachers, together with a list of the most popular courses, is given below.

Miss Jean Dickinson, Dean of Women;
H. H. Chuan, Registrar and Business Manager;
T. T. Han, Librarian;
Miss Ruth Cheng, Middle School Management;
Miss K. M. Chen, Problems of the Middle School;
Mr. Van, Educational Psychology;
T. M. Barker, Ethics and Civilization,)
New Testament Studies;)
T. E. Breece, English;
J. S. Burgess, Educational Sociology;
C. F. Ch'en, Chinese Language;
M. I. Cheo, Rural Economics;
T. H. Ch'en, Mathematics;
W. W. Davis, Geography;
C. H. Fenn, Studies in the New Testament;
Miss J. Dickinson, Elements of Sociology;
W. Hung, The Method of Teaching History;
Miss A. James, English Language;
H. S. Kao, Psychology of Religion;
T. T. Lew, Problems of the Indigenous Church;
C. H. Li, Chinese Language;
J. F. Li, Old Testament Introduction;
J. Payne, Science;
D. R. Wickes, Christian Evidences;
G. D. Wilder, Voice Culture, and The Physical Side of Vocal Expression;
Pastor Pao Kwang Lin and Prof. J. F. Li, Problems of the Indigenous Church.

Special interest was manifested in the exhibits and lectures of Mr. Cheo, of Nanking, in agriculture, especially looking ~~forward~~ toward the practical side of elementary agriculture. Four very interesting lectures were given by Prof. C. H. Robertson, of the Extension Department of the Y. M. C. A. The subjects of these lectures were:

1. The Gyroscope.

2. The graphic method of presenting publicly scientific truth.

3. Einstein's Theory of Relativity.

4. Wireless and Radio.

During the afternoons visits were made to most of the important places of interest in the city, and one whole Saturday was given to a visit to Tsing Hua College, the Summer Palace, and the new site of Peking University at Haitien.

All in attendance felt that the work of the Summer School, even in spite of the difficulties in connection with the serious rains, was exceedingly worth while, and that they return to their work for the coming year better prepared in mind and spirit for the tasks and the opportunities that confront them.

These students came, mostly, from Chihli, Honan and Shantung, but some came from as far as Moukden. It is believed that these students will carry back to their respective communities something of the knowledge gained and the uplifting influences felt throughout the courses of the Summer School.

Two reports worded differently
+ sent to two Peking papers.

PEKING UNIVERSITY SUMMER SCHOOL.

On Friday evening was held the last "ch'a hui", or social gathering of the Joint Summer School of Peking and Shantung Universities. Dr. H. W. Luce, of Peking University, and Dr. A. E. Adolph, of Shantung University, were co-directors.

More than one hundred forty students gathered from the Provinces of Chihli, Shensi, Honan, Shantung and Fengtien. The Summer School was intended for those who had already passed through some middle school, although the academic preparation of some of them was higher. The aim of the school was to give added assistance in special concentrated courses for those who were serving as middle school teachers or acting as evangelists and pastors. Some courses in the English language were also given. The following professors took part in the work, which covered the month of July:

Miss Jean Dickinson, Dean of Women;
H. H. Chuan, Registrar and Business Manager;
T. T. Han, Librarian;

Miss Ruth Cheng;
Miss K. M. Chen;
Mr. Van;
T. M. Barker;
T. E. Breece;
J. S. Burgess;
C. F. Ch'en;
M. I. Chec;
T. H. Ch'en;
W. W. Davis;
C. H. Fenn;
W. Hung;
Miss A. James;
H. S. Kao;
T. T. Lew;
C. H. Li;
J. F. Li;
J. Payne;
D. R. Wickes;
G. D. Wilder;
Pastor Pao Kwang Lin.

Among the most popular courses were the following:

Middle School Management;
Problems of the Middle School;
Educational Psychology;
Ethics and Civilization;
New Testament Studies;
English Language;
Educational Sociology;
Chinese Language;
Rural Economics;
Elements of Sociology;
The Method of Teaching History;
Psychology of Religion;
Problems of the Indigenous Church;
Old Testament Introduction;
Christian Evidences;
Science;
Voice Culture, and The Physical Side of Vocal Expression.

During the month the special lectures on elementary agriculture and the agricultural exhibits of charts and specimens by Professor Cheo were very helpful, as was also the four lectures given by Prof. C. H. Robertson, one of these lectures being on Einstein's Theory of Relativity. It was, indeed, interesting to see this group of intelligent men and women endeavoring to grasp the elementary elements in the profound theory of relativity propounded by Einstein. Professor Robertson's presentation of the elements of this theory ~~xxxxxx~~ was very clear and concrete, though some of his presentation was profound enough to compel not a few of his audience to see that in part they must take it on faith. It certainly was stimulating to learn that in the minds of a great many scientists Professor Einstein had propounded a co-ordinating theory of knowledge quite the greatest since the time of Newton, and of far wider application than Newton's principles.

Various excursions were taken to different points of interest throughout the city, and one Saturday was entirely given up to an excursion to the Summer Palace, Tsing Hua College, and the new site of Peking University at Haitien. All were charmed with this beautiful new site, and the equally beautiful buildings arising on this site, in which the beautiful architectural lines are being harmonized most successfully with the utility of modern college buildings. All look forward to the time when the next summer school is held in Peking, that it may be housed in the buildings on the new site of Peking University.

WHAT IS THE CHRISTIAN FAITH?

As an attempt to present in modern terms some of the basic ideas of the Christian faith, the following quotation has been studied and discussed by many college students throughout America. It is taken from *Christianity and Our World*, a recent book by Professor John C. Bennett, and is here issued (as a stimulus to thought and discussion) as a supplement to the earlier outline, *An Introduction to the Life and Teaching of Jesus*.

1. *It is the Christian faith* that there is nothing which is worthy of our supreme devotion short of the reality upon which we and the whole structure of our lives ultimately depend. Whatever else is true of God, God is more than human, prior to man, the being to which we owe our existence. Christians may differ about the degree to which God transcends the known universe, how far he is revealed in it, how far he is present within it; but God is not merely another word for the universe. The universe depends upon God and not God upon the universe.

2. *It is the Christian faith* that men in their search for the meaning of their lives cannot stop short of God. They need God as the intellectual explanation of their existence as well as for the sense of belonging to an order of things which gives coherence to their experience.

3. *It is the Christian faith* that God is the final source of moral obligation. One of the surest facts of human life is the fact that moral demands are made upon us which we cannot refuse without the sense of having somehow fallen. The significance of these demands is obscured when they happen to coincide with our interests or desires, or with what our social group approves. It is when a moral demand cuts across our own desires and interests and runs counter to the approval of our group that we are forced to raise the question: Why is this demand binding on me? Notice that we are not here concerned with the origin of the particular thing which is demanded. It may have developed through a long process of trial and error in social experience. The question here is not, What is the good? but rather, Why should I bother about the good? It is in the answer to that question that morality and religion meet. Here more surely than anywhere else we feel within our own souls the impact of a demand which derives its authority from beyond ourselves and from beyond society. To disobey is to fall, and to fall not merely in our own eyes or in the eyes of society.

4. *It is the Christian failh* that God is personal. That word is a stumbling block to many of our contemporaries. What it means can be put in this way. In the nature of the case God is unique. One cannot describe God by comparing him with anything else of the same kind. The most that we can do is to find suggestions or symbols in the world of our experience (the only world which is open to us at all) which seem fruitful in our thought about God. The possibilities among such suggestions are very limited. To say that God is personal is to say that God is more like a person than like a thing, more like a person that like a machine, more like a person than like a mathematical proposition, more like a person than like a tree. This last suggestion is pertinent (relevant), because the whole conception of God as blind life-urge is symbolized quite well by a tree. But, when we use the word "personal" as a description of God, we mean to include only a few of the characteristics of persons. Our human limitations which are inherent in our physical existence obviously do not apply to God. Those characteristics which do apply to God are: *awareness, intelligence, purposiveness, the capacity to appreciate, the capacity to respond to persons*. It is difficult to see how a God who lacks those qualities could be a fitting object of devotion or an adequate explanation of existence, or one to whom our conduct could make any difference.

5. *It is the Christian faith* that in Jesus Christ we have the surest clue (guide) to the nature of God. It is not enough to say that God is personal. That might leave it open to believe that God has the characteristics of a Napoleon or a Mussolini—the man of power. To say that it is in Christ-like personality that we have a true symbol of the nature of God becomes

especially significant when we contrast Jesus with other types of persons. Moreover, God is revealed not only in the personality of Jesus but also in his teaching about God and in his religious response to God. His trust in God and his commitment to God form the clearest portrayal (picture) of man's right relationship with God.

6. *It is the Christian faith* that it is the purpose of God that the spirit of Jesus should be the norm (standard) for our lives, and that men should develop in the world a fellowship which knows no barriers (obstacles) of race or class or nation, and which is characterized by abundance of life, mutual loyalty, and a common devotion to God. So long as Christians take seriously the revelation of God and of his purpose which they find in Jesus they have a corrective for the most menacing perversions of our time, for racialism and nationalism, for economic injustice and war.

7. *It is the Christian faith* that there is a judgment of God which can be observed in personal life and in the events of history. God seeks to draw us, to persuade us, but we can resist him ; and when we resist him too stubbornly (unyieldingly) we find ourselves up against punishment. This punishment is at work in the moral structure of things which makes evil in the long run self-defeating. Through it (the moral structure) we can discern the sterner side of God's activity. Men who organize their lives around the narrow self or one or two impulses of the narrow self find themselves in blind alleys. The world is unable permanently to organize its life on the basis of injustice and nationalism without reaping chaos and conflict which become each year more destructive. But one of our grounds for hope is that the prospect of the judgment of God upon us or the foretaste of the judgment of God upon us may reinforce (strengthen) the persuasion of God ; and, drawn by the ideal and hammered by the threat of punishment at the same time, we may find the way in which to build the structure of our common life.

8. *It is the Christian faith* that God forgives those who are honest with themselves about their sins, and who seek to turn from them. If God makes moral demands upon us and if failure to meet those demands gives us the sense of having fallen, that is not the end of the matter. If it were, the more sensitive we are the more we would be driven to complete despair or to self-deception. The revelation of God in Christ is a revelation of one who forgives those who repent. The evil in the past still has its consequences, but the individual is able to make a fresh start without being morally crippled by the burden of guilt.

There is much in the emphasis upon divine forgiveness in some forms of Christianity which quite rightly repels. Sometimes Christians have been too preoccupied with it; sometimes they have used it as a substitute for adequate moral effort ; sometimes it has been narrowly conceived in relation to specific ecclesiastical (church) practices and specific doctrines ; sometimes it has been put into a framework of legalism, with the emphasis upon future rewards and punishments. But in our day we are again coming to see the importance of forgiveness. Modern psychiatry has revealed the degree to which the sense of guilt (even apart from its conventional religious manifestations), when it is unrelieved, can cripple a personality. Moreover, the social situation seems often to involve only possibilities which are in varying degrees evil, all of which give us a sense of having done wrong. A well-known teacher has come to emphasize the necessity of divine forgiveness in view of our entanglement (being involved) in inescapable social evil. He says : "In every life there must at least be times and seasons when the good is felt as a present possession and not as a far-off goal,"* and he traces the possibility of that experience to the realization of the forgiveness of God.

If there were no such forgiveness, one of three things would be forced upon us : the denial of the binding character of moral obligations, the attempt to deceive ourselves about our achievements, or self-despair. To Christian faith this problem has always been an acute one and its promise of forgiveness to those who give up the attempt to deceive themselves and

*"Reflections on the End of an Era", by Reinhold Niebuhr, p. 285.

seek to *turn* from their sins is the word most needed at times in the experience of every honest soul.

9. *It is the Christian faith* that God can be trusted to deliver from frustration (extreme disappointment) those who fulfil the conditions. The conditions are simple in the sense that they have nothing arbitrary or artificial about them, but they are not easy. They can be summed up in two words—commitment (giving oneself) and trust. Men without the consciousness of God stumble on the fact that there is a healing power in life which goes beyond the obvious in delivering from frustration those who are not preoccupied with self. Worship is both the act of commitment and the exposure of our spirits to those things which can lift us and make us capable of commitment. There is here no stereotyped (ready-made) solution of all our human problems. There are puzzles to which we cannot see the answer, especially the puzzle that so many persons are so controlled by fear and self-concern that they cannot know the experience of healing when they need it most. But it is a matter of record that countless persons who have fulfilled the conditions have in the face of all the tragedies of life found deliverance for their spirits. It is one of the meanings of the cross that Jesus found such deliverance, though he experienced almost every form of external evil.

The confidence of Christians in personal immortality has been a way of underscoring this trust in God. It is the trust that not even death (which has all the appearances of being the final frustration for persons) is beyond the range of God's deliverance.

10. *It is the Christian faith* that there are evils in the world which God does not cause. Although all Christians would agree with that statement, they would differ in the range of its application and in its explanation. If we take seriously the belief that in men's freedom there is a source of evil by which the realization of God's purpose is definitely limited, we can get real light on the most baffling problem which Christian faith faces—the problem of evil. A very large part of the evil in the world is the result of human action. Some of it can be ascribed to ignorance; some of it to a conscious choice of evil or the lesser good. We must still ask the question: Why did not God create a world which would be fool-proof and knave-proof, in which the risks of human freedom could be avoided? The answer to that question is that God himself faces a limited number of possibilities. If he seeks to create a community of persons of tested moral worth, who are to be loyal sons and not puppets (things or persons controlled by another) of the divine power, he can do so only on the basis of human freedom with all of its tragic cost. To have persons of developed intelligence it seems that he must also grant them freedom to learn by trial and error and to learn most by error when it hurts.

This is not a complete answer to the problem of evil—we still, for example, have unsolved the problem created by many forms of evil which are rooted in nature—but it does greatly reduce the problem. Evil which comes into the world through human agencies is not to be attributed to the intention of God, Nor is it to be attributed to a devil over against God. This kind of evil at least is the by-product of a structure of life which is the necessary condition for the highest good. In other words, the possibility of evil as the result of freedom is willed by God as the condition for the growth of persons. Along these lines it is possible for Christians to combine with their belief in God full realism concerning themselves and the world. They can thus avoid the greatest danger which besets religion—the danger of sanctifying the existing order of things in society as being the creation of God.

To believe that in any social order the ideal has been attained is to discourage growth. The growing point in the individual and in society is that tension between the ideal and actual attainment which Christianity provides and the need for which we can never outgrow.

11. *It is the Christian faith* that man combines in his nature high possibilities and tragic handicaps. One of the reasons for the adequacy of Christianity is that it is realistic about human nature. It avoids equally cynicism (sneering disbelief in the possibility of human

goodness) and sentimentalism. It sees the best in man and draws it out. Man is thought of as created in the image of God ; and, though that image is distorted, glimpses of it are still present in human nature.

Wrapped up with man's freedom there is the fact of sin, and—as inevitable consequences of the limitations of his existence—there are failure and suffering. Man is not a finished creature living with a static character. As an individual and as a race, he is always at a particular point in a long process of growth—growth which is uneven and precarious (dangerously uncertain). Moreover, man is limited in his knowledge, in the range of his imagination, by the fact that he lives at a point in time and space, in a body, in a particular combination of social relationships. Even at his best, he never escapes the pull of inordinate (excessive) self-interest, and this becomes a bias in favor of the group which is nearer, which is *his* group. In any particular situation it is impossible fully to untangle the strands which are the result of culpable (blamable) selfishness, unavoidable ignorance, or an external situation too complex and too much weighted with past evil to control. They are all there together creating man's problem. They will always be there to some degree so long as men are finite, but we cannot set definite limits to the degree to which men can rise above them. High possibilities—tragic handicaps : that is the Christian view of man.

12. *It is the Christian faith* that, in contrast to the habits of all history, there is a genuine equality of all men before God. This equality does not mean a dead level in ability, contribution, character, religious experience, but an equality in the fundamental right of all men to develop the possibilities within them.

The Christian idea of equality implies in our kind of world a substructure of economic justice and true equal opportunity in matters of bread and health and education and environment. Christian love is a mockery when content with anything less. Moreover, equality implies loyalty to a universal community according to which exclusive racialism and exclusive nationalism—the two distortions of life which are most tempting to our generation – are an offence against the God of all humanity.

13. *It is the Christian faith* that there is a movement of life in the world in which God is working most clearly to lift the level of the life of men. Christianity is not merely a set of ideas ; it is primarily such a movement. This movement of life first appeared in the dim past when Hebrew religion emerged as something different from other Semitic (northern Arabian) cults (religions), took clear form in the prophets of Israel, burst into the world with new clarity (clearness) and power in Christ. It has continued its course, often cloudy and broken, in the Church; but it is not limited to the Church. To make the Church a more adequate vehicle (means of conveyance) for this movement of life is an absolute necessity for Christians in our day. As individuals, Christians are almost helpless in the face of the pagan forces in our world. They are thus being forced to rediscover in the Church an undergirding (supporting) fellowship, a base for operations, and a collectivity which can stand up against the organized powers of the world.

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Prepared by the Yenta Christian Fellowship
February, 1940

Yenching University begins 20th Session with Crowded Dormitories

Quarters Overflow as Unusual Number of Students Arrive to swell Largest Enrolment

PEIPING, September 17.—Yenching University's 20th session has opened with the usual convocation exercises and with an enrolment which exceeds that of any previous year.

At the close of the regular three-day registration period 838 students had paid their fees. The normal capacity of the dormitories of the university is 800 and the authorities have for some years tried to keep the enrolment to approximately that figure.

In admitting students the Admissions Committee has to contend with a number of uncertain factors. It is never known how many old students will return, states an official of the university, and a certain proportion of those receiving permission to enter do not find it possible to attend. Because of this and other uncertain factors the committee approved the acceptance of a larger number than usual.

Students Pour in

The remarkably large enrolment is due in part to the fact that an unusual number of old students are returning but chiefly to the fact that a much higher percentage of new students receiving approval of their applications has arrived at the university.

Since the University feels morally obliged to find a place for all those whose admission has been approved, states the official, the authorities are hard put to it to house this unusual number of students. The problem is most difficult in the women's section. Altogether 278 women were accepted and 276 actually enrolled.

Temporary Quarters

The women's dormitories, however, have accommodation for 250 students.

Late arrivals on the day after regular registration ended brought the total of students attending to over 850, and if the late arrivals equal those of other years the final enrolment by September 25 is expected to approach 900.

This is expected to necessitate putting large groups of men students in hastily renovated buildings in the Ta Yuan, Wei Hsiu Yuan and other gardens adjoining which are owned or leased by the University.

New students admitted equal nearly half the total, 375. So far as can be judged, the enrolment from the various provinces of China is in about the same proportions as previously.

Amongst new and returned members of the faculty are Mr. J.B. Taylor, Mr. E.O. Wilson and Mr. Yen Ching-yueh. The Chinese Department has been much changed.

Dr. H.Y. Chao, who has been teaching for some years in Fu Jen, has joined the staff of the Department of Economics.—*Reuter*

317-4854

REPORT ON BRITISH BOXER FUND

$1,337,589 Allotted for Education

NANKING, June 1.—The following statement regarding the disposal of interest funds of the Board of Trustees for the administration of the indemnity funds remitted by the British Government, was issued today:

"Three years have elapsed ever since the formation of the Board of Trustees for the Administration of the Indemnity Funds remitted by the British government. In accordance with the resolution of the Central Political Council and the notes exchanged between the Chinese and the British governments the funds under the control of the board are to be employed to establish an endowment for the rehabilitation of railways and other constructive works in the form of loans, while the interest of 5% on the loans is to be used for the subvention of educational and cultural enterprises.

"The aforesaid interest funds, up to June 30 this year, amount to $1,337,589.00. The Educational Sub-Committee of the Board of Trustees held a three-day session in the last month and carefully considered, one by one, all the requests for subsidies received from educational and cultural institutions since the inauguration of the board. It was resolved by the said subcommittee that a round sum of $1,200,000 of the interest funds be used as various subsidies in accordance with the regulation governing the disposal of interest of the indemnity funds remitted by the British government, which regulations had been approved by the Executive Yuan, and that an amount of approximately $130,000 be used to form a special reserve fund which will be given for the work of special education. At the 24th meeting of the Board of Trustees, the report of the Educational Sub-Committee was discussed in detail and it was unanimously passed. The approximate amount for disposal and distribution is as follows:

Class A:—1. National Central Museum. 2. National Central Library. To these two institutions a subsidy of $1,500,000 each is granted for constructive purposes and ally in three years is granted for the equipment of the science library.

11. National Pei Yang Engineering College: one professorship (see item No. 1).

12. National College of Medicine, Shanghai: a subsidy of $60,000 to be spread over equally in three years is granted for construction purposes.

13. Provincial Siang Yah Medical College Hunan: a subsidy of $60,000 to be spread over equally in three years is granted for equipment purposes.

14, Liaoning Medical College of the Scottish Presbyterian Mission in the Northeastern provinces: a subsidy of $20,000 is granted for equipment purposes.

15. Central Hygienic Laboratory: one professorship is granted (see item No. 1) and a subsidy of $60,000 to be spread over equall in three years is granted for equipment purposes.

16. National Compilation and Translation Bureau: a subsidy of $50,000 to be spread over equally in two years is granted for constrnction purposes.

17. Sino-British Cultural Association: a subsidy of $20,000 is granted for construction purposes.

18. China Architectural Association: a subsidy of $20,000 to be spread over equally in two years is granted for subvention of publication.

Scholarships Provided

Class C:—Scholarships for study in Great Britain—$180,000. (nine students sent to England last year. 31 students are to be sent this year, and all expenses for the examination and for the scholarships shall be defrayed from this sum).

Class D:—1. A prize of $4,000 to be given through a contest for the best text book for mass education.

2. A prize of $4,000 to be given through a contest for the best song book for primary schools.

3. A prize of $4,000 to be given through a contest for the best history text book for higher primary schools.

Class E:—1. Special education in the bandit-infested districts in Kiangsi now recovered. An annual subsidy of $400,000 is granted for special education in accordance with the regula-

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during the present year a sum of $1,500,000 shall be paid each in advance.

Class B:—1. The board shall provide one professorship of $10,000 annually for a period of three years in each of the following six educational institutions: The National Central University, The National Sun Yat-sen University, National Wuhan University, National Chekiang University, Peiyang Engineering College, and the Central Hygienic Laboratory.

2. Academia Sinica:—A subsidy of $100,000 to be paid in three years is granted for equipment to be used in the manufacture of scientific equipments, $30,000 each in the first and second years, and $40,000 in the 3rd year.

Buildings for Peiping

3. National Peiping Research Institute: A subsidy of $100,000 for the construction of buildings for its Institute of Physics, and $40,000 to the Institute of Chemistry. The payment shall be $30,000 each for the first and the second years, and $40,000 in the third year.

4. National Central University: one professorship is granted (See item No. 1).

5. National Sun Yat-sen University: one professorship is granted (see item No. 1) and a subsidy of $120,000 to be paid in three years in equal instalments is granted for construction purposes.

7. National Chekiang University: one professorship is granted (see item No. 1) and a sum of $120,000 to be spread over equally in three years is granted for equipment, $50,000 to its College of agriculture, $35.000 to its College of Engineering, and $35,000 to its Department of Physics in the College of Science.

8. Nankai University: an annual subsidy of $20,000 for a period of three years is granted to its Department of Mathematics for equipment purposes.

Yenching Benefits

9. Yenching University: a subsidy of $45,000 to be spread over equally in three years is granted for equipment purposes.

10. Amoy University: a subsidy of $30,000 to be spread over

interest of the indemnity funds for a period of four years. Apart from the subsidy of $262,411 available under this class, a sum of $137,589 from the special reserve fund shall be loaned to make up the sum of $400,000.00 for this year.

1. A subsidy of $12,000 is granted for this year to Ninghsia Province for the establishment of the primary school.

3. A subsidy of $12,000 is granted to the Tsing-hai Province for the establishment of one primary school, (The interest fund available under class E. is approximately $288,000. Apart from the above three subsidies there is a balance of $1,589 which is deposited to form a portion of the reserve fund).

Interest: $1,200,000

The interest disposed of under the aforesaid classes amount to $1,200,000, and $137,589 are loaned under the account of the special reserve fund, thus making a total of $1,336,000.

According to the statement of a responsible member of the Board, a total of 121 requests for subsidies were received up to the date of their formal consideration, with a requested amount of over $56.000,000. In view of the great disparity between the interest available and the amount requested, the task of distribution was extremely difficult. Taking into consideration the regulations governing the disposal of interest of the indemnity funds remitted by the British government, and with the actual requirements as well as the degree of urgency of educational and cultural work in China as guilding principles it was decided that subsidies could be more advantageously made along the following lines:

Museum should be Completed

1. As Nanking is the capital of the country and could also be the centre of culture, the board, basing upon the resolution adopted in its inception, should endeavor to assist the early completion of the Central Museum and the Cenrtal Library.

2. The ravages of communist-bandits in Kiangsi have produced desolation and bankruptcy; and in the work of rehabilitation of the districts now recovered, nothing is more urgent than to finance the work of special eduction in these districts.

3. As a large number of the requests are from institutions of higher education and as it is not possible to make a widespread distribution of funds, the board has, in accordance with the regulations governing the disposal of interest indemnity funds remitted by the British government, paid particular attention to institutions of agriculture, engineering, science and medicine, and those requests accompanied with concrete schemes. In the case of two or more than two requests from the same institution, the more important one is granted by taking circumstances into consideration, for instance in cases where subsidies are given for construction no subsidies are granted for equipment and vice versa.

4. For the development of education and cultural enterprises in the more remote parts of the country, subsidies are granted even when the requests from these parts do not entirely conform to the regulations and are not accompanied with concrete schemes.

5. In accordance with the resolutions of the 16th meeting of the board, scholarship students shall be annually sent to England for further and advanced studies. Apart from the nine scholarship students sent last year, the board is planning to send this year a group of 31 students, 11 of whom will be the winners of the scholarships offered last year but not awarded. The expenses for examination and for such scholarships have been set aside in advance.