REPORT OF A JOURNEY IN THE NORTH OF CHINA

OCCUPYING SEPTEMBER AND OCTOBER

1945

- by -

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I. Introduction

The main purpose of the present tour was to visit scientific and technical installations in Shensi province which I had been forced to omit when passing through to the further northwest with Sir Eric Teichman in the autumn of 1943. Out of thirty four visits made during the two months occupied by the tour, only one was in Kansu province and only four in northern Szechuan.

On this tour I was accompanied by three other scientific staff members, Dr Dorothy Needham, Mr Tsao Tien-Chin, and Miss Chiu Chiung-Yun. Participation of four was found to be a distinct advantage as on many occasions we split up, two of us visiting one institution and two visiting another on the same day. Otherwise it would have been impossible to accomplish so many visits in the time at our disposal. Moreover, Mr Tsao and Miss Chiu, who by reason of their well-known merits, are acceptable in all Chinese scientific and cultural circles, spared no effort to make the tour a success, and we can hardly speak too highly of the value of their help and advice. As on previous tours we were accompanied by Driver Kuang Wei and Mechanic Ling Mei-Hsing, who continued the fine service already so long given to our office, and surpassed themselves in efficiency and ingenuity.

During the period under review our Chevrolet 1½ ton ex-ambulance was in the southwest with Dr Picken and Dr Sanders. We therefore used our Ford 1½ ton weapons carrier newly acquired

by us from the British Military Mission. Though it had previously had an indifferent reputation, it behaved excellently throughout, and seemed to respond well to proper care on the part of a permanent crew. It is more powerful than either of our previous trucks and is now still in good condition.

Our main trouble on this tour was not due to our truck, but to circumstances of weather, as will be detailed below. Expenditure on spare parts was smaller than on any previous tour.

Leaving Chungking on 25th Aug. we proceeded north by a road not hitherto taken, through Bishan and Suining to Santai, where we visited the Northeastern University. The weather grew progressively worse and was so bad as to detain us at Mienyang (where this road joins the Great North Road) for ten days, i.e. until the 10th Sept. When we could again proceed, we continued to Kuangyuen, took on KPA gasoline, and entered Shensi province at Ningchiang. Using Hanchung as a centre, we visited the Northwestern University at Chengku and the Northwestern Engineering College at Kuluba, the latter entailing an all-day walk over mountain trails.

We then proceeded through Shuangshihpu and Baochi to Sian, where we spent nine days, leaving on the 3rd Oct. Returning up the Lunghai Railway, we stopped off at Wugung to visit the Northwestern Agricultural College and Experiment Station, and

at Puchichen to visit the Chinling Mountains Forest Conservation Service. Making then Baochi our centre, we visited the surrounding industrial region seeing both cooperative and private plants. We left Baochi on the 16th Oct. and diverging at Shuangshihpu went up into Kansu to visit the Soil Conservation Experiment Station at Tienshui. The return journey commenced therefore, on the 19th Oct. and we reached Chengtu on the evening of the 26th. We left again on the 3rd Nov. and duly arrived back in Chungking on the evening of the following day (or rather at 1 a.m. on the 5th as we had constantly recurring trivial trouble with springs and steering-gear connecting rod ball-and-socket joints).

The tour in general, in my opinion, in no way fell behind previous tours in interest to us and benefit to the institutions visited. It constituted the fifth of the series, which we may summarise as follows:

(1) West	Summer 1943	JN and HHT
(2) Northwest	Autumn 1943	JN and HHT
(3) Southeast	Spring 1944	JN and HHT
(4) Southwest	Autumn 1944	JN, DMN, and TTC
(5) North	Autumn 1945	JN, DMN, TTC and CCY

II. Itinerary

		km/day
Aug. 25th	dep. Chungking, arr. Bishan	70
Aug. 26th	dep. Bishan, arr. Suining	161
Aug. 28th	dep. Suining, arr. Santai	110
Aug. 30th	dep. Santai, arr. Mienyang	64
Sept. 10th	dep, Mienyang, arr. Chitung	60
Sept. 11th	dep. Chitung, arr. Kuangyuen	162
Sept. 13th	dep. Kuangyuen, arr. Hanchung	224
Sept. 15th	visit to Chengku and ret. Hanchung	45
Sept. 16th	visit to Kuluba	22
Sept. 18th	ret. Hanchung, visit Chengku and ret.	67
Sept. 19th	dep. Hanchung, arr. Miaotaidze	96
Sept. 22nd	dep. Miaotaidze, arr. Baochi entrain for Sian, arr. following morning.	165 railway
Oct. 3rd	dep. Sian, arr. Wugung	railway
Oct. 5th	dep. Wugung, arr. Baochi	railway
Oct. 10th	dep. Baochi, arr. Chouchih	railway & cart
Oct. 11th	dep. Chouchih, arr. Loukuantai	cart
Oct. 12th	dep. Loukuantai, arr. Machiao	walk
Oct. 13th	dep. Machiao, arr. Baochi	cart & railway
Oct. 16th	dep. Baochi, arr. Shuangshihpu	100
Oct. 17th	dep. Shuangshihpu, arr. Tienshui	229
Oct. 19th	dep. Tienshui, arr. Shuangshihpu	229
Oct. 20th	dep. Shuangshihpu, arr. Miaotaidze	61
Oct. 21st	dep. Miaotaidze, arr. Baocheng, visit Hanch.	113

		km/day
Oct. 22nd	dep. Baocheng, arr. Kuangyuen	206
Oct. 25th	dep. Kuangyuen, arr. Chitung	162
Oct. 26th	dep. Chitung, arr. Chengtu	192
Nov. 3rd	dep. Chengtu, arr. Neichiang	210
Nov. 4th	dep. Neichiang, arr. Chungking	225

III. Transportation

Mention has already been made of the vehicle used. It may be desirable to give a brief description of the circumstances which led to our being delayed ten days in Mienyang, a small north Szechuan city of no particular interest, as it illustrates the sort of thing which is inseparable from road travel in China and which one just has to put up with.

Throughout our journey along the Fouchiang River through Suining and Santai the rains had been very severe. The road was severely affected, crumbling away in many places such as bridge approaches and along the cliff faces. After much trouble with a bridge approach which had been, as it were, jellified by the rain, and in which we stuck, we reached the Mienyang district and came down to the water-meadows by the flooding Fouchiang. Negotiating a collapsing culvert, we joined the tail of a queue of trucks waiting to cross by ferry, and found that the first two were already partly submerged. That afternoon the ferry ceased to function, and we found quarters for the night in a

farm building which had been put up as a country evacuation house for bank employees. During the night, however, the river rose very greatly, and soon after dawn we had to evacuate the position, finding the water already a foot or so high on the road, and carrying our baggage to the side of the hill, since owing to the collapse of the culvert it was impossible to move the truck back to higher ground. Peasants were hired to carry the baggage to a Middle School about 2 km. back, where shelter was found in a spacious, if draughty, loft. On returning to the water's edge (now about two feet above road surface), one could stand and listen to the cannonade of farmhouses all around collapsing into the flood - among them the very house in which we had spent the previous night. Driver Kuang and Mechanic Ling preferred not to leave the ship until the last moment, but during the succeeding night they had to get away by swimming, bearing with them our typewriter floated on an inflated inner tube. Some twenty-four hours later the water began to subside and when examination could be made it was found that it had come up about a foot above the floor of the truck, just missing, so far as the engine was concerned, the oil intake, and so doing no harm except to the dynamo armature which had to be replaced.

After this, it was some three days before the truck could cross into the city, and four or five days more before the washed-out bridges ahead could be repaired sufficiently to allow of our departure for the north.

The school in which we had taken shelter was noteworthy in itself. Originally set up by the CMS, it had been handed over to the Provincial Education Commission after 1927 when the missionaries had had to make a sudden exit from the district. During the past five years very little money can have been spent on it, so that although it now houses and teaches several hundreds of boys on a boarding basis, the buildings are in great disrepair, the sanitary conditions are very bad, and the gardens all gone to ruin. Thickly growing grasses make the outlook "tingdzes" useless, and strangest of all, there are a number of fives courts gone "back to the jungle" looking like relics of rituals of some lost civilisation.

After three days we moved over into the city and took up quarters in the compound of the Episcopal Church, where we enjoyed a most comfortable stay owing to the kindness of the Rev. Cheng Tieh-Hsia. Together with the members of an American convoy which was also isolated at Mienyang on its way to Sian, and was accompanied by Capt. Jones, a veterinarian, with a BMM truck, we attended Mienyang's Victory Day celebrations on Oct. 9th. These included a reception in the public park, with speeches by the Chuanyuen, the Hsienchang, the convoy leader and myself; basketball games between Chinese and American teams, and a magnificent torchlight procession through the town after dark, including soldiers, schoolchildren, members of all government offices, etc., the description of which would require an entertaining article in itself.

The Fouchiang floods this year were said by the local farmers to be the worst for 55 years, i.e. "since the sixteenth year of the reign of Kuang Hsu".

Turning to road conditions generally, I had the impression that the roads in Szechuan under the Szechuan-Shensi Road Administration were in even worse condition than when I travelled north in 1943, but that those north of the Shensi border, i.e. under the Northwest Road Administration, maintained their high level of excellence. The Bishan-Suining-Mienyang cut off is of course in worse condition than the main north road through Chengtu itself, but on the main road it would be hard to select the worst parts. Some attempt is being made to achieve a good surface over the mountains just south of Chengtu, and between Lungchang and Yungchuan it is not bad, but everywhere north of Chengtu it is poor to disgraceful.

There will be a good deal to say later about the Lunghai and Baotien Railways, but here I may mention that in view of the great difficulties with which they have had to contend during the past five years, one must have the greatest admiration for way in which they have been kept running.

The military narrow-gauge railway which used to run from Baochi to Shuangshihpu has now been torn up, and the rails and points are being loaded on to wagons on the Lunghai at Baochi for transport to a new coalmine northwest of Sian, 70 km. from the railway, where they will be used to bring coal from pithead.

At Mienyang we heard that drilling for oil was actively proceeding at Chiangyu, some 100 km. north of that city but we were informed that the road was unsuitable during most of the year for anything bigger than a jeep, so we were regrettably unable to pay a visit to the Szechuan Petroleum Administration.

At the time of our arrival at Hanchung, buses were regularly running through from Chungking to Laohokou in Hubeh through Chengku, but when we returned we found that all traffic in this region was immobilised due to absence of gasoline from the Yumen oilfield. As will be mentioned later, a great many of the KPA trucks in the Kansu corridor had been commandeered for use in the civil war in Sinkiang.

We wished to visit the NRC ceramics and insulator plant at Huating north of Baochi and south of Pingliang, but were unable to do so as the bridges were down on the road and Huating's only outlet was to the north and round by Sian.

The Chinling Pass between Shuangshihpu and Baochi is in excellent condition. Between Shuangshihpu and Tienshui the road up the south-flowing streams which run into the Chialing (completely wrecked when I drove up the river-beds there in 1943) is now again in very good shape, but unfortunately the road accompanying the north-flowing streams which flow into the Wei has been severely injured by the past rainy season.

The Lunghai Railway is operating regular schedules between Baochi in the west and Tungkuan in the east; it also runs up the

branch to the Tongkuan coalfield. The Baotien Railway is graded and tunnelled to Tienshui Junction (155 km west of Baochi), rails are laid to Tashih (80 km), traffic has run to Pingtou (28 km.), but owing to landslides in the past rainy season, it is now open only to Guchuan (18 km). Two of us accompanied the engineers on an inspection trip to this point.

IV. Accommodation

Bishan	Guestroom of the Nat. Social Education College
Suining	Rjubaofu Girls' Middle School
Santai	CIM (Miss Johanna Madsen)
Mienyang	Boys' Middle School, then Episcopal Compound (Rev. Cheng Tieh-Hsia)
Chitung	STS (poor as usual)
Kuangyuen	CIM (Miss Pauline Foote). The former CTS has been handed over to STS
Hanchung	CIM (Mr and Mrs Percy Moore). The former CTS had become the USAAF Hostel, but the airfield was being given up, and it was expected that CTS would shortly take over the buildings again.
Kuluba	Nat. Northwestern Engineering College
Miaotaidze	CTS (excellent) in the famous Taoist temple of Duke Liu. The restaurant, however, was closed on our return, and one has to eat outside in the village.
Sian	CTS (the best in Free China). Spring beds and private bathrooms.
Wuhung	Nat. Northwestern Agricultural College
Baochi	CIC Northwestern Federation
Chouchih	chez Bishop Gao (RC)

Loukuantai	chez Abbot Tseng at the famous Taoist temple.
Machiao	Chinling Mts. Forest Conservation Service HQ
Shuangshihpu	CIC Hostel (good)
Tienshui	CTS (good)
Baocheng	CTS (good)
Chengtu	East & West Society House, Huahsiba Campus no. 101 (Dr & Mrs Ho Wen-Chun)
Neichiang	CTS (good)

V. Institutions Visited

(1) Universities

Northeastern University (Santai, Szechuan)

This university, evacuated from Mukden, now occupies rather extensive buildings centering on an old temple within the city of Santai. From general report we did not expect to receive a very good impression and we did not receive it. This is not to say, however, that there are not some excellent scholars on the faculty, and as a whole there are not a few redeeming features.

President Tsang Chi-Fang is an economist (but thought to be primarily a KMT politician). He entertained us to lunch but had to depart for Chungking the same day with the local general in order to arrange for the return of the University to Manchuria.

In what follows, it will be noticed that the Presidents of most of the institutions visited were away. This was due to a conference called by the Ministry of Education in Chungking.

The outstanding faculty seems to be that of literature, of which the Dean is Lu Kan-Rjo, a noted scholar who in collaboration with his wife (the sister of the philosopher Feng Yu-Lan) has published well-known volumes on the history of Chinese poetry and literature. Both were educated in France. French-influenced also is the law faculty under Li Kuang-Chung.

We found the university library perhaps the best aspect of its life. The reading-room was very large and showed evidence of assiduous use; the current periodicals room was arranged better than that of any other Chinese University of our acquaintance; and the book stacks were pretty well filled. Many universities with a much higher reputation might envy this library. "Tungbei Ta" publishes two periodicals, one literary and historical, of which eight volumes have appeared, and one devoted to Manchu studies, of which seven volumes have appeared.

In conformity with the President's own interests, it was significant that the number of students studying economics and "government" is 297 and 263 respectively, while Chinese and law account for another 211, and science only about 60.

The science faculty, of which the dean is Li Chi-Wei, was not impressive. There was a well-qualified physicist and a British-trained geographer, but the only laboratories with any apparatus are those of chemistry. Prof. Li Chia-Kuang, dim and depressed, showed us round some gloomy bamboo-and-plaster buildings (outside the city) the equipment of which permits little more than routine

teaching. Nevertheless an effort is certainly made, and he even issues a little journal "Tungbei Chemical Correspondence" circulating among chemical alumni. In general the equipment is about the same as at Tongchi University at Lichuang, but there the other scientific departments were more alive.

It is believed that the standard of this university was a good deal higher when it was in Manchuria, and may well improve when the return takes place. According to local hearsay, there have been many student strikes, usually arising out of alleged undue favouritism to Manchurian students. The number of students is a little over 1000.

Northwestern University (Chengku, Shensi)

This university, which gave a much more favourable impression than the foregoing, may be placed among the good second-class ones.

President Liu Chi-Hung, an "educationalist" was away in Chungking at the time of our visit but the honours were done by Acting President Tu Yuen-Tsai, educational psychologist, Dean and Registrar. The university occupies the beautiful buildings of the old Ching Dynasty civil service examination hall, with their gardens, which include a small court with four magnificent cinnamon trees. Dean of the science faculty is the able Chao Chin-I, French-trained astronomer and mathematician, a corresponding member of Academia Sinica. Head of the biology dept, is the Wisconsin-trained plant pathologist Liu Rju-Chiang. Head of the

chemistry dept. is the venerable Chang I-Tung, a pupil of Ramsay's and later of Donnan's in London. Head of the physics dept. is Yo Chi-Heng, who worked for a long time at the Sorbonne.

The faculty as a whole gave a very good impression. They have a professor of English, an ex-CIM missionary, Mr Charles Carwardine, who has been no less than 47 years in Chengku - a most amiable old man. He left the mission long ago on ethical grounds, believing that the Chinese Church should stand on its own feet, and lived in great poverty until the university came to the city. He can remember the time when the examination hall was used as such, with cells into which the candidates were locked for three days.

The department with most apparatus is that of Physics and great ingenuity has been shown by the assistants in constructing demonstration and research apparatus out of odds and ends, much of which they have obtained from the USAAF. We saw, for example, an excellent postoffice box made in their own workshop, ultra short wave apparatus, a home-made spectrometer, etc. etc. They make their own dry cells.

The Chemistry dept. had less apparatus than that at the Northeastern University, but it was much better kept. Both these departments had just prior to our visit received a quite large consignment of apparatus and glassware brought by FAU truck from Kunming, where it had apparently been waiting three years or more in a Djiaoyupu godown.

Worst off was the Biology dept., which had only seven war-time made Chinese microscopes, no microtome and hardly any specimens or slides. There were teaching diagrams and a small herbarium.

The well-known geologist Yin Tsu-Yin occupies a "settee" covering Geology, Geography, Mineralogy, and Meteorology. Though absent at the time of our visit, his influence was apparent in the shape of some most enthusiastic young assistants who demonstrated an excellent collection of mierals of the surrounding mountain country.

The library and reading-room were of good quality, though small; the books mostly Chinese. The periodical room was well maintained and much used. Among the foreign books, that of the Webbs on the USSR was noted.

A striking point was that the grounds and buildings were kept up more neatly and nicely than in any other university visited, with the exception of Hsiamen Ta (Amoy University) at Changting, Fukien, and of course of Huahsi Ta (West China Union University) at Chengtu, which has always remained on its pre-war site. The number of students is just over 1000.

This university is one of the fragments of Peiping University (not the famous Peiching University, now part of the Nat. SW Associated University at Kunming), which though a national one, was not regarded as one of the three good ones in pre-war Peiping. It housed many German and Japanese-returned professors. On evacuation to Sian it became, by amalgamating with various local

Shensi institutions, the Nat. NW Associated University, but after the air-raid danger became too serious, it split up as it evacuated further. The literary, law, and scientific faculties went to Chengku to form the Northwestern University ("Hsibei Ta"), and will now move back to settle in Sian, not to return to Peiping. The engineering faculty combined with the Beiyang Engineering College which had come from Tientsin, with the engineering faculty of the Northeastern University, and with the Chiaotso Engineering College from the Fuchung Coal Mines in Honan, to form the Nat. Northwestern Engineering College, now at Kuluba (see below). The medical faculty moved to Hanchung (see below) and has now received orders to proceed to Lanchow and unite with the vocational medical school there (see p. of the report on the NW), though all the professors and most of the students are very anxious to return to Peiping and have informed the Ministry of Education to that effect. Finally the agricultural faculty amalgamated with the Shensi Provincial Agricultural College and its remarkable buildings at Wugung, (see below). It is probable that this will rejoin the parent university but remain where it is as its site is very conveniently situated only a few hours by train from Sian.

In view of its former German and Japanese reputation, we were surprised to see how little of this now remains, either in the university at Chengku or its associated institutions. In fact the professors constantly reiterated their desire to have one or two visiting professors for a time from England.

Honan University (Erhlongsse, near Baochi, Shensi)

This university, like Chungshan University (see Report on the SE, p.) is unclassifiable on a scale of merit, but for different reasons. It has suffered more than any other Chinese university. Having all, it yet possesses nothing. The former because the group of professors constituting its faculty are a very impressive and attractive body of scholars; the latter because during its numerous moves of evacuation it has lost practically all its equipment.

Normally located at Kaifeng, capital of Honan, it evacuated first to the southwest of the province, the arts and science faculties going to Chikungshan and the medical and agricultural faculties going to Chenpinghsien. After some months another evacuation was necessary, to Tantou near Sunghsien. This was again attacked by the enemy and the university moved to Chingtzekuan in Hsichuanhsien. During this attack the entire library and equipment of the medical faculty and the library of the science faculty were burnt by the Japanese. Here also seven students and two lecturers were killed, and many of the professors captured, though all of these escaped later by night. Here Prof. Li the chemist lost all his papers and Prof. Wang lost the complete MSS of the plant pests of Honan which had been a work of years. Finally the university moved to its present position beside the Lunghai Railway some miles east of Baochi.

Administrative buildings and library occupy an old temple, Wuchengsse, on a loess bluff overlooking the Wei river and the Chinling range. Most of the teaching is given at another old temple (with interesting wall-paintings), Shihyangsse, some 2 km. up a side valley. The professors and students live in neighbouring farmhouses and many of them in caves in the loess. At the time of our visit they were greatly dreading the coming of winter, which is severe in Shensi and Kansu, since it had not been possible to carry with them more than the summer clothes they had on. We contacted the Central Relief Agencies immediately on this point, and hope that some action will be possible.

President Tien Pei-Ling was away at the time of our visit, but he was represented by Acting President Hao Hsiang-Wo, a very intelligent geneticist. Probably the outstanding biologist there is Wang Ming-Chih the plant pathologist (already mentioned). There are two good chemists Yang Ching-Tang and Li Hsiang-Chieh (already mentioned); the latter, since the loss of nearly all the apparatus and the impossibility even of unpacking the little that is left in the space available, has turned his time to good account in studying the history of science in China. A brilliant mathematician, Fan Yin-Chuan, is expert in theory of functions; and the economist Wang Tze-Yu (trained in former Vienna) with the sinologist Chi Wen-Fu, are both obviously first-rate scholars.

In all, this group impressed us more favourably than any other in the north with the exception of the NW Engineering College

(see below). Bright and alive, though now utterly devoid of facilities, they must be (and as one could see from the demeanour of the students in general, evidently are) even in poverty-stricken conditions a source of inspiration to those they teach.

The number of students is about 1200.

The only thing that the university does have left is its Chinese library. This is a truly splendid collection housed in five temple halls. There is, however, insufficient shelving, and great bundles of books lie on the laps and at the feet of the cobwebbed gods just as they were thrown there when brought in by the coolies from the last evacuation place. The catalogue was lost. But although there may be a few volumes of the vast sets and series missing, most of the damage can fairly easily be repaired when the university resumes its old quarters at Kaifeng.

All the western books left are housed in a small room with shelves of unplaned wood on pillars of mud brick. It was curious to see a rare complete set of Fabian Tracts in such surroundings, and a learned book on the Latin Hymns. There is now no department of English or Western Languages at all, but it is intended to revive this when the return to Kaifeng has been made.

The medical college, which never had a very high reputation, is now located in a temple to the south of the Wei river, which renders intercommunication often difficult. It lacks all equipment. We were sorry not to be able to visit it.

(2) Technical Colleges

College of Social Education (Bishan, Szechuan)

This college, which has 800 students, occupies two old family temples on a hill forming the highest part of Bishan city. It has 4 major departments (a) adult education administration (b) social work (c) library and museum work (d) journalism; and 3 minor departments (a) radio and cinema (b) art education, including music and drama (c) promotion of the national pronunciation (Kuo Yu). After graduation the students take posts in "county colleges", "people's education institutes", or as librarians, museum curators, social workers, etc., under the Ministry of Social Affairs. The first 4-year set of graduates has just been produced, and UNRRA was asked if it could use them, but declined to do so, perhaps because of their lack of practical experience.

On our visit we saw little equipment (though there were four pianos) but the library, consisting mainly of Chinese books and magazines, is not at all bad, and an archaeological museum, containing rubbings of inscriptions, figured Han bricks, etc. has been started.

The President is Chen Li-Chiang and the Director of Research Cheng Hsi-Kang. Other members of the staff seemed to be of average good quality.

Ultimately the college will move to Wusih, halfway between Shanghai and Nanking, where at Chishashan they already own a lot

land. They plan to start an agricultural experiment station, a printing press, laboratories for experimental science teaching, a radio station, etc.

Fine Arts Colleges (Bishan, Szechuan)

Just outside the city there are three associated institutions (which doubtless cooperate with the foregoing in art education): Chiangsu Chengtse Fine Arts Special School, Chiangsu Chengtse Vocational School for Girls, and the Chiangsu Chengtse Middle School. All are under the presidency of the famous painter Lu Feng-Tze.

The first of these has about 300 students, of which one third are women. It is the most famous art school in the neighbourhood of Chungking. Both Chinese and Western styles are taught. We were shown a rather dark hall in which a life class had been going on, and a gallery containing many splendid pictures in Chinese style, with some plaster casts of sculpture. A small museum contained samples of pottery work and toys. The students' studios have about six to a room. The general atmosphere seemed excellent.

The second organisation teaches mainly sericulture and architecture (a curious combination ?). The third, so far as we could ascertain, is an ordinary middle school but with special emphasis placed on arts and crafts.

Tangshan Engineering College (Dingchia-an, nr. Bishan, Szechuan)

This engineering college forms part of the University of Communications, the other portion of which is located at Djiulongpo some distance up the Yangtze river from Chungking. The Djiulongpo branch (originally from Shanghai) has five sections (a) telecommunications (b) mechanical engineering (c) civil engineering (d) electrical engineering (e) railway administration. The Dingchia-an branch (from Tangshan in Hobeh, adjacent to the locomotive shops of the Peiping-Mukden Railway, and to the Kailan Mines; halfway between Peiping and Shanhaikuan) now under review, has three sections (a) civil engineering, including municipal, architectural and sanitary, (b) mining engineering and (c) railway operation. It has some 600 students.

This college is most notable as having by far the most stable faculty so far met with among Chinese institutions. The Professor of Civil Engineering, Wu Ching-Hu, a very fine man, has taught there for over 30 years; while the Professor of English, Li Fei-Ying has been at Tangshan for 29 years. This is very exceptional in China and argues good management and social cohesion (perhaps the close connection with the Ministry of Communications has been more beneficial than the usual association with the Ministry of Education). One finds alumni of Tangshan everywhere - in my personal experience I recall Dr Mao the most famous bridge-builder in China, Mr Wang the highway engineer whom we met contending with floods at Mienyang, Mr Lu the

locomotive expert at Baochi (see below), etc. etc. Director Ho of the Hsiangkuei Railway between Hunan and Kuangsi was also a Tangshan man. During the retreat from Hunan and Kuangsi last year British engineer units were allocated the part of blowing up the bridges on this railway, and I know from first-hand information that they were found to be quite unexpectedly well built.

Unfortunately, what has been said above about Honan University is applicable to Tangshan College. The faculty and students did not leave Tangshan until after the Japanese occupation of that city; they were consequently unable to take any equipment away with them. First they went to Hsiangtan in Hunan south of Changsha, then to another place in Hunan some 27 km. away, then to Pingyueh near Machangping in Kweichow. Finally in Dec. 1944 they had to walk out. Elderly professors, not in good health to start with, had to walk some 300 km. and all the books were carried by coolies that distance, until trucks could be hired at Kweiyang. The present library consists of some 5000 books, rather well chosen (it was ten times this size) and 300 textbooks lithoprinted by the IRC had just arrived.

Dr Ku I-Sun is acting president. Among the professors is the architect Ling Ping-Hsien (P.Y. Lamb), brother of a medical Dr Lamb who has long been a permanent resident of London.

Originally the entire influence in this College was British, because the Peiping-Mukden Railway was British-built and the Kailan Mines British-owned. Dr Herbert Chatley was there for a

long time before he went to the Huangho Conservancy. I consider that there is a strong case for generous support from England to get this college on its feet again, and it might well take the form, not only of gifts of books and periodicals, but of actual machinery donated by British firms. A special memorandum will be provided on this question. Tangshan College is a case similar to the Lester Foundation in Shanghai.

Northwest Medical College (Hanchung, Shensi)

For information on the origin of this institution, cf. p. above on the fragmentation of Peiping University. In its present situation, the clinical and scientific sides may both be classed as of middling quality.

President Hou Tsung-Lien, a noted physiologist, was away at the time of our visit, but at the Hospital in the city we had a long talk with the Director Chen Yueh-Ming (a physician) and with Chang Wei-Wu, dermatologist. Hou Tsung-Lien was on an inspection-trip of medical colleges in former Japanese-occupied areas such as South Manchuria.

The college has 300 students, covering a six-year course, 200 of them are pre-clinical. All lecturing was formerly done in Japanese or German, now in Chinese. No research has been possible during the war. What equipment there is is old - the histology department has only 3 microscopes; the buildings are too small and crowded.

Nevertheless we saw the hospital in very active function. OPD 100 patients/day. Beds 35 plus 6 maternity. Operating-theatre good. The hospital has recently built a new 5 million $ ward out of its profits. The medical and surgical staff seemed to be good and efficient. One of their number, the specialist on Ear, Nose and Throat diseases, was killed in an enemy air-raid on the city. The staff includes several women doctors and professors. The staff prepares its own lecture-notes, which are then duplicated and bound into book form. A small library of clinical books, mostly good German ones, exists. There is a training course for nurses.

The pre-clinical laboratories are located in a family temple, Wenchiamiao, some 5 km. outside the city towards the Han river. There work the enthusiastic chemist Wang Yun-Ming, the able biochemist Wang Kung-Li, the precise anatomist Ma Chung-Kuei, and others, but the place, though kept very neat and clean, desperately lacks equipment, Best fitted out is the physiology lab. Procuring of bodies for dissection is extremely difficult owing to country superstitions, and Dr Ma himself has to dissect while the students look on, as in the middle ages. The only attempt at research is on the part of the bacteriologist Chu Chung-Rjo, who has discovered a method of producing auto-haemophagocytosis experimentally. But the prohibitive cost of maintaining any kind of laboratory animal is a dreadful obstacle for him.

The best scientist in the college is no doubt Li Pei-Ling, a pupil of Boycott's in London. I had met him two years before in Lanchow. He is a great personality but now more disgruntled than ever. The very type of the brusque, satirical, and eccentric scientist so common in the West, he is out of place in China, where suave good manners still prevail, even at the cost of truth itself. It is greatly to be hoped that he will some day find a niche where his talents will be appreciated, perhaps at Singapore, Manila, or Hongkong; and he probably ought to be given a renewed opportunity for a research period in England or America.

One cannot say, therefore, that the scientific staff is not good at Hanchung, nor that the medical staff are not active. In fact we had independent confirmation of the hospital's good reputation. But there must be something wrong somewhere, as there have been frequent student strikes and disturbances. We were not able to find out what it is.

Northwest Engineering College (Kuluba, Shensi)

There is a student proverb in China that Kuluba is hell, Shapingba is earth, and Huahsiba is heaven. This must refer, however, to the great isolation of Kuluba, and not to the standard of the College, which I would unhesitatingly describe as the best engineering teaching institution, apart from Tangshan, that I have met in China. Kuluba is a day's walk or sedan-chair ride from Chengku into the mountains to the south, and the buildings are

excellent, the college having leased the greater part of an RC abbey built many years ago by Italian fathers in a very solid fashion. In one portion a number of German fathers have been interned during the war.

The staff consists of a large number of outstanding men, of whom only a few can be mentioned here. President is Pan Cheng-Hsiao (A Tanshan man of course) from Cornell. There are many MIT men on the staff. In the department of electrical engineering Prof. Yu Chien-Liu is a distinguished Chinese scholar as well as a physicist. Chao Yu-Chen is a specialist on harbour engineering, who wants to study British practice on this subject in England. Chang Kuo-Fan, the aeronautical engineering professor, studied at Imperial College, London. Head of the Textile department is Rjen Shang-Wu from Lowell College, Mass. Peng Rjung-Go the specialist in hydraulic engineering is also noteworthy. Chemical engineering includes Hsu Erh-Hsin (paper technology) Kang Hsin-Yuen (industrial physical chemistry) and Liu Feng-Do (fermentation industries). In all, we met some thirty-five faculty members, and were much impressed with their high level of technical qualification and intelligence.

There are at Kuluba some 1200 students and a total of 230 professors and lecturers. About 1200 graduates have been produced during the war years; of these 150 have gone to the USA and 10 to the UK. The students include 25 women, mostly in the textile and chemical engineering departments. A freshman

preparatory course is held in a temple at Chihsingsse about 20 km. away.

The origin of the College has already been sketched above (see p.). It now contains the following departments (A) hydraulic engineering and irrigation technology, (B) electrical engineering (i) power production (ii) telecommunications, (C) textile engineering, (D) chemical engineering, (E) industrial management, (F) aeronautical engineering, (G) mechanical engineering, (H) mining and metallurgy (i) mining (ii) metallurgy (iii) a research section, (I) civil engineering, including surveying, highways, and railways.

The library and reading-room occupy a beautifully painted chapel, using both galleries for the (largely unbound) extensive periodical collection. Book collection is moderate in size but quite good. Many IRC photolithographed textbooks are available. British engineering journals were well represented. We had brought with us several sacks of books and periodicals, and these were the first current ones which the staff had seen since 1941. The library also includes a fine Chinese history and literature section, which was said to be much used by the professors.

Equipment was available on a scale surprisingly large when it is remembered that the college is a day's march from any motor road, and then a day and a half by truck from railhead. In the mining and metallurgy dept. there were large and excellent mineral collections. Fossils were accompanied by specimens of

modern animals, e.g. brachiopods, preserved in bottles for comparison. Mining models were very good. Home-made geological models also good. There was a fine set of German-made glass crystal models (inconceivable how these arrived unbroken). In the civil engineering dept. we found an abundance of instruments such as theodolites, transit levels, plane tables, etc. all showing signs of much habitual use. The railway and bridge models, however, were few and dilapidated. The surveying equipment was at least as good as at Tongchi University, otherwise the most noted centre.

The chemical laboratories were spacious but devoted wholly to teaching. The mechanical engineering dept. included a demonstration foundry in which tin is used as no cupola is available. A workshop with fitters benches is used to demonstrate general principles, and a machine shop contains some good tools, unfortunately all rotated by hand as they cannot convert their oil engine to producer gas. They are able to make all the blueprints they want, buying the paper from Chungking. It was difficult to form an opinion of this department, as it was rather too obviously swept and garnished, and a lot of people were busy in a rather unconvincing way. Nevertheless this is not to say that the theoretical mechanical teaching is not very good. In any case, it is understood that the students go to Sian or other centres in every vacation to obtain practical experience.

The hydraulic engineering department was especially interesting, and indeed a tour de force, since being situated on the slope of the hill on which all the buildings stand, it has to depend entirely on water from a well hoisted up to a tank. It has a great deal of apparatus, largely home-made, such as experimental orifices, sluices, Venturimeters, sand filters, wave motion viewers, determination of Reynolds' No. etc. It also has many models of the correct shapes for irrigation intakes, scouring sluices, etc. etc. This laboratory is more elaborate than that of the Nat. Technical College at Shapingba, and almost equal to that at Wugung (see below).

The electrical engineering dept. possesses quite a lot of gear, but since the college is far from any source of current, none of this can be worked. The students learn a good deal, however, by assembling and disassembling dynamos, transformers and the like.

The only department carrying on any research is that of mining and metallurgy. The metallurgical laboratory is not badly equipped and has a particularly good micro-balance, but did not seem to be much used. We were told that one man was working on the extraction of Al from clay, another on coal-washing, a third on the improvement of the traditional methods of iron-making.

All in all, and allowing for its great isolation (we were the first Western visitors it had received during the war), this

college is the best engineering college I have seen in China.

Army Medical College First Branch College (Sian, Shensi)

This report should be read in conjunction with the account of the parent college at Anshun, Kweichow (in the report on the SW).

This (Sian) College was opened in 1935 at Canton but moved to Shensi in 1944. The present Dean is Maj.-Gen. Tun Shu-Tung. The regular 5 yr course has 225 students, the 2 yr short course has 150 students, and the 1 yr course has 120. There is a pharmacists' half-year course. The faculty number 45.

The full course consists of ordinary medical students who agree to serve in the army for a given time after their graduation. The 2 yr course consists of non-medically-trained medical officers who have risen from the ranks and been given successive promotions by army and division commanders without regard to technical knowledge. Some of these officers attained the rank of Lt.-Col. and were in command of divisional field hospitals. The 1 yr course consists of lower middle school graduates and produces Sgt. Nurses.

Our impressions of the pre-clinical part were very poor, but the clinical part, under the energetic direction of Col. Chang Tong-Ho (a PUMC surgeon) was very good.

The pre-clinical laboratories occupied fairly decent premises outside the city until the advent of the USAAF and the

extension of the airfield; they then had to move into the city and were crammed into a compound which, while not small in area, has few buildings, and is unprovided with electric current, although the town has it. Thus the centrifuges of the bacteriological laboratory can be used for demonstration only, and one observed the pitiful way in which the physics professor, Lo Chiung-Hao, a good man, had to have a hand-turned generator to provide a few volts for class experiments. The bacteriological laboratory seemed to lack a central piece of apparatus, namely an autoclave. In the anatomical dept. there were some good models, but in biology practically nothing.

Two excellent laboratories, or rather men, there were, but both were in the Hospital compound. They may, however, be described here. Prof. Li Fu-Ching, a German-trained parasitologist, was in charge of a pathological laboratory where the standards were evidently high. The other live department was that of physiology, where Prof. Chu Hsiang-Yao (formerly with the Academia Sinica at Kweilin) had a good deal of apparatus in use, much of it made in his own workshop, e.g. colorimeters and kymographs.

The Hospital occupies a compound which in Ching days was the Arsenal, and was the first place captured by the revolutionaries in 1911. It is much bigger and better kept up than the pre-clinical labs. There are 150 beds, with nearly 200 OPD patients/day. The surgical section seemed excellent and showed great activity

on the part of Col. Chang and his assistants. The hospital is not a military hospital in the ordinary sense, but a hospital for the general public run by a military medical school. There is an X-ray dept. for fluoroscopy only. An old but useful library contains mostly German books. The clinical diagnostic laboratory is good.

Shensi Provincial Medical College (Sian, Shensi)

This medical school, with a couple of hundred students is directed by Dr Chang Nai-Hua, an able German-trained physician who is concurrently director of the largest hospital in Sian. We saw several classes in progress, the teaching being partly in German but mostly in Chinese. Of material equipment there was hardly a trace, but the faculty were doing their best, as evidenced by the very large number of beautifully made wall-diagrams in every lecture-room, prepared in the college itself. The general impression was one of great cleanliness and order; there were many girl students and the classes were diligently taking notes. The students, we were told, use other laboratories in the city for practical work, especially those of the Provincial Hygiene Institute and Vaccine Plant (see below).

The library was insignificant, except for a few runs of periodicals in Chinese.

There are two attached hospitals, one of which is the largest in Sian, having 3-400 OPD patients/day. All the clinics were

neat and clean, and 4th year students were in attendance. The surgical department was again excellent, with good records and keen staff. The dispensary includes a small factory for making ampoules for injection (some of these seemed of doubtful value, though they may have helped to make the hospital pay its way). The clinical laboratory was particularly good. We were shown slides of the parasites of kala-azar, which is a serious disease in this season. The X-ray plant is large, but since the war used for fluoroscopy only.

It is hard to know what will be the future of this medical college. It would have to be much better equipped before it could be the medical college of the Northwestern University after that moves to Sian.

Beiyang Engineering College, Sian Branch (Sian, Shensi)

This is a fragment of the famous college in Tientsin most of which went to form the Northwestern Engineering College. Under the presidency of Prof. Yang Hsien-Chien (concurrently chief locomotive engineer of the Lunghai Railway, see below) it now has some small buildings in Sian, where 100 students are taught by half a dozen professors. The work is concentrated in civil, mechanical and railway engineering, mainly acting as a feeder for the staff of the Lunghai.

Huangho River Basin Hydraulic Engineering College (Chaochiapo near Baochi, Shensi)

This interesting institution, of which Liu Teh-Rjan is the President, is the only one of its kind. It is under the Ministry of Education, not the Huangho River Conservancy, and similar colleges were planned for the Yangtze and the Chuchiang but never set up. This college started in 1929 at Kaifeng, and intends to return there as soon as circumstances permit. At Kaifeng it had plenty of surveying instruments, a strength of materials testing lab., physics and chemistry labs., etc., but all equipment has been lost.

Enrolling graduates of high schools, it gives 3 years of training of university standard, and turns out engineers, surveyors, irrigation superintendents, etc., who serve all over China. At present it has 360 students, some of them 30-40 yrs of age, and some women too.

Attached is a Vocational School, 4 km. away, with 320 students coming from junior middle schools. This turns out (after 3 yrs of training) foremen, draughtsmen, surveyors, and cadet engineers.

The members of the staff were clearly capable hydraulic engineers and the student body seemed keen and intelligent. This institution deserves all the support we can give it.

Northwestern Agricultural College (Wugung, Shensi)

This college is perhaps the largest in Free China, and as an agricultural centre can only be compared with that at Shatang near Liuchow in Kuangsi (described in the report on the SE p.)

There are really five institutions at Wugung (a) the Northwestern Agricultural College itself, together with its attached middle and primary schools, (b) the National Hydraulics Research Laboratory, (c) the Wugung Branch of the Botanical Institute of the Peiping Academy, (d) the Ministry of Agriculture's Northwestern Agricultural Experiment Station, (e) the Ministry's Northwestern Animal Breeding and Improvement (Horses) Station. Most of these will be described below.

The Agricultural College occupies an enormous modern building with a tower of seven storeys on the loess escarpment just north of the Lunghai Railway, overlooking the Wei Valley and the Chinling Range. Tabaishan (12,000 ft), the highest mountain in China proper, is visible. A few miles to the west is the prominent tumulus of the last Sui Emperor, and much further away on the same escarpment to the east are the long succession of tumuli of the Chou Emperors.

The farm lands belonging to the college are most extensive, reaching from the escarpment to the river for a considerable distance. The grounds are very good, being thickly planted with trees and shrubs. Roads are avenued with Ailanthus and other trees.

The President is concurrently president of Honan University, and was away when we were there. The Director of Instruction, who took his place, was the Iowa-trained Lu Bao-Ching. Notable among the professors were the Edinburgh-trained animal husbandry expert Wang Tung, and the famous irrigation engineer Sha Yu-Ching.

The impression given by visits to all the different departments was rather uneven:-

Library : Very extensive and well run, though many books still evacuated to Mienhsien. Complete runs of many agricultural periodicals, both Chinese and Western.

Hydraulic Engineering: First-class. This department is run in conjunction with the Hydraulics Research Institute (see below). It has the best library on its subject yet seen in China, and many interesting models. It has published a series of research bulletins.

Horticulture: Also good and active, publishing a series of research bulletins. The horticultural farm has good greenhouses, and fruit orchards. It is interested mainly in improving the apples and peaches of the province. Though 50 varieties of apples are grown, all are Chinese or American, none English. In flower-growing, we saw splendid dahlias and lilies.

Animal Husbandry: Though Wang Tung himself is a good man, this department seemed almost without equipment. His work on forage crops was therefore greatly handicapped.

Economic Entomology: Here also bricks were being made without straw. Wu Ta-Chang was engaged on a thorough study of scarabid beetle pests.

Agronomy: Only empty rooms seen, no calculating machines.

Agricultural Chemistry: Teaching only, not a very live department, though fairly well off for chemicals and glassware.

Plant Pathology: Full of enthusiasts, Chin Shu-Chang, who looks after a substantial herbarium in steel cases;

Italian-trained Chou Yao, who is compiling an "Iconographia Entomologia Sinica"; and systematic botanist Weng Hung-Han. The leader of the Peiping Academy branch, Wang Yun-Chang, is also associated with this department.

Veterinary Medicine: Conducted by a man who deserves to be better equipped - An Keng-Chiu. A parasitologist, he collaborates with Li Fu-Ching (already mentioned) down the railway.

Forestry: Very good, run by Wang Cheng, and several other professors, all German-trained. Among them is Dr Bai Yin-Yuen (see below), Director of the Chinling Mountains Forest Conservation Service.

Rural Education: Not very active.

Rural Economics: Not visited.

It will thus be seen that while some aspects of this college are excellent, others are poor.

We had a curious impression, too, in our conversations with the staff, of a widespread woolliness. Dean Lu seemed unable to understand any questions, and when he did eventually take them in, he was never able to answer them without appealing to someone else. Independently we heard that many of the professors had become very discouraged by their lack of facilities, and had become lazy, just reading their former courses of lectures automatically and doing little else. It is not planned to move this college after the war, and it will doubtless be attached to the university in Sian, but opening of the railway and flow of new supplies inwards will ultimately bring about a great improvement. The college certainly has all the makings of a fine institution.

The present number of students is 600.

(3) Research Institutes

Northwestern Agricultural Experiment Station (Wugung, Shensi)

Here the Director is Wang Shou, a plant-breeding man from Cornell. With several assistants he carries on extensive work on crop improvement of wheat, cotton, gaoliang, beans, potato, and corn (maize). Everything in and around the station is in applepie order and excellent work is going on. This station has received much attention from State Department experts; both Dykstra and Lowdermilk have stayed there.

Peiping Academy, Botanical Institute, Wugung Branch (Wugung, Shensi)

This branch institute, which is also known as the Northwestern Botanical Survey, is under the direction of a very good scientist, Wang Yun-Chang. He occupies the 4th floor of the great Wugung building, and with half a dozen assistants attempts to continue the "Flore Illustree du Nord de la Chine" of which 4 volumes, published by the Academy, appeared before the war. He himself is a specialist on the higher fungi, of which he has a considerable collection. At the time of our visit the Survey was working on the Salastraceae (spindletrees).

Wang and his group, mostly French-trained, are doing first-rate work, but seemed pinched with cold, and the simplest facilities, such as a good typewriter, or sufficient specimen bottles, are not available to them. They deserve all support.

National Hydraulics Research Institute (Wugung, Shensi)

While associated closely with the Northwestern Agricultural College, this Institute really belongs to the National Central Water Conservancy Research Bureau, a sub-committee of the Executive Yuan. It is directed by Sha Yu-Ching, the most eminent pupil of Li Yi-Chih, the father of modern Chinese hydraulic engineering.

The Institute is located alongside one of the main canals of the Wei Hui Irrigation System, from which it draws its water. A laboratory some hundred yards long houses experimental river beds made of sand or other materials, and there are all kinds of equipment for determining the best shapes and sizes of sluices, spillways, etc., etc. A strength of materials shop contains apparatus for determining the shearing-stress coefficients of various kinds of soils and sands, their compressivity, etc.

These laboratories are the largest of the kind in what was Unoccupied China, though in China as a whole the largest is at Tientsin. This institute has chiefly been concerned with the problem of loess silt in relation to all phases of irrigation. We noticed that the books in use were mostly American. This is a fine organisation and deserves all support.

Shensi Provincial Industrial Research Bureau (Sian, Shensi)

This laboratory was founded by Dr Wu Ping (founder of the power alcohol factory which finally settled near Neichiang) when he was Commissioner of Reconstruction for Shensi. He built up

an excellent provincial analytical and industrial laboratory, with much good apparatus and a fine German library, but after his death in a plane crash in Kuangsi, it gradually decayed.

In 1940, when the lab. was evacuated to Shuangshihpu, the CIC took an active interest in it, and during a number of years, many analyses were made and many suggestions worked out for new chemical and other industries in the NW. But in 1943 the Reconstruction Bureau took the laboratory back, and it is now again in Sian. Its building, very well-planned, in a public park in Sian, was commandeered to house American troops and interpreters, and it had been hoped that upon their departure it would be able to reoccupy, but instead of this, Chinese troops occupied it, and no success has yet been achieved in getting them out. The laboratory has taken refuge in a tiny little court.

At the time of our visit nearly all the apparatus and chemicals were packed up in crates. This turned out to be due to the fact that a new director was coming in, and in the lesser Chinese organisations it is customary to store everything away so that the newcomer cannot easily check up on losses or breakages. This is one of the most extraordinary bureaucratic capers yet met with in this land of bureaucratism.

(4) Government Scientific and Technical Organisations

Chinling Mountains Forest Conservation Service (Chouchih, Shensi)

This service (under the Ministry of Agriculture) has the function of conserving the vast forests which stretch from one end of the Chinling Shan to the other, i.e. from the Tibetan massif through South Kansu, South Shensi into North Honan. It must take measures of protection against pests which range from insects through the higher animals to man (in the shape of soldiers unlawfully felling timber), and for this purpose it has a remarkably handy body of men, the forest police, specially trained in forestry by the Director. It must make "fire lanes" through the dense area as protection against forest fires. It must carry out afforestation on all suitable sites in the foot-hills. Maintaining a nursery of forest trees, it must supply saplings to the irrigation, highway and railway organisations for planting on cuttings and embankments. It must advise all private forest owners concerning their trees. The task of Director Bai Yin-Yuen (an extremely able German-trained but good English-speaking forestry man) is therefore very great, and he is handicapped, (like most Chinese Government scientific and technical organisations) by lack of funds. Among the forests in his area are those of the famous Taoist temples of Loukuantai near Chouchih and Miaotaidze near Liuba.

The headquarters of the Service are at the hsiang of Machiao in the hsien of Chouchih, just at the foot of the

mountains. Here there is a collection of tree sections, a museum of pests, forest pathology, higher fungi, etc. with abundance of charts on the manner and growth of different types of trees.

Straight into the mountains from Machiao, up into and across the Chin Pan (Golden Basin) hanging valley, around the sides of which we saw afforestation actively going on (planting of seeds of oak, chestnut, walnut, and Thuia), one comes to the nursery, situated beside an old Buddhist temple, the Hsienyusse (of ancient date, with a Tang pagoda and two stupas) in the extremely beautiful gorge of the Black River. Here about 25 different species of trees are grown, including Gleditschia, Rhus verniciflua, and Gingko biloba.

The headquarters office staff numbers ten university graduates and eight specially trained assistants. Dr Bai is concurrently one of the forestry professors at the Northwestern Agricultural College.

We understand that similar services have been established in Kansu, Szechuan (centering on Kuanhsien), Yunnan (near Lichiang), and Sikang. One is planned for Fukien. The Shensi one has been going for 4 years.

Soil Conservation Service Experiment Station (Tienshui, Kansu)

This organisation (under the Ministry of Agriculture) is concerned with what is perhaps the most fundamental problem of

China, namely soil erosion, the constant drain of good farm land down the great river. Situated at Tienshui in the heart of the famous loess area, it has received special aid from the State Department experts such as Lowdermilk and Shuhart. The former, in fact, practically chose the site some years ago. At the time of our visit Director Fu Huan-Kuang was away in America himself, but Acting Director Yeh Pei-Chung, a man of few words but first-class ability, showed us round.

The headquarters office and nursery are just outside the south gate of the city, on the edge of the broad tributary of the Wei which joins the main river some 20 km east. Across the river to the south is another nursery, and the whole range of hillsides to the south is the station's experimental region. The erosion plots and experiment station are a little to the east, on a northward looking loess bluff above the tomb of the famous Han general Li Kuang.

The library is small but select largely consisting of books ordered through SBSCO two years ago. The nurseries contain a wonderful collection of all plants and shrubs which have value in binding soil and preventing erosion. These include the "kudze grass" (Ch. name "gê-tun": L. Pueraria thunbergiana, a creeping vine) in which much interest has lately been taken in Australia and Egypt. Many varieties of grass, such as Agropyron, were donated to the station by Vice-President Wallace

on his visit. Without going into further details we may say that a more interesting collection of growing plants we never saw. The station is most anxious to be put in contact with similar work in the British Commonwealth, and to receive seeds.

The work of the service divides into five sections. (a) The botanical section includes the maintenance of the nurseries, and the multiplication and improvement of all plants suitable for the ends in view. Alfalfa and clovers have proved the best erosion-preventing crops. (b) The plot experiment section deals with actual measurement of the runoff of water and silt from all kinds of surfaces. Thus there are plots of given area of different kinds of soil at different slope angles and planted with different kinds of crops and crop-combinations. There are also large and small gullies with measuring apparatus fixed at their outlets. Buckwheat has been found to be the crop most conducive to erosion (and it is widely grown in the NW). (c) The meteorological section operates a meteorological station, notable in which is the only automatic rain gauge in Free China. This is necessary for all the other work. (d) The experimental region section is making contour ditches all over the hillsides, demonstrating to the farmers the inadequacy of the traditional small drainage channels. Contour ditches collect the runoff during heavy rains, after which the dried silt can be dug out and returned to the land. A grass strip along and above each

ditch further retards erosion, and trees planted below it stabilise the correct elevation section. The UCR has given a grant for this work. The station has prepared an excellent pamphlet for the farmers showing them how to conserve their land, and this is published and distributed by the Commissioner of Reconstruction in Lanchow. (e) The forestry and tree-planting section co-operates with the others. We saw several very nice young woods growing up south of the city, in association with silt-retarders at the mouths of streams.

This organisation is doing some of the finest work I have seen anywhere in China. The Fukien Academy of Sciences undertook similar work, but at the time of my visit (see Report on the SE, p.) it seemed to have come to a stop. If the funds of this Soil Conservation Service were increased by a factor of a thousand, it would be a good investment for China. The station was started about 4 years ago, but it has not yet been visited by any high official of the Ministry of Agriculture. It is said that they intend to start a similar service in Kweichow.

Lunghai Railway Locomotive Department (Sian and Baochi, Shensi)

The chief locomotive engineer of the Lunghai is a remarkable man, Prof. Yang Hsien-Chien, formerly at Wuhan University and Beiyang Engineering College. He spent more than a year in England and knew the famous railway men Gresley and Stanier as well as Josiah Stamp. With him I visited the loco yards at

Sian. Although the railway was originally built with a Franco-Belgian loan, and therefore the equipment is mostly Belgian or Alsatian, there is a considerable amount of equipment (e.g. a 38 ton breakdown crane on 6-wheeled bogies from Carlisle) made in England. Much of this was evacuated from other railways in the eastern provinces during the war.

From the passenger's point of view, the Lunghai was working very satisfactorily at the time we were there. It has about six trains of very good all-steel pullman-type rolling stock, and in one respect exceeds the southern Free China railways referred to in the report on the SE (p.), namely by having some excellent and clean restaurant cars.

Another most remarkable man (perhaps even more so since he has never been out of China) is Mr Lu Ting-Chun (another Tangshan alumnus) the engineer in charge of the loco repair shops at Baochi, the biggest on the line. A morning spent with him in going round them showed what a miracle it has been that this railway, isolated in the north, has kept running during the past five years. They have had three fundamental headaches (a) the coal contains a high percentage of sulphur and consequently eats away the copper fireboxes, (b) the water is extremely hard (there is no softening plant, and attacks the staybolts between the firebox and outer boiler plates), (c) the only lubricant they can get is a vegetable oil mixture, and this carbonises producing large lumps of black stuff in the cylinders themselves.

The only way to get round the first difficulty has been to substitute steel plates for the corroded copper ones, but with the tools at their disposal this has been difficult. The second difficulty has been overcome by much more frequent overhauls than would normally be necessary, in order that the dangerously corroded bolts may be replaced. Even so, there was a nasty boiler explosion at Baochi a few months ago. There is nothing to be done about the third except continuous cleaning.

Moreover, there has been a frightful shortage of all normal replacements. For the wire-strengthened asbestos required for gland packing, they have had to vamp up some unsatisfactory substitute from Tibetan asbestos. For bolts it has been necessary to use the steel from old chain links, laboriously forged. For electric welding rods steel cable strands are used. It is frequently necessary to enlarge a piece after wear by welding metal on to it and then machining it down, there being no stocks of larger dimensions from which a new piece can be made.

Some remarkable sights were seen in the shops. An electric generator plant was driven by an old Glasgow-built loco as stationary motive power. With some small steam hammers old axles were being forged down for bolts. A man was shovelling scale out of a boiler under overhaul in astonishing quantities.

In general I have seen nowhere in China more admirable engineering work than that done by the motive power department of the Lunghai Railway. SBSCO has supplied the department with books.

Lunghai Railway Machine Shops (Kuangyuen, Szechuan)

This organisation is comparatively small, and during the worst air-raid danger was evacuated a long way south of Baochi. But it still carries out machine shop work and is in touch with Baochi by means of a small truck fleet. Directed by a French-returned engineer, Chang Ching-Ho, it presented an orderly and efficient appearance. Many of the machines in use, such as lathes, drills, and planers, had been made by themselves.

Baotien Railway Construction Works (Baochi, Shensi)

This railway is a continuation of the Lunghai westwards. As stated above (p.) it is already graded and tunnelled as far as Tienshui Junction 155 km. west of Baochi, but the operable distance is only some 20 km. west, though the rails reach 80 km. west. Ultimately it will proceed to Lanchow by following up the north bank of the Wei River, and striking a tributary of the Yellow River somewhere near Lintao. From Tienshui Junction another branch will go south, avoiding the Han Valley entirely and striking the upper reaches of the Chialing River somewhere above Kuangyuen. Further south, by turning west, it will reach Chengtu and meet the Chengtu-Chungking line (many of the bridges of which have already been built).

The Baotien line is one of great interest. As admitted by Mr Chung Yang-Chi, with whom we went out on an inspection trip by platelayers trolley, the line has primarily served as a school for engineers during the war years. West of Baochi the

Wei River of a long series of gorges which do not fade out until after Tashih at 80 km. from Baochi. Normal engineering practice would have been to have crossed and recrossed the river by means of long-span steel bridges, but these were not available, and the line therefore follows the north bank systematically, involving a great number of tunnels. They total, in fact, 122, nearly one per kilometer, a record for any Chinese railway, mountainous though China is.

Bridges had to be designed to suit the frames available, not the sites. Thus there is a fine one of five spans a few km. west of Baochi, but each span is of a different size and type. All the rock-cutting was done during the war years with black powder, no TNT or dynamite being available. The power was mixed by themselves, and required 1200 tons of naturally occurring nitrate from Honan.

During the last rainy season severe damage has been done to the track by landslides and one tunnel has fallen in. Since the railway is not provided, like the Highways Administrations with bulldozers, these accumulations are taking a long time to clear. Some embankments are also sagging a bit.

In any case, owing to the number of tunnels, it would be impossible to work this line with the sulphur-containing coal used between Baochi and Sian. There has been talk of putting a power station in the gorges and electrifying it, but the easiest thing would be to haul up good coal from the coast. Ultimately,

with the enlargement of the Kansu oilfield, Diesel engines could profitably be used.

Shensi Provincial Hygiene Institute and Vaccine Plant (Sian, Shensi)

Shensi is the only province to have a vaccine factory of its own. It was the result of a very bad cholera epidemic back in 1932, 3 yrs before the Provincial Health Bureau was started, as a measure to prevent recurrence.

The laboratories are temporarily located at Hsingshansse, a temple of Tang origin south of the present city but within the limits of the Tang city. The director, Hsi Yao-Cheng, is Japanese-trained; the assistant director, Chao Shu-Hsuen, had just been seconded from the Northwest Epidemics Prevention Bureau at Lanchow. Last year the institute produced some 60,000 doses of smallpox vaccine, some 225,000 doses of cholera vaccine, and lesser amounts of typhoid, bacillary dysentery, and rabies sera.

The equipment is fairly extensive, and good use is made of local facilities, e.g. incubators heated with charcoal, etc.

A clinical laboratory, well equipped (except that no electric current is available) does numerous diagnostic tests for the hospitals in the city.

The chemical laboratory, at the time of our visit, was hard at work investigating the morphine-content of the urine of alleged opium-addicts taken up by the police. We were told that about 150 cases a month were examined. The process of

extraction is rather long and ends only in a qualitative colour-test. A negative result is not significant, as the alkaloid is destroyed if the sample reaches the laboratory after too long delay. Toxicological forensic analyses are also made in this laboratory.

The animal houses were not very well kept, and the guinea-pigorium was for some reason half underground.

The technicians are trained at the institute by the scientific staff.

On the whole, a good impression.

Shensi Provincial Medical Supplies Factory (Sian, Shensi)

This factory, also under the Commissioner of Health, is directed by Wang Shioh-Rjung, clearly an able industrial chemist, who showed us round. It is outside the north gate.

Although this factory has been working only 4 years, it puts out about a hundred different products, which we had an opportunity of inspecting in the store. The general quality seemed quite high. There is a good though small library. All the workrooms were well fitted up with stills for essential oils, filtration plant, "gua" used as evaporating basins in rows heated like "kangs", etc. etc.

We saw argyrol being made, oils of menthol, terebinth, etc., calcium lactate, liver extract, castor oil bleaching in the sunlight, mosquito incense made from Chrysanthemum cinerarifolium,

which with many other medical plants, grows in an extensive pharmaceutical garden; waste cotton from the mills being made into gauze and cottonwool, and many other things.

The research and development laboratory urgently needs more books. While, as with all Sian labs. a distinct Japanese influence was noticeable, the whole factory gave an excellent impression.

(5) Industrial Installations

Tahua Cotton Mills (Kuangyuan, Szechuan)

The main factory of Tahua is in Sian. Shensi cotton comes down to Kuangyuen for spinning and goes on to Chengtu for weaving. The Kuangyuen plant was originally put there as part of air-raid dispersal schemes, but will now remain there. The machinery is mostly Japanese, but the power plants, one of which is installed entirely within the hillside in caves partly natural, is mostly British. The factory is well equipped, with foundry, forge, machine shop, electric welding shop, etc. The number of spindles is about 16,000.

The treatment of the workers is not good, most of them are Honan refugee children.

There is a testing laboratory for finding tensile strength of the yarn. The engineering staff under Li Tze-Ho is able and efficient. They badly need technical books.

Yunghsing Power Alcohol Plant (Kuangyuen, Szechuan)

Directed by Mr Sun Ching-Ching, this factory is very well run. The raw material is maize, which comes by water from Ninchiang on the Shensi border. Local wheat is used for malt, instead of barley. Aspergillus oryzae races Rose II and XII is the organism used to ferment the saccharified mixture.

Much of the plant was built on the spot by the Lunghai Railway Machine Shops (see above). Other items came from machine shops in Chungking.

Capacity production is about 7000 gals./month, but this is not usually worked to for financial reasons.

Yunghsing Industrial Corporation Plants (nr. Baochi, Shensi)

This organisation, of which the preceding alcohol factory is a branch, is financed by the Bank of China (northern division). It consists of four other units, (a) a power alcohol plant at Tsaichiapo (a few stations towards Sian on the Lunghai Rly), (b) machine shops at Tsaichiapo and Imenchen (just south of Baochi on the road to Shuangshihpu), (c) a textile factory at Tsaichiapo, (d) a flour mill at Tsaichiapo. The plants at Tsaichiapo were not visited by us, but we learnt a good deal about the situation by a visit to the Imenchen plant.

This is now only used as repair shops for the truck fleet, which has been greatly reduced from its former size since all but 20 out of the 100 were sold to the NW Road Administration. The remainder and the repair shops expect to move to Honan. The latter are very well equipped.

It is expected that the Tsaichiapo alcohol plant will close down and reopen as a chemical factory in connection with the flour mill, making products such as soya bean sauce, gum, "weiching" (sodium glutamate), perfumes and cosmetics. The textile factory will definitely expand, being now of 10,000 spindles. The necessity of improving spinning techniques to compete with imported goods in the post-war period is clearly recognised.

Shenhsing Industrial Corporation Plants (nr. Baochi, Shensi)

These occupy a very large site with extensive sidings on the Lunghai Rly one station, east of Baochi, at Shihlipu. The factories came by rail from Hankow 6 yrs ago, bringing all possible equipment. We were shown round by Manager Li Tung-Hsia, a most capable engineer.

The power station generates electricity for Baochi city as well as for the factories. Its boilers and Metro-Vickers dynamos are shielded by a huge emplacement under several feet of concrete - bombs did actually fall quite near without doing any harm. The machine-shops are very extensive, having about 150 major pieces of machinery mostly made by themselves. The forge has a large electro-pneumatic hammer. Castings up to three tons can be executed in the foundry.

The cotton spinning mill, of 30,000 spindles, employs mostly Honan child refugees, and we were not satisfied with their

conditions. Many of them work at spinning in tunnels driven into the hillside as air-raid protection, and the atmosphere in these was oppressive. The hours worked in all shops appeared to us too long. There is some social work being done by a branch of the Chinese Association of Labour, but this appears to be supported mainly by grants of foreign origin, with no contributions from the Chinese factory owners - a most undesirable state of affairs. There are 400 looms, many of them made in the works.

The flour mill is large, and its products have an excellent reputation. About 1000 bags are produced/day. The workers' conditions seemed to be much better in this section.

The paper mill, which uses cotton waste to make very good paper of many kinds, was entirely constructed by the machine shops. It has a large capacity.

There is a hospital of 100 beds with 5 doctors. OPD patients 450 daily. Workers' quarters of somewhat indifferent quality have been built.

China Sugar Factory (Neichiang, Sze.)

This factory, owned mostly by the Bank of China, is basically a refinery to produce good crystalline white sugar from the crude brown sugar of the primitive factories of the region. The processes involved are simply solution, filtration, recrystallisation, centrifuging and drying. Four basket

centrifuges of Japanese and Shanghai make are used. Nearly all the procedures are mechanised, and the sugar concentration at different stages is estimated by specific gravity. The sucrose content of the final product is determined polarimetrically.

The factory as a whole does credit to Manager Wu Rjen-Feng, but the output has been contracting (it is now 8 tons/month) owing to diminution of financial support from the Bank. The factory only operates during the season when the raw material is plentiful. Sale of the product was controlled by the government during the war, but this control ceased some months before our visit in Nov. 1945.

(6) Industrial Cooperatives

CIC Northwestern Federation (Baochi, Shensi)

Baochi, together with Lanchow, is the biggest centre of the northwestern federation, which in turn, during recent war years, was, with the southeastern federation centering on Ganhsien, Chiangsi, the largest in all Free China. We had the pleasure of staying in the Federation guesthouse during our stay in Baochi, and devoted close attention to the cooperatives in and around the city.

There are now 38 of these. We visited one canvas coop., one sheepskin leather bag and suitcase coop., two shoemaking

coops. one brush pen coop., one farm implements coop., two machine shop coops, the hospital and the treasury. Important coops not seen were the tanning, blanket-making, and brass and sheet metal coops.

It will not be necessary to describe them in detail here, one need only say that the average size is of about ten coop., members, one of whom acts as chairman, with rather less than that number of apprentices or journeymen on a wage, not profit-sharing, basis.

In discussion with Mr Meng Shou-Tseng, director of the federation it became clear that this size is really too small. If all the four machine shops, for example, would combine, they could have a really substantial entity, but they each have their own history and family or provincial differences make them very reluctant to pool their forces. In the same way, every shoemaking coop. has its own tannery, and so far no persuasion has been able to make them concentrate their tanning in a central tanning coop.

South of the city, across the Wei river and on the way to the Chinling Pass, at Imenchen, there used to be a number of coops. but these are now liquidated. A machine coop. was moved en bloc to Tienshui some time ago, there being too many machine shops in the neighbourhood of Baochi. A flour milling coop. failed to compete with the Shenhsing flour mill, and a paper making coop. failed equally to compete with Shenhsing paper. We also saw a very large army blanket factory, disused since the

end of the war. The CIC is still in the middle of complicated negotiations with the Army regarding these factories, others of which existed at Tienshui, Lanchow, and Pingliang. But it is planned in the future to concentrate all textile work on this site, which is in a most healthy position with good water power and communications.

According to Mr Meng, the failure of the CIC (in so far as it has failed) has been due to (a) undercapitalisation, and (b) careless planning, and scattering of technical skills. The first cause has lain outside the CIC, and is due undoubtedly to the Chungking Government's fear of anything leading to industrial democracy. But the second has been within CIC. Whenever you found a few men with a certain skill - refugees it might be - you set up a coop. regardless of whether it was economic in that particular area. However, the liquidation of many coops. at the end of the war must not be regarded too pessimistically, as they were essentially a response to an emergency situation, when transport was almost paralysed. Their dissolution and redeployment is part of the preparation of a better planned peacetime system.

CIC Machine Shop Cooperative (Shuangshihpu, Shensi)

This coop., located in a small settlement in the mountains where the road from the south branches to Sian and Lanchow respectively, has flourished exceedingly during the past three

years, and shows much improvement from when I visited it in 1943. Under the guidance of an exceptionally fine mechanical engineer, Mr Kuo Hsien-Chu, and with the aid of good water power, a remarkable output of machinery has been accomplished.

Two complete sets, comprising 36 machines each, of the Ghosh spinning assembly have been made, both for the new textile coop. at Hanchung. The original set, from which the drawings were taken, has gone to Shandan in Kansu, where Mr Alley has established the former Shuangshihpu Baillie School. The Shuangshihpu machine coop. also makes paper making machinery, knitting machines for sweaters and stockings, vertical steam engines, wool carding machines, milling machines, and small boilers. The usual pattern-shops, forge, and foundry are excellently run. The number of major pieces of machinery in use in the shop is something over 20 - all they started with was 2 British lathes.

This plant deserves every support, and technical books and journals should be provided when possible. SBSCO will also try to furnish some precision gauges.

CIC Men and Machines Office (Chengtu, Sze.)

This office, which aims to act as the technological cerebrum of the whole CIC movement, had been previously visited by one of us (DMN) in Jan. 1945. Headed by Mr Lang Wang, a man of the people, a leather technologist with a talent for

organisation, it must have greatly justified its existence to the movement.

Collections are made of all possible books and periodicals which might be helpful in starting and maintaining small industries. Drafting is done by skilled draughtsmen, blueprints are made and circulated, special articles are typed from microfilms and duplicated, and drawings are made for reproduction as filmstrips. There is a workshop for building experimental machinery from substitute materials and junk.

At the time of the second visit in November most of the staff of eight were out in the field, and the office was preparing to pack up and move to Ganhsien in Chiangsi, where by virtue of the fact that Chiangsi counts as a "liberated area" the UNRRA are expected to give some help to CIC. I met in the office Mr L.R. Ray and Mr E.P. Oths, small industry experts in UNRRA detailed to assist CIC, and took the opportunity of expressing my great admiration for the movement. I also advised them if possible to go and see Mr R. Alley in order to hear the whole story of the CIC. We viewed some fine samples of leather work in the office, and an extremely interesting booklet in simple Chinese prepared for the apprentice workmen explaining to them how to use the micrometer calipers - copies of this are being sent to London.

(7) Schools

Although on most tours there has been no time to make any visits to schools, circumstances such as those detailed in section III above forced us on this trip to pay some attention to them. Description may be short.

One of the best schools seen was the Nursery School run by the Chinese Association of Labour at the Shenhsin Cotton Mills near Baochi (see above, section V (5)). Attended by about 40 children of ages ranging from a few months to 4 yrs it seemed extremely well run. There were nurses, and a dietician, and a small clinic not badly supplied. Girls from a neighbouring war-phanage are being trained as attendants.

A description of the Mienyang Boys' Middle School has already been given above (section III). The Ministry of Education order that all schools must have some provision for science teaching was here acceded to by placing an appropriate label on the door of a completely empty loft. At the CMS Middle School in Mienyang city, however, which gave an excellent impression, there were large biological collections, a skeleton, and some physical and chemical apparatus. The library was also very good. Here there are 200 pupils, one third being girls.

The Tsunteh (Baptist) Girls' Middle School in Sian occupied an intermediate position. While the teaching seemed of good quality, the school buildings were bare of pictures or diagrams,

and the library small and purely Chinese. Scientific apparatus had mostly been lost or stolen during the evacuation, there remained three balances and a few test tubes and chemicals. We did not see the four Boys' and Girls' Middle Schools at Chouchih, but JN gave a lecture to the assembled pupils in the main courtyard of the Confucian Temple. The healthy and intelligent appearance of the boys and girls, all neatly dressed in their scout uniforms, was most impressive.

Between Loukuantai and Machiao we rested in a primary school deep in the country, where the present hsiangchang of Loukuantai had formerly been headmaster. It was "private" (i.e. supported by funds from well-to-do local families though open to all children of the distrist without fee) not "national", though encouraged by the Chouchih hsienchang. It occupied an old Rain Dragon Temple, and both buildings and pupils were attractive, neat, and clean.

All this goes to show that any appraisal of Chinese lower education could only be based on a wide statistical survey. The situation does not lend itself to generalisation.

VI. Lectures Delivered

1	Hsibei Ta,	faculty	JN	"Work of the Sino-British Science Cooperation Office"
2	do.	whole student body	JN	"Science and Democracy"
3	NW Engineering College,	whole student body	JN	"Intra-Atomic Energy and its Utilisation"
4	do.	chem. students	DMN	"The Machinery of Muscle Contraction"
5	Army Medical Coll.	students	JN	"Biochemistry, Morphology and the Cancer Problem"
6	Shensi Provincial Med. Coll.	students	DMN	"Present-day Ideas on Muscle Contracts"
7	Tsunteh Girls' Middle School		DMN	"Women of the Past, Today and Tomorrow"
8	NW Agricultural College,	whole student body	JN	"Science and Agriculture in East and West"
9	do.	a small group	DMN	"Recent Advances in our Knowledge of Enzyme Action"
10	CIC NW Federation		JN	"Science, Technology and Cooperation in China"
11	Honan Ta	whole student body	JN	"Science and Democracy"
12	do.	chem. and biol. students	DMN	"Enzymes"
13	do.	chem. and biol. students	DMN	"Biochemistry of Muscle"
14	do.	women students	DMN	"Women in Science and Learning"

15 Huangho River Basin Hydraulic Engineering College
JN "Natural Sources of Power and Human Society"

16 Chouchih hsien, united boys' and girls' middle schools
JN "East-West Contacts, Ancient and Modern"

17 Huahsi Ta, talk JN "Science in the USSR".

A word of praise should be added here for the interpreting work done by Mr Tsao and Miss Chiu. Extempore interpreting before large audiences is not an easy matter.

VII. Economic, Political and Military Observations

The chief thing notable about the industrial installations visited was that they were in worse financial difficulties since the ending of the war than they had been previously. In the Baochi district all enterprises were affected, but the CIC more so than the large private firms. Sales prices were falling rapidly due to the postwar deflation, and even the most active cooperatives could work only to 20% of capacity. Loans were difficult to repay to the banks, and there would be a lag before the price of raw materials would fall.

Every factory we visited had a similar tale of woe, and on our return through Kuangyuen, we found that the Tahua Cotton Mill, which we had previously seen as a hive of activity, had closed down temporarily.

The closest view we were able to get of the social and economic structure of a large private factory was at the Shenhsing Works near Baochi. Here there were 3400 workers, of whom 500 were women. The great majority were 12-16 years old, 99% Honan refugees. Yet the factory is always short of workers, owing to the immense turnover - in one year's time the individual personnel has changed by 90% though the numbers remain the same. Day and night shifts are worked - in some parts of the factory 12 hr. shifts, of which ¾ hr is for the midday meal - in some parts 10 hr shifts (2 hrs rest) - in the tunnels the children work 8 hr shifts. These tunnels, which started as air-raid protection for the machinery, are well lighted, and fitted with ventilating fans, but as has been stated above the atmosphere is oppressive. No prospect was held out of these being given up as no alternative housing was available. The children are given 2 hrs a day (presumably out of working time) for tuition in reading, writing, and some technical work.

We were not able to make many observations which might be classed as political, since we were so busy on the scientific and technological side. The opium problem we came across twice. At Kuangyuen the CIM missionary, Miss Pauline Foote, told of much local trouble with pistol-armed opium growers in the hilly backblocks. The government had been too preoccupied by the war to do much about it, and soldiers sent up there had deserted and grown opium themselves. The police at Sian, however, seemed to

be active in ferreting out opium smokers, to judge at any rate by the work carried on at the Provincial Hygiene Institute and described above (p.).

When visiting the Italian RC Bishop Civelli at Hanchung (an old friend) I was amused at his marked political interests. He got on to the Hongkong issue immediately and wondered whether it did not cause me much difficulty in my work; he obviously hardly believed me when I said my Chinese friends never mentioned it. Like all his colleagues he was very suspicious of Russian activities, and disliked the Kuluba engineers, whom he said had been disagreeable to the German fathers there, and also stole his grapes! However, Bp. Civelli is a man of very live mind, and was earnestly reading "This Chemical Age" when I dropped in on him.

The Chinese RC Bishop Gao at Chouchih turned out to be a most charming man, speaking beautiful Latin, though never having been out of China.

On the road back numerous buses newly painted and with the legend "Fu Yuan Che" in red on white, full of officials returning to the east, were met, going both north and south. Good vehicles seemed to have been used for this purpose.

With the ending of the war, however, there seemed to be rather more bandits and rumours of bandits than I had found on any previous tour. Shortly after leaving Chitung on the way north we were stopped and told of bandits ahead hiding in the

dripping wet bamboo groves. An American convoy was said to have exchanged shots with them, and we were offered a couple of young soldiers as guards. But we declined and nothing unusual happened. On the way back, about the same place, nearly two months later, we passed two farmers with rifles slung over their shoulders, perhaps acting as a kind of militia; this gave some colour to the previous story.

The arrangements for our visit to the Forest Conservation Service were also made against a bandit background, though we did not know this till afterwards. It is apparently unsafe to cross the region between the Lunghai Railway and the Wei River after dark. But we had a guard of Forest Police and there was no trouble.

Just north of Chengtu on the return journey we broke down with ignition trouble between Hsintu and the city. Our Chinese colleagues were particularly nervous because this area is apparently notorious for holdups. A foxy stranger offered to provide rickshaws, using certain technical terms recognisable as those of the Kolaohui, and indeed the rickshaws appeared, but at the last moment the engine was induced to start again, and we made port under our own steam. A few days later there was a serious affray at the East Bus Station at Chengtu, which was attacked by a group of gangsters with indiscriminately used hand grenades. A number of people were killed.

In every country at the conclusion of a war outbreaks of lawlessness may be expected, but in China this is particularly unfortunate as the size of the country and the difficulty of communications make it difficult to suppress.

On the military side, going northward, several companies of troops were seen near Bishan. They seemed particularly well equipped, with flags, red cross equipment, field telephones, and entrenching tools. There were also numerous remounts. This was perhaps the Youth Army, as it is called. In Hanchung I met a young doctor, Gao Ên-Tzu, just graduated from Chengtu, who was now in the Youth Volunteer Army 206th Field Hospital, and whose information I think would be reliable. He said that all the staff were scientifically trained, and the medical officers paid more than the old-fashioned "I-Kuan", but friction was caused because the administrative staff was still of the old-fashioned type, He said the Youth Army, "supposed to be all volunteers", would first go somewhere "as an expeditionary force" (? occupation of Japan); then most would leave but many would stay on and make the army their profession.

On the way northward we were fortunate enough to fall in with a USAAF convoy going up to Sian which was also marooned at Mienyang for the same period as ourselves. If it had not been for their winches which pulled several feeble Chinese trucks out of impossible "bien taos", we should have had a lot more trouble on the road just after the heavy rains than we did.

At Hanchung there were still some 2000 USAAF men on the airfield there at the time of our arrival. When we came back the number had been reduced to a couple of hundred only. I suggested to the Base Commander, Capt. Sanford, that as much useful apparatus as possible should be disposed of to the NW Engineering College, but I do not know whether this was done. The NW University was receiving something.

I did not like the atmosphere at Sian itself. There was an abundance of catcalls in the street; I saw several times American soldiers in the middle of an excited crowd, and once the pathetic sight of two of them sitting on the grass strip along the middle of one of the main streets slowly and pessimistically getting drunk on whisky while a large crowd of Chinese thronged the pavements observing the proceedings. The atmosphere seemed worse than I had experienced in any other Chinese city; perhaps it was due to the tail-end of the war.

In Kuangyuen there is a curious factory known as the Shansi Provincial Arsenal. Actually it belongs to Gen. Yen Hsi-Shan, and we were fortunately able to visit it. It produces light machine guns and some sidearms. Particulars are available. There is another one at Chengku but we did not visit it. The engineers are very capable and ingenious.

At Tienshui, while paying a visit to the ancient Fu Hsi temple, we came unexpectedly upon a spinning and weaving factory under the Army Medical Administration for several hundred disabled soldiers. This proved to be very well run, with surprisingly

good recreation rooms and messes. Instruments for an orchestra (Chinese) were provided. The only regret was that such institutions are too few.

Many indications of the trouble in Sinkiang were met with during our tour. On presenting our gasoline tickets at Kuangyuen on the way back we were fortunately able to get it, but a day or two before there had not been a drop there. The KPA manager had no hesitation in saying that it was because most of the KPA trucks had been commandeered by the army northwest of Lanchow for use against the rebels in Sinkiang. The CIC at Baochi had said also that all their trucks had been commandeered. General rumour in South Shensi had it that the rebels were a mixed force of Kazaks, Turkis, Tungans, White Russians, etc. and had captured Tihua. They were said to have some tanks and planes. In accordance with this, therefore, I was interested to notice a number of Chinese anti-tank guns towed by trucks going northward while we were at Shuangshihpu on the return journey. Columns of poorly equipped northbound Szechuanese troops were also seen north of Baochêng.

The censorship on Sinkiang was very tight in the northern newspapers, however, and nothing appeared while we were there. The most judicious Chinese believed that the rebel army represented an indigenous Soviet-inspired revolution, long feared since the departure of Gov. Sheng Shih-Tsai. Since returning to the Embassy I have ascertained that the rebellion in Sinkiang

has indeed been (and still is) a serious one, but that Tihua never fell. Taken together with the Kurdish disturbances of Oct. 1945 it would seem that there is a general restlessness among backward Asiatic peoples of Moslem culture who see the cultural autonomy of their relatives in the Soviet Union and want something similar for themselves. This social magnetism would be enough without any esoteric action on the part of the Russians, and the aspirations of the smaller peoples represented a real need which a wise "dominion" policy on the part of the Chinese could meet. Unfortunately, I have seen little sign of this in government circles during my time in China, a fact which the few good Chinese anthropologists, deplore just as much as I do.

Then on the way back between Kuangyuen and Chitung we passed very long convoys of new American 4 or 5 ton trucks carrying ammunition and mortar-shells,(much of it Chinese, from arsenals familiar to me), but much also imported American. These trucks were manned entirely by Chinese crews, often dressed in American clothing, and carrying remarkably few "yellow fish". In Chengtu itself trucks to make up another couple of similar convoys, fully loaded and very badly guarded, were standing in the city ready to go. A fourth convoy, was met near Neichiang. We presumed that this material was intended for Sinkiang, but perhaps more probably it was going to Sian and might find its way to Shansi or further northeast.

In view of the fact that this was long after VJ-day, I felt that these phenomena were a rather gloomy finale to what must be the last of my extensive tours in aid of the Chinese scientists and technologists.

Abbreviations used

BMM	British Military Mission (now British Troops in China)
CIC	Chinese Industrial Cooperatives
CIM	China Inland Mission
CMS	Church Missionary Society
CTS	China Travel Service
FAU	Friends' Ambulance Unit
IRC	International Relief Committee
KPA	Kansu Petroleum Administration
MIT	Massachusetts Institute of Technology
NRC	National Resources Commission
OPD	Out-Patients Department
SBSCO	Sino-British Science Cooperation Office
STS	Szechuan Travel Service
UCR	United China Relief
UNRRA	United Nations Relief & Rehabilitation Administration
USAAF	United States Army Air Force

Excerpts from the log of a journey in Shensi province, including visits at Baochi and a visit to see the work of the Chinling Mountains Forest Conservation Service.

comfortable guesthouse, as good as an arsenal. Set the sack of books out to dry in the sun.

Saw round the college in the afternoon. On the 6th. floor is the North-Western Botanical Survey doing excellent work but with very little equipment, not even enough specimen-tubes. On the 7th. floor one gets a magnificent view of the whole Wei valley - blue sky with golden clouds - to the south Tabaishan, 12,000 ft., the highest mountain in China proper, in the Chinling range, with

During the walk, noted Artemisia in great quantity, and lots of Ailanthus heavily parasitised by a highly-coloured winged beetle, apparently in association with black fungi, but nobody could explain this.

the medical officer Dr Tang [illegible] including a Portuguese seconded from the FAU, Edmundo Martinho-Marques.

Sat. 6th. Visited coops all the morning with Meng and Edmundo Martinho-Marques. Many of them make use of caves in the loess, the Canvas Coop on a large scale, the Leather Coop on a small. About fifty Coops in Baochi, one of the biggest Cooperative centres in China. Continued the visits

45

Wed.3rd.Oct. dep.Sian. To the station about 6 a.m.in "jinxhuwsa" as Chiung-Yun calls them,where Tien-Chin had already got the tickets,and we were all able to walk straight through into a very comfortable compartment on the Lunghai Railway express to Baochi. Off at 8. Unexpectedly nice breakfast in the restaurant car,the pepper pots and the blue blouse of the attendant still bearing traces of the original Belgian-French influence of the line. Crossed the Wei River and stayed some time at Hsienyang,with the predecessor of the Tzuchung a Power Alcohol Works, and a series of immense pyramidal Chou dynasty tumulus tombs,on the escarpment or river terrace to the north. The tumuli continue a long tine as one runs on N west.

Got to Wukung around noon. Met by the fascinating Mrs Wang Han-Fen (a Chengtu friend of Chiung-Yun's),and Prof.Shang (absent-minded),Prof.Wang from Edinburgh,and others. Mule cart up to the Agricultural College,a very large building in ultra-modern style sited on the top of the escarpment to the north. Settled in to a most comfortable guesthouse,as good as an arsenal. Set the sack of books out to dry in the sun.

Saw round the college in the afternoon. On the 6th. floor is the North-Western Botanical Survey doing excellent work but with very little equipment,not even enough specimen-tubes. On the 7th.floor one gets a magnificent view of the whole Wei valley - blue sky with golden clouds - to the south Tabaishan,12,000 ft.,the highest mountain in China proper,in the Chinling range,with traces of snow still in the gullies - to the east a few miles away on the escarpment the tomb mound of the first Sui emperor,Sui Wen-Ti. Official but pleasant dinner and good talk with German-trained forestry experts.

Thurs.4th. Goat's milk at breakfast with the coffee. 8-10 me on Science & Agriculture in East and West;10-12 D on Recent Advances in our knowledge of Enzymes. To lunch with Wang Shou and his colleagues at the North-Western Agricultural Experiment Station (very well run), and then walked to see the National Hydraulic Engineering and Irrigation Experiment Station,then tea and show of flowers and fruit at the College Horticultural Farm.

Fri.5th. dep.Fukung. Left by train at 1 and in to Baochi by 4. Rickshaws to the CIC;welcomed by Hsuan Meng Shou-fseng just beside the West Gate. Out to dinner with the leading Cooperative personalities,Mr Secretary Meng, the medical officer Dr Tang Wen-Ho,and several others including a Portuguese seconded from the FAU,Edmundo Martinho-Marques.

Sat.6th. Visited coops all the morning with Meng and Martinho-Marques. Many of them make use of caves in the loess,the Canvas Coop on a large scale,the Leather Coop on a small. About fifty Coops in Baochi,one of the biggest Cooperative centres in China. Continued the visits

visits in the afternoon, especially across the river at a place called Imenchen, where the large Coop army blanket factory is no longer working. The Papermaking Coop has also ceased work, but we saw all the equipment worked by water-wheels.

After dinner, a very successful meeting in the little Coop Hall, fitted with wooden galleries. My talk on Science, Technology and Cooperation in China was clearly translated by Meng. Afterwards the orphanage children sang a number of songs, including a most beautiful piece of Buddhist "plainsong". Discussion lively and amusing.

Sun. 7th. At 8 off on two platelayers' handtrolleys down the line with Profs. Wang and Li past Shihlipu at 6 km. through Erhlongya (Reclining Dragon) Station, and pulled up after about 12 km. at Wuchengsse, an old Taoist temple on a loess bluff overlooking the junction of the Chien tributary of the Wei coming from the north.

This is now the final evacuation home of Honan University, the faculty of which gave us a warm welcome. After a rest, Tien-Chin and I walked with them to another temple, Shihyangsse, where I lectured (open-air) on Science and Democracy, Tien-Chin translating. This temple has some good paintings.

After lunch at the first temple we explored the library, looking for things of history of science interest with Prof. Li Chun-Fu, who himself has worked on Chinese alchemy. The library is a fine one, but has suffered from the evacuation, and the catalog has been lost. Many bundles of books are still lying tied up with rope at the feet of the old statues of the gods, just as on the day when the sweating coolies dumped them there, unhooking them from their carrying-poles. This university has evacuated many times. It lost all its scientific and medical books, and when at one point surrounded by the Japanese several students and demonstrators were killed. Many of the older professors were captured, but escaped in the night by rolling down an embankment.

During this time, D and Chiung-Yun had gone to the other temple and lectured on Enzymes.

Left around 5 and just made Baochi station by dusk, narrowly avoiding a shunting engine with a train, on the trestle bridge.

Dinner with Honan University professors in a restaurant.

Mon. 8th. Weather steadily improving, and a perfect blue sky today, with a touch of frost in the early morning. Northwest weather like Lanchow.

Tien-Chin and I went to the Lunghai Loco Repair Shops and met Mr Lu Ting-Chun the superintendent, an excellent engineer. How he has kept the Lunghai Railway running through all these years of isolation and war seems a miracle. He contends (a) with sulphur-containing

coal,which eats away the copper fireboxes from inside and rots the boiler-tubes,(b) with very hard water, which eats away the firebox staybolts,(c) with vegetable lubricating oil which forms lumps of carbonaceous muck in the cylinders as big as your fist. He has a perfect museum of the results. He is steadily replacing the copper fireboxes with home-made steel ones - a work of no small difficulty in their isolated position. His men make the new firebox staybolts from old chain links. Altogether a deeply impressive visit.

In the afternoon Tien-Chin and I called on the Chuan-yuen,whose office is in a beautiful Taoist temple high up the hillside overlooking the town. It was founded by,and is dedicated to,Chang San-Feng the originator of Chinese "boxing",a kind of physical exercise. The view from the main gate is superb,the whole range of the Chinling Mountains sculptured by the afternoon sun, the railway,the road to Shuangshihpu across the Wei river valley,seen from the edge of the loess highlands.

Meanwhile,D,Chiung-Yun and Edmundo (Martinho-Marques) had gone down again by handtrolley to Honan University to give two lectures,The Machinery of Muscle, and Women in Science. We met them at the station with the truck.

Tues.9th. Tien-Chin and I went to the construction office of the Paotien Railway (the extension of the Lunghai Railway westwards to Tienshui in Kansu province). Out with Chung Yang-Chi and Chi Cheng-Chi,engineers,on platelayers' handtrolley,through Lingchiatsun to a bit beyond Kuchuan,as far as collapsed tunnel 19a. Interesting construction works. The line has been built partly as a training for Chinese railway engineers in wartime. Had abundant bridge-trusses been available the line should have crossed and recrossed the Wei River in the gorges,thus avoiding tunnelling,but as this could not be done,it has been necessary to make 122 tunnels in as many kilometres. Moreover,it has been necessary to make the ravines,as it were,fit the bridges available,instead of vice versa,by unusual treatment of abutments. Thus in one place there is a bridge of seven spans,all unequal in length,to suit the bridging material available. Trouble was being caused by sagging of embankments,landslides at one cutting,and collapse of tunnels. (NOTE. But a few months later,traffic was going through to Tienshui Junction,now the nearest station to Tibet and Central Asia).

Lunch at Kuchuan with the railway engineers,very gay.

Returning,met Liu Teh-Rjan,President of the Huangho Hsuehn River Basin Hydraulic Engineering College, and up by a path through a loess tunnel to a village with an old temple,where the college now is. Lecture on Natural Sources of Power and Human Society. Tien-Chin translated better than ever.

Back by trolley and got in to Baochi station about 5½ pm. Met D,Chiung-Yun,and Edmundo,who had been to the Shenhsin Cotton Mills by the same means of transport. A very fine undertaking with a heavily air-protected power station.

Wed.10th. Beginning of our expedition to Chouchih.

Caught the 7½ am train all right,filling a whole compartment,though not good rolling-stock this time. Gay breakfast on board with a new tin of black raspberry and guave k jam (wonderful what the American army goes in for). Reached Puchichen at 12½ and met by the forestry expert Bai Yin-Yuen,head of the Chinling Mountains Forest Conservation Service,under the Ministry of Agriculture.

Set off about 2 with three mule-carts and drivers, two forest police,and two ordinary police sent by the Chouchih magistrate. Some rode,some walked. Took a long time to cross the Wei River. Passing through a bao (small fortified village) the children called out "Loma rjeng" instead of "Waikuo rjeng" - "The Romans have come". No doubt due to the Roman Catholic influence near here,by But it gave one the "frisson historique". The only thing to cap it would have been if they should somewhere shout "Hsilakuo rjeng ! Hsilakuo rjeng !" - "The Greeks,the Greeks!

After about 18 km.came to Chouchih,a hsien city where Dr Bai lives. Entered after dark. Reminiscent of Gaotai or Shantan. Soon reached the Tiendjutang,the residence of the Bishop,and found our nice guestrooms. Trouble all day with what I think is trachoma,but bathing it with sulphapyridine is doing it good.

Met Bishop Gao Chong-I;most charming,speaks Latin with an Italian accent fluently,though never yet out of China. This diocese is entirely Chinese-managed,except for a very few western fathers,among whom appeared the most remarkable man,Fr Luis Borras "Catalan and Anarquist", a perfect dear,very active,aet.71,having lived 39 years in China,makes excellent cigars from Szechuan tobacco. Dinner and talk afterwards,very hilarious and international,with Magistrate Tso joining the party. As Dr Bai is German-trained,we are speaking German,English,Chinese, Spanish,and Latin. The effect of trying to speak Latin is very odd. "Via ferrea duos horas discedimus,hanc ecclesiam sex horas arrivimus," etc.etc. Talked about Interglossa. Wrote out the Caius grace for Bishop Gao,who says he would like to introduce it in his diocese. The hsienchang,democratic but rather mirthless,insisted on our returning later to Chouchih for an official lunch. Enjoyed much excellent red wine and Fr Luis' cigars.

thurs. 11th.

Elaborate goodbyes but got away around 8. High fog, cool. Stopped on the way out of town to meet Mrs Bai (also a native of that romantic city, Yulin, in the north of Shensi, where the sands of the Gobi k sweep up to the top of the city wall). Good working forestry library in the Bais' home. Then out through the gate across the Wei Valley's flat floor, steering towards the mountains SSE by Edmundo's compass.

Some bother fording the various branches of the Hei Ho (Black River), but all right after a bit of a wetting. Wild Sweet Williams and chicory growing on its banks.

Around 12½ reached the outskirts of the famous temple of Loukuantai, one of the few centres of training for Taoists. The characters mean "Platform for hearing lectures on Laotze". Up through a lovely grove of young oaks, not the English species. Got to the living quarters of the abbey about 1 and welcomed by the Abbot, Tseng Yung-Shou (eternal longevity) whose mingdze is Ho-Tung (crane from the east) and name in religion Mo-Fo (imitating the Buddha) the last odd for so pure a centre of Taoism as this. He is called Tang-Chia, not Fang-Chang as in Buddhist abbeys. An immediately remarkable old man of venerable aspect with long grey beard, and attractive face, wearing a plain blue gown. Tea and sweetmeats served in circular Tienshui lacquer boxes with compartments.

After lunch up the hill to the temple which is enclosed by the trees of the sacred grove and faces south, i.e. away from the plain (I will lift up my eyes, etc.) Best kept of any yet seen. Below, in the grove, many large tablets with Tang inscriptions, one of which was written by the poet Su Tung-Po. This site was undoubtedly a Taoist temple when the capital was at Chang-an (Sian). Above, in the temple courtyard, on each side of the main entrance, four lovely stone tablets 10 ft. high with the entire Tao Teh Ching inscribed on them in a particularly beautiful calligraphy dating from the Sung (11th. century). Much excitement picking out favourite passages (tien di pu rjeng, etc.). Only one central shrine, reminiscent of Chindiensse, near Kunming. No meaningless images, no guardian deities, etc., only Laotze himself. Drums, robes, etc. all in excellent order. A Ming bell.

Visit to the vegetable garden presided over by a magnificent gingko tree. Then up an exquisite path through a deciduous forest with a ravine to the left, to the Lien Tan Lou (Alchemical Tower) - actually nothing there now but a brick shrine with only one door, which must however be old because the material is burnt red brick unlike anything within miles, and the brickwork itself is curious, including billet moulding outside and squinch corner vaulting of Moslem type leading up to an octagon and finally a small square in the roof.

Discussion on why the tower should have been placed so high. If we may assume that it or a former building near by was really used for alchemical experiments in Tang times, the purpose was no doubt for astronomical observations at the same time, on the principle - "Now Mars has definitely entered the 14th. Mansion; you can add the sulphuric acid!"

Down by a quicker and different way.

Tea and philosophical discussion with Abbot Tsong. D and I seated on one of those Tibetan double divans or wooden kang so common in the western provinces, on which one feels one ought to sit ~~cross-legged~~ though the Chinese never do, except monks meditating. Tsong: "The world thinks that it is going forward and that we Taoists are going backward, but it is really just the other way round". Later he gave me a ~~m~~ rubbing of one of the Tao Teh Ching stones, and a copy of the classic itself with Wang Pi's commentary, printed for this temple from its own woodblock stereotypes which I see were made not so long ago, in the third year of Kuang Hsu.

Supper in, tired but happy.

Fri. 12th. Up early. To Abbot Tseng before leaving, 10,000 $ pro propaganda fide. With this setting, and if Fr Luis Borras, Bishop Gao, and a few other characters such as Lu the engineer and Meng the cooperative secretary from Baochi were here, one could write an excellent philosophical play.

Off along paths following the foot of the Chinling Mountains to the west in single file, headed by the village ~~chief~~ head of Loukuanhsiang, who had had some of the paths cleared beforehand. Soon came to Huanchuansse, where Laotze is said to have changed into a woman. Remarkable punning inscriptions here. Told the old Taoist in charge of it about Tiresias.

Came next to a Tang pagoda with a ruined Buddhist temple. The pagoda cracked right through at the bottom; has two huge Gingko trees in front of it. This place is locally said to have been the original site of the famous Nestorian stone tablet now at Sian, so perhaps Christians were here in the 9th. century. Then through a village and across an ancient stone bridge over a transparent clear stream issuing from the hills, into a forest of young oaks, with a Chien Lung tablet indicating the "grave of Laotze".

Then along a straight irrigation ditch of the Hei Ho system till we came to a village with a primary school in an old Rain Dragon temple (tea and chestnuts). News came that the cart with the baggage, which had gone round another way, had broken an axle.

After this rest, we pushed on up the Hei Ho valley past the irrigation intake towers into an exquisitely beautiful gorge. Narrowing, the path sometimes looks down vertically to transparent green deep pools. Soon the Chinling Forest Conservation ~~M~~ Service Nursery came in

sight - a perfect picture ("the island valley of Avilion") beside an old Buddhist temple, Hsienyusse (Temple of the Wandering Genii). Two stupa tombs and a pagoda (said to be Sui but probably Tang) with a sleeping Buddha at the bottom under brick vaulting. This temple now mostly occupied by the Forest Service. Pretty tired now. Enjoyed lunch of K-rations, toasted mantou, and local walnuts, in the office, with the dusty volumes of the Tripitaka on the rafters overhead.

After lunch, inspected the tree-nursery. Many kinds of trees, oak, walnut, Ailanthus, gingko, etc. growing. From here they are supplied to government enterprises such as road and irrigation administrations.

About teatime we forded the Hei Ho - delicious coming through, but we all looked very funny, forest police and all, as we had to carry most of our clothes on our heads. Then followed a path up into a saucer-shaped hanging valley, the Chin Pan (Golden Basin), on the further slopes of which active afforestation was proceeding. Down to Machiao village and Dr Bai's HQ Station.

Rather elaborate supper, with news from Chungking through one of the staff who had just arrived. Slept in Bai's office. Cart mended.

Sat.13th. Up before dawn, and a sharp walk along irrigation canals back to Chouchih city. Sunny and rather hot. Received by Dy.Gao and the magistrate again - D and Chiung-Yun rested while I went with the magistrate to address the united middle schools on East-West Contacts, Ancient and Modern. A very nice lot of boys and girls in very well turned out in their scout-like uniforms.

Lunch at the invitation of the magistrate, attended by three local notables and the secretary of the local Peoples' Political Council. Speeches. Photographs.

Off about m l with two extra carts provided by the magistrate, crossed the Wei River about 3 and reached Tuchichen station about 4. Dr Bai hurried back on account of bandits who infest the noman's land on the borders of the two hsien cities, but he had 4 of his Forest Police with him, and later on we heard that he got back without incident. Train left at 7 and in to Baochi at midnight. Wheelbarrows home. Bed at 2½ am having been on the go 20 consecutive hours.

Sun.16th. dep.Baochi. Over the Chinling Pass in our truck on a lovely sunny day, the mountains covered with a blaze of brilliant red bushes, on examination, a Rhus with yellow pith. Reached Shuangshihpu about 2 (memories of Rewi Alley and Hsing-Tsung two years before).....