

REPORT ON A JOURNEY IN THE SOUTH-WEST OF CHINA, OCCUPYING

AUGUST, SEPTEMBER AND OCTOBER, 1944.

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- I. Introduction and Itinerary.
- II. Transportation.
- III. Accommodation.
- IV. Institutions visited:-
 - 1. Universities and Research Laboratories
 - 2. Medical Training Centres
 - 3. Industrial Organisations
 - 4. Military Hospitals.
- V. Economic, Social and Political Observations.

I. Introduction and Itinerary

The tour began on August 1st., when we left Chungking with the British Military Mission convoy. We reached Kweiyang on the evening of August 2nd. and found our truck, with driver and mechanic, awaiting us. The next week was spent in Kweiyang; during this time we were joined by one of our colleagues, Mr. Tsao Tien-Chin, who had come from Chungking by bus, and whose help to us throughout the tour was invaluable.

On August 12th. we went on, spending a few days at Anhsun, and reaching Kunming on August 17th. We stayed here for the next month, paying many visits in the neighbourhood, and on September 10th. set out westward, our objectives being Huachung University at Hsichow, north of Tali, and Baoshan. We reached Hsichow on September 12th. and D.M.N. stayed here, while JN and T.T.C. went on to Baoshan. They were back on September 25th., and we all left on the 26th. to return to Kunming, where we arrived on the 28th.

On the 29th. we received news that Dr. L.E.R.Picken was to arrive at Kunming from England on the 30th., and were able to meet him at the airfield with the truck.

On October 8th. we all left on the return journey to Chungking. We spent several days at Huachi visiting the University of Kweichow, and several days at Tsunyi and Meitan with the University of Chekiang. On October 31st.

we reached Chungking, and found the new house ready for us.

Itinerary

		<u>km/day</u>
Aug. 1st	Dep. Chungking, arr. Sungkan	196
Aug. 2nd.	Dep. Sungkan, arr. Kweiyang	292
Aug. 12th.	Dep. Kweiyang, arr. Anhsün	93
Aug. 15th.	Dep. Anhsün, arr. Annan	147
Aug. 16th.	Dep. Annan, arr. Chiuching	260
Aug. 17th.	Dep. Chiuching, arr. Kunming	160
Sept. 10th.	Dep. Kunming, arr. Chuhsiung	192
Sept. 11th.	Dep. Chuhsiung, arr. Tali	235
Sept. 12th.	Dep. Tali, arr. Hsichow	10
Sept. 15th.	Dep. Hsichow, arr. Yungping	144
Sept. 16th.	Dep. Yungping, arr. Baoshan	138
Sept. 19th.	Dep. Baoshan, arr. Wayao	56
Sept. 24th.	Dep. Wayao, arr. Yungping	82
Sept. 25th.	Dep. Yungping, arr. Hsichow	144
Sept. 26th.	Dep. Hsichow, arr. Hsiakuan	25
Sept. 27th.	Dep. Hsiakuan, arr. Chuhsiung	220
Sept. 28th.	Dep. Chuhsiung, arr. Kunming	192
Oct. 8th.	Dep. Kunming, arr. Pingyi	230
Oct. 9th.	Dep. Pingyi, arr. Annan	190
Oct. 15th.	Dep. Annan, arr. Anhsün	147
Oct. 16th.	Dep. Anhsün, arr. Huachi	114
Oct. 21st.	Dep. Huachi, arr. Tsunyi	176
Oct. 23rd.	Dep. Tsunyi, arr. Meitan	75

Oct. 28th.	Dep. Meitan, arr. Tsunyi	<u>km/day</u> 75
Oct. 29th.	Dep. Tsunyi, arr. Tongchih	64
Oct. 30th.	Dep. Tongchih, arr. Sanchi	184
Oct. 31st.	Dep. Sanchi, arr. Chungking	

II. Transportation

The truck used was the same 1½ ton Chevrolet converted ambulance which had accomplished the tour in the south-east. It had come from Kweilin to Kweiyang in charge of Mr. Huang Hsing-Tsung, and waited there at the B.M.M. garage for our arrival. The truck ran very well throughout the journey, the only troubles encountered being with tyres, springs and dirt in the alcohol. The tyres began to give trouble during the return from Hsichow to Kunming; Capt. Luckie was unable to supply any new ones but arranged for the purchase of two at \$140,000 NC each, since to continue the journey with the old tyres only was too dangerous. At Kweiyang, Major Gould of the B.M.M. garage kindly tried to get four retreaded for us at the U.S. Army depot, but they were returned as unsuitable on account of worn canvas.

On October 9th. we had an accident which might have been serious. This was on the road between Panhsien and Annan, about 20 km. before reaching Annan. JN was driving, and (blowing our horn) was about to pass a stationary truck when the latter started up and moved into the

centre of the road. To avoid a collision our truck was obliged to go out near the edge, and this proved treacherous; it crumbled away beneath our wheels, and the truck turned slowly over into a ricefield about 12 feet below. No one was hurt. Dusk and rain were coming on, and we were fortunate in stopping a passing postal truck which took us into Annan, leaving the driver and mechanic with our truck. Here we asked help of the U.S. Transport Depot, and Capt. Willmore there very kindly provided a truck in which JN and T.T.C. returned to the place of the accident. All our belongings, Cases of books and apparatus, microscopes etc. were retrieved from the ricefield and loaded into the American truck. JN returned with them to the C.T.S. Hostel at Annan, (where rooms had been taken); T.T.C. elected to stay with Kuang Wei and Ling Mei-Hsing, since it was essential that the truck should be well guarded against theft of its detachable parts. The situation there, where ^{they} stayed for 36 hours endeavouring to shelter inside the overturned truck, was extremely unpleasant, especially as rain fell the whole time. We cannot speak too highly of their readiness and cheerfulness.

Next morning, we consulted with Capt. Willmore, who held out hopes that a big wrecker would shortly be coming this way. But that night we met Sergeant Jarvis, in charge of next day's American convoy along the road to Kunming, and he promised to try to "flip her over and

yank her out". He was as good as his word, and next day when JN and LP set out with Major Gottlieb (an Austrian Diesel engineer now attached to the S.W. Road Administration) who had kindly offered two small wrecker trucks, they met our truck coming under its own power. Major Gottlieb was also most helpful in procuring the labour for the iron-work and woodwork repairs necessary. Our gratitude should be recorded both to him and to Capt. Willmore for their great helpfulness; we expressed it in a special letter to the U.S. Army Transport Administration in Kunming.

The only other serious delay in the journey was caused by landslides on the first day of the return journey from Baoshan. The first of these was encountered only a short distance from Baoshan, and we dug ourselves through. The second was a rockfall with a large tree, but a very efficient/^{foreman}with gang got it out of the way in a short time. But just after passing Wayao and entering the Mekong Valley we were stopped again at km.607 by a series of landslides. We were told by a road foreman that there was a frightful one at km.601, which would take days to clear, and decided to walk on to investigate it, sending the truck back to Wayao. But when we reached km. 602, we found the mountain coming down all the time, in a mud slide, gelatinous and black; further ahead another slide came down with a roar,

and we decided it was hopeless. We returned to Wayao, having considerable difficulty in retracing our steps. The rain, which had started on our way to Baoshan on October the 16th, continued until the 22nd. On that day American bulldozers and a grader and driller with convoy reached km.614. A Chinese engineer regiment cleared the top of a big dirt fall there; the bulldozer came over and they worked from both sides. Hundreds of men were also at work at km.601. By the afternoon of the 23rd., the bulldozer and huge grader had finished at km. 614, and came down to attack km.601. Early on the morning of the 24th. we started off in the truck from Wayao, and after some delay, were able to get past km.601. Later the road was much easier, though there were many rockfalls and slipaways on both sides of Mekong. The Americans had worked 4 days and nights continuously to clear what was said to be one of the worst series of slides ever known on the Burma Road.

The Road struck us, indeed, as being well looked after, Chinese roadmen, attending to small matters and no doubt on the watch for any serious trouble, are continually met; and many gangs of men, women and children were preparing stones for paving. The road is paved right across with small, well-laid stones at many of the sharpest bends and biggest gradients.

III. Accommodation

Sungkan. In a very small inn (the village being crowded with trucks) where we used our own camp beds and bedding.

Kweiyang. With General Lu Chih-Teh at the Emergency Medical Service Training School.

Anhsun. With Mr. and Mrs. Lyall, in the China Inland Mission Compound.

Annan. At the clean and efficient China Travel Service hostel.

Chiuching. At the Friends' Ambulance Unit Headquarters.

Kunming. At the Chemical Institute of Academia Sinica. Beds were put up for us in the Librarian's Office and a part of the Library itself, the Librarian and most of the books having been moved to the country.

Chuhsiung. With Miss Morgan (independent missionary). Miss Morgan received us most hospitably; but she is old and frail and obviously much harassed by the continuous stream of visitors expecting accommodation now that the Road is more in use again. (On our return journey we stayed at the U.S. camp, in order not to trouble her).

Tali. With Mr. and Mrs. Snow, at the C.I.M.*

* We had intended to stay this night at Hsiakuan, hoping to get accommodation at the camp of the Burma Road Engineers. This, however, turned out to be impossible, owing to the fact that they could not arrange for a woman. It was owing to the prospect of similar difficulties in finding lodging that DMN remained at Hsichow during the trip to Baoshan.

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Hsiehow. We were given hospitality by the University, and stayed with Mr. and Mrs. Anderson.

Yungping. With the Burma Road Engineers.

Baoshan. With the F.A.U. and B.R.C.S. Surgical Unit of the 37th. Field Hospital, in dressings tent.

Wayao. The inn was full, but after some trouble we found a quiet room in the house of Mr. Chang, at the Road Repair Depot. Mrs. Chang was most kind throughout our stay.

Yungping. With the Burma Road Engineers.

Hsiehow. With the Andersons.

Hsiakwan. In the unused house of a rich merchant (this hospitality was arranged by the President of Huachung University).

Chuhsiung. With the U.S.Y-Force, in their beautiful temple.

Kunming. The Chemical Institute, Academia Sinica.

Pingyi. At the Kuanghua Distillation Plant, about 3 km. out of the town, where we were most hospitably entertained.

Annan. At. C.T.S. hostel. Since we had to stay 6 nights this time, we were most fortunate that this hostel is so efficiently run.

Anhsun. At the C.I.M.

Huachi. At the town Guest House, as guests of the University of Kweichow.

Tsunyi. First in the University offices, in camp beds, then in the town Guest House for visiting officials.

Meitan. As guests of the University, in a lovely temple used as a hospital.

Tongchih. In the good C.T.S. hostel.

Sanchi. At the N.R.C. Electrochemical and Metallurgical Works, some at the hostel and some in Dr. Yap Chu-Fei's house.

IV. Institutions Visited

I. Universities and Research Laboratories

National SW Associated University, ("Lien Ta"), Kunming. Here we met the scientific workers who had already been visited by JN in the spring of 1943. Teaching is continuing actively, and we had opportunities of seeing the research work in the General Physiology Research Institute, out at Tapuchi, where we spent two nights with Dr. Tang Pei-Sung. In these wartime buildings of bamboo and plaster, Dr. Tang has collected a group of enthusiastic

young biochemists and biophysicists who are attacking a number of interesting problems. The real research spirit is obvious here. There is a small but excellently chosen library, and much good equipment; Dr. Tang's energy and ingenuity keep the group as much in contact with the outside world as is possible in these times. We also visited the Radio Physics Research Institute and the Metals Research Institute where excellent work is being done.

We had brought with us in the truck books for the Lien Ta Library, and some valuable apparatus for the people at Tapuchi. It was a privilege to be able to hand these over and to share their pleasure.

Academia Sinica: Chemical and Engineering Institutes.

These are good buildings in a large compound on the outskirts of Kunming.

In the Chemical Institute Dr. Wu Shieh-Chou and Dr. Huang Min-Long with their assistants have been carrying on valiantly, choosing their research to suit the materials available to them. Thus Dr. Wu has made a thorough study of the absorption spectrum of methylglyoxal, and Dr. Huang has been studying the isomerism of santonin derivatives. The santonin was procured for him by the Sino-British Science Co-operation Office. Since the isomerism is brought about simply by action of acid or alkali, he was

able to make this study; but the final results cannot be published, owing to lack of equipment for making analyses to confirm the structure of the compounds.

In the Engineering Institute research work was being carried on, under Dr. Chou Rjén, in connection with the steel production in the China Electric Steel Works at Anning (of which Dr. Chou Rjén, is director). The Engineering Institute is also well-known for the excellent glassware, including pyrex glass, which it made; although production has recently had to be suspended, research on glass-making still goes on in the laboratory. Research is also being done on the strength of Chinese timbers, in conjunction with the U.S. Army and the Chinghua Engineering School. This has been very useful for bridge-building, etc.

The Peiping Academy at Heilongtan was revisited. We were able to deliver in the truck 5 crates of apparatus, including a quantity of optical glass from England, asked for on JN's previous visit.

The microscope-making project is being successfully carried out. Eighty have already been distributed to Universities and 400 more are now being made. They are of three types - for medical students; metallurgical with reflected light; and biological with 3 objectives. The highest magnification now available is x700. The first oil-immersion objectives are now being prepared.

The quartz oscillators for radio work in the Chinese Air Force are still being made, and interesting research on the properties of quartz crystals has continued.

The geophysical and chemical work continues actively; and some interesting studies of Chinese drugs have been begun.

Hua-Chung (Central China) College. This College evacuated from Hankow to Hsichow, a small town about 15 km. north of Tali, some 5 years ago. At that time, the Burma Road was still open, and the position only some 35 km. from the Road, was satisfactory for getting supplies. But since the closing of the Road, its isolation has been extreme.

The College is a Christian one, receiving both British and American support. The intention was that it should be kept small, and it never had more than 200 students; but of course, in Hankow these had contact with other institutions. Now in Hsichow there are only about 100 students, with an incomplete teaching staff, and they are completely cut off from all other cultural activities. The journey from Kunming takes 2-3 days with a good truck, but students arriving while we were there had been nine or ten days on the road owing to bad weather and breakdowns. There had been no Chemistry staff for the last 6 months, and the chemistry teaching had been taken over by other staff members to enable the students to complete their courses. During this summer a number of Chemistry appointments had been made, but the new Professor and his assistants had not arrived some weeks after the term began.

The University library, lecture rooms, offices, assembly hall etc. are housed in a series of temples; some new buildings were put up for the chemistry, biology and physics laboratories. The temples are beautiful, but both they and the science buildings are in a poor state of repair, the roofs leaking badly during the rainy weather.

The Library is well stocked with western literature books on history, sociology, psychology etc., all rather old. There is a good Chinese section for teaching. The science laboratories have each a small but good collection of books.

The College has two very good scientists in the head of the Physics Department, Dr. Bien, and the head of the Biology Department, Dr. Hsiao Chih-De.

Dr. Bien carries on research on pure radio physics as well as may be in the absence of accumulators and with electric current available only 2 or 3 evenings a week; also "the wiring gets disturbed by the squirrels running over it."

Dr. Hsiao has started a systematic limnological survey of the Erh-Hai lake, the first time such work has been done in China. His first paper is ready for publication, but the survey has had to be discontinued on account of the expense of hiring a boat. He has also made a study of blood groups amongst the tribes-people further west. At present he is studying the metabolism of the viviparous

water-snail Margarita melanoides. He is fairly well off for microscopes, but badly needs chemicals.

This college seems perhaps in some ways particularly ill-adjusted to the war situation. Dr. Wei Cho-Min, the President, a scholar and philosopher, is a man of great personal ascetism and readiness for sacrifice. But owing to its situation, the College is cut off from taking any direct part in the war effort, and Dr. Wei, apparently from motives of patriotism, seems to have used his influence against support from abroad of fundamental research of long-term usefulness.

University of Kweichow. This University is newly founded since the war, only about 2 years ago. The first graduates will be ready this academic year. Before its foundation, the province of Kweichow had no University. It is situated in a most lovely spot, at Huachi, about 15 km. from Kweiyang. This is to be its permanent campus, though no doubt some of the buildings will need to be replaced after the war. Huachi is a small town, and its administration was well spoken of by the University people, on account of the nursery, primary and middle schools and hospitals it supports.

The President of the University, Dr. Chang Ting-Hsiu, is a Kweichow man; he was formerly in charge of the Government Bureau of Mongolian, Tibetan and Tribal education.

He is still much interested in this question, and supports the view that the Miao and Lolo peoples of Yunnan and Kweichow should have equal educational opportunities with the Chinese. There are 5 Miao students, all men, at the University; there was also one girl student, but she married a Chinese and left.

Since the University is so new, its task has been great enough in finding the books and equipment necessary for teaching and it is not surprising that no scientific research has so far been started. There are departments of chemistry, physics, mathematics and agriculture, but no biology. In the Chemical Laboratory there is no electricity, gas or running water, but a small class in inorganic quantitative analysis was functioning quite satisfactorily. Practical organic chemistry has to be taught at present by demonstration only. Little was going on in the Physics Department. The Department of Agriculture was active in teaching, and was doing a little experimentation e.g. in running a small farm and in trying to keep cows. Kweichow is a particularly poor province, with ^a leached, humus-poor soil.

Compared with some other Chinese universities the University of Kweichow is certainly at present unimpressive, but the difficulties of its initiation at this time

have to be remembered. There are no very outstanding scientists on its staff; none of the most interesting personalities met there was the Professor of English, Dr. Chen Kuei.

University of Chekiang. This University, evacuated from Hangchow, Chekiang, has been obliged to divide into 3 parts in order to find accommodation. The scientific institutions, which we went to visit, are at Meitan, about 75 km. from Tsunyi, and a most distinguished body of scientific research workers and mathematicians is gathered there. Indeed, this University was started, about 1927, primarily for research; the training of undergraduates came later, for the purpose of providing new recruits for research. This University, in our opinion, shares with the three incorporated in the Nat. SW Associated University in Kunming, the distinction of being the best in China to-day.

The President, Dr. Chu Ko-Chen, is himself a well-known meteorologist, being also Director of the Meteorological Institute of Academia Sinica.

The University offices, lecture rooms and assembly place are situated in a most beautiful Confucian temple; most of the laboratory buildings were specially built. In Mathematics, Physics, Chemistry and Biology an enormous amount of first-class work has been done during the war years and continues at the present time. A large number of young workers are being trained there. The work is

chiefly of a fundamental nature, but some war problems have been undertaken - e.g. in the Physics Department. A new department of Pharmacology is shortly to be started; this will train students as well as organising research. The Department of Agriculture is also very active; researches are going on on crops, nutritional chemistry, plant diseases, fermentation processes, soil chemistry, etc.

The departments started comparatively well equipped, and still have much good apparatus. The stocks of important chemicals are, however, running low and in the Physics Department the difficulty of getting electricity, (on account of the prohibitive cost of running the power plant) is a very serious drawback. The work also suffers on account of the increasing isolation due to increasing transport difficulties. The University owns 3 trucks and a car, but all were out of repair at the time of our visit and likely to remain so.

2. Centres of Medical Training and Research

The Emergency Medical Service Training School, Tuyunkuan, Kweiyang. This School was set up in 1938 to meet the intensified demand for medical and nursing personnel which came with the rapidly extending battle fronts after the fall of Nanking. The short courses (2-6 months) provided then are still continued, but in addition, according to plans made by the School's first Director, General Robert Lim, a full course in medicine is also now given, including

preclinical work. This course is of the same standard as that given in other Medical schools, but is characterised by being given in two-year stages, a year's field service being interposed between the stages.

There are some 1,800 students, and the School is divided into 4 divisions: Preclinical, Clinical, Nursing and Production.

We were much struck with the high quality of the teaching staff. In spite of pressure of teaching work and lack of equipment, they shewed an intense interest in current research and are themselves doing what research they can in the circumstances. Particularly ingenious teaching methods are used in the Chemical Laboratory.

The 167th. Army Base Hospital (600 beds) serves as training hospital for the nursing and clinical work; a new hospital, of 300 beds, is just about to be opened.

The Production Division does very valuable work, both for the School and for other organisations.

The Machine Shop makes all kinds of hospital furniture, including operating tables, (for the bases of which motor-car wheels with the rims removed are utilised); dental instruments; laboratory equipment; X-ray accessories; automobile parts. etc.

The School Printing Press and Photographic Shop do

useful work. The photographic equipment includes a cinematograph camera, with which a film of medical tactics manoeuvres was made; but for the last 3 years it has not been possible to get cinema film.

The vaccine plant (under the Department of Laboratory Medicine) has very good equipment; smallpox, cholera and typhoid, tetanus and typhoid and plague vaccines are produced, some 12 million doses p.a. in all.

The Orthopaedic Centre must also be mentioned; this is a pioneer attempt in China to tackle the problems of physical and economic rehabilitation of crippled soldiers. There are about 200 patients in this centre who are being fitted with artificial limbs, (made in the School's Orthopaedic Workshop), given suitable treatment, and taught trades.

In writing at the present time of the achievements of the E.M.S.T.S., one cannot ignore the fact that some aspects of the work are at a standstill, or even in imminent danger of disintegration owing to the soaring costs. General Lu Chih-Teh and his staff constitute a devoted band of men and women, doing, at great sacrifice, an essential service for their country. With their high qualifications and training abroad they could readily obtain highly paid jobs; but they choose to remain, with little pay and difficult conditions, to render this service.

National Kweiyang Medical College. This College was founded 6 years ago; it is to be situated permanently in Kweiyang and has acquired a good 20-acre site, 2 km. outside the city, where building is going on. Some of the students and teaching staff are expected to move there from their temporary quarters this autumn. There are about 175 students; the government has issued instructions that a larger enrolment should be made, but the College authorities were very doubtful as to whether the requisite number of students capable of passing a reasonable entrance examination would be forthcoming. There are some good scientists working here, managing to do some research. The staff includes a psychiatrist, rare in China.

Hsiangya Medical College. This College was founded in 1914 at Changsha. It was evacuated to Kweiyang in 1938; it occupies very poor buildings outside the city, and uses the Kweiyang Central Hospital for its clinical work. There are about 200 students, mostly from the occupied areas. There are some very bright, keen people here, and active research is going on in clinical pathology, pharmacology and neuro-physiology. The teaching methods include the use of very good coloured diagrams on cloth.

Army Medical College, Anshun. This College was founded in Nanking some 40 years ago and, after 2 successive

evacuations, was established at Anhsün. It constitutes the Regular equivalent of the Emergency College at Tuyunkuan already described. Of the 800 students, 400 are doing the full medical course (5½ years); 300 are doing the 2 year course as medical aides, 30 are doing dentistry (5½ years) and 50 pharmacology (4 years).

Besides the teaching, both research and production go on, the research particularly in immunology, nutrition and embryology. The most outstanding personalities met were General Li Chen-Pin, head of the Immunological Institute and Dr. Wan Hsing, head of the Nutrition Institute. But the former is terribly overburdened with administrative duties and the latter is suffering from nervous frustration. Production includes a number of vaccines (smallpox, cholera, typhus etc.); one interesting point here is the successful use of soya beansprout juice in place of beef broth in media. Drugs are also made, both metallic, such as calomel, and vegetable, such as digitalis. The School of Pharmacy has a very good garden, growing plants of pharmacological importance.

The standard of scientific work at the College is clearly suffering greatly owing to isolation and lack of funds for running expenses. Both Dr. Li Chen-Pin and Dr. Wan Hsing asked particularly for help in the form of prolonged visits from outside scientific workers who would

provide new stimulus. It is hoped that Dr. Picken and Dr. Sanders will each be able to spend some weeks there.

National Epidemics Prevention Bureau. The Bureau at Kuming, under Dr. F.P. Tang, was revisited. We were fortunate in being able to take out 3 crates of newly-arrived apparatus. Work on vaccine production is continuing there, but more and more hampered by lack of funds. Dr. Tang has done a good deal of research work on Penicillin, and has been successful in treating a number of cases.

The N.E.P.B. Vaccine Plant, Kweiyang Station was also visited for the first time. Some very interesting research work is going on here, particularly in the attempt to use silkworm larvae as substitute for yolk-sac in cultivation of typhus Rickettsia bodies. Dr. Wei Hsi and Dr. Liu Ping-Yang are both pupils of Zinsser.

Blood Bank at Kun-Hua Hospital, Chin-pi Road, Kuming, was started only about 5 months ago and is the first Blood Bank to be set up in China. It is under the direct supervision of General Robert Lim; the personnel running it were trained in the United States and the apparatus is American.

The Bank aims at present at having a stock of some 100 bottles of whole blood or plasma. A drying unit has been installed, but this is not yet in use, on account of insufficient electricity. A special power plant is being set up.

The Bank has difficulty at present in getting donors, and much propaganda will be necessary. They have permission to take blood from the Army, but anaemia is so prevalent and so pronounced amongst Chinese soldiers that they take only 250 ccs. of blood from each. Anaemia is common also amongst the better-fed civilians, and it is necessary always to do a rapid qualitative test on a few drops of blood, before going on to bleed. A maximum of 400 ccs. is taken from civilians, usually only 350.

3. Industrial

A list of these follows:

San-I Chemical Works, Kweiyang, (Low Temp. Coal Carbonisation plant).

Kweichow Coal Mine, Kweiyang.

Kweiyang Power Plant, Kweiyang.

China Match Raw Material Co., Kweiyang, (Alkali plant).

China Agricultural Machinery Corp., Kweiyang.

Kweiyang Glass Factory, Kweiyang.

Kweiyang Oil and Resin Co., Kweiyang.

February 4th. Factory for Girls, Kweiyang.

53rd. Arsenal, nr. Kunming.

China Electric Steel and Glass Works, nr. Kunming.

Yunnan Iron & Steel Works, nr. Kunming (Blast furnaces).

N.R.C. Radio Works, nr. Kunming.

N.R.C. Alcohol Plant, nr. Kunming.

Dien-Li Chemical Works, nr. Kunming, (Low Temperature Lignite Carbonisation plant).

52nd. Arsenal, nr. Kunming.

N.R.C. Electrical Factory, nr. Kunming, (Cables, wiring, dynamos, Transformers).

23rd. Arsenal, (Branch) nr. Kunming.

N.R.C. Chemical Works, nr. Kunming, (soda-ash, sulphuric acid, etc.).

N.R.C. Copper Refinery, nr. Kunming (and aluminium).

N.R.C. Power Plant, nr. Kunming.

21st. Arsenal, nr. Kunming.

Yunnan Tannery, nr. Kunming.

53rd. Arsenal Field Repair Shops, Baoshan.

Kuang-Hua Chemical Works, Pingyi (Medium Temperature Coal Carbonisation plant).

Chinese Air Force Repair shops, Kweiyang.

44th. Arsenal, Kweiyang.

53rd. Arsenal, (Branch), Kweiyang.

41st Arsenal, Tongchih.

Since a separate report has been prepared on each of these enterprises. only very general remarks need be made here.

In the Arsenals, the scientific staff as a rule is of a high standard of training and experience.

Except in special cases they are comparatively well-equipped. Their protection against air-raids is always good and sometimes (in the artificial tunnels of the 53rd. or the natural caves of the 41st.) quite amazing.

Amongst Chinese steel works, the China Electric Steel and Glass Works at Kunming is outstanding. It is in charge of Dr. Chou Rjên^A, who for 14 years has been director of the Academia Sinica Engineering Institute. The works makes the best tool steel, and many special kinds of steel. It is in full production, much of its products going to the U.S. Army.

Three coal distillation plants were visited; of these the Kuang-hua Plant and the Dien-Li Plant are efficiently run and in charge of capable and energetic engineers. But in neither case does the temperature used rise above about 600; and as far as our information goes, no high temperature coal distillation plant has been started in Free China. This means a very serious lack of all ring-compound coal tar products, so vital in industry. For example, the new insecticide, DDT, which would be of enormous use here, is very easy to make and is being made on a laboratory scale in various places in China. But the starting point is benzene, and every pound of benzene needed has to be imported by air.

4. Military Hospitals

At Baoshan, behind the Salween Front, the 37th, 19th and 21st. Chinese Field Hospitals were visited, and a separate detailed report has been made. The combined surgical unit of the Friends' Ambulance Unit and the British Red Cross is running part of the 37th. Hospital, while part is run by the Chinese. The 36th. American Portable Surgical Unit is working with the Chinese in the 19th. Hospital; the 21st. Hospital is entirely American-run.

The 99th. Army Hospital at Chuhsiung was also visited and has been reported on separately. Here the Hospital has the advantage of the services of a fully qualified Austrian doctor (Dr. Rolf Becker, Vienna) who is kept well supplied with drugs by the U.S. Army. But supplies of food, bedding, clothes etc. and the nursing service all depend on the Chinese Army. The results are pitiful and tragic.

5. Other Institutions

Kweichow Science Institute.

Kweichow Provincial Products Museum.

Kweichow Provincial Agric. Exp. Station.

Kweichow Provincial Library.

Army Veterinary College, Anhsun.

Nanking and Lien Ta Middle Schools, Kunming.

Army Officers' Language College, Anhsün.

Interpreters' School, Kunming.

During the visits to these various institutions a large number of lectures and informal talks were given - by JN on scientific subjects (experimental embryology, the sterols, history of science in China, etc.) and on general subjects concerned with the scientific war effort, science and democracy etc; by D.M.N. on scientific subjects (such as muscle contraction, protein chemistry and phosphate metabolism) and more general subjects especially concerned with women's education and part in the war effort; and by Dr. Picken on agricultural subjects, blood transfusion and fine structure of biological materials.

A few words might be said at this point about the effect upon Yunnan and Kweichow of the great influx of evacuated institutions from the east. There can be no doubt that this had had a very stimulating effect on these backward provinces as regards education, standards of living, development of natural resources etc. Thus Kunming which, before the war was a small city with the recently established and rather second-rate Yunnan University, is now a great educational and industrial centre. The changes are particularly noticeable in Kweichow, which has a rather progressive Governor, especially in the neighbourhood of Kweiyang. Before the war, the province had no University, but the University of

Kweichow was founded 3 years ago and is gradually being built up at Huachi. Similarly, the Kweiyang Medical College has been newly founded to provide for future medical education in the province. The future of these two institutions, however, is not quite clear, since at present they are largely staffed by ex-teachers from eastern Universities, who are only awaiting the chance to go back to the east. At the Kweiyang Medical College we were told that only one student enrolling this year is a Kweichow native. There is now a hospital in every hsien of the province, but only 10 Kweichow doctors.

The Kweichow Provincial Agricultural Experiment Station, in charge of Dr. Liu Ting-Wei, son-in-law of the governor, is doing excellent work in investigating prevailing pests and teaching the farmers how to combat them. A beautifully arranged and most instructive Exhibition illustrating this work was held in the Kweichow Science Institute in honour of the Double Tenth and was very well attended.

The Science Institute itself merits special mention. During the last two or three years, under the directorship of Dr. Ling Shao-Wen, (of the E.M.S.T.S.) it has begun very successfully to carry out its functions of popularising science and improving science education in the middle schools. There are excellent exhibitions on nutrition,

embryology, biology, bridge engineering, parasites of animals and man, geology etc; and rooms which are (when funds and equipment permit) used for practical science teaching by the local schools. Well attended popular lectures are given in the large lecture hall; here JN gave a lecture (lasting 2 hours with interpretation) on Science and Democracy to an audience of 300-400, who stayed to the end and then asked questions.

V. Economic, Social and Political Observations

This tour, including as it did many industrial enterprises, both private and government-controlled, served to emphasise sharply what we already know - that the industrial situation in Free China is rapidly deteriorating. In only a few cases out of more than twenty visited is production to capacity going on; usually production is only 20 - 30% of capacity. The reason usually given for this is the prohibitive cost of the raw materials and the impossibility of finding a market to cover the cost of production. In some cases the price of the product sold mainly in the cities is government-controlled while that of the raw material coming from the countryside is not. For example, the government cannot force the peasantry to grow tung trees and sell tung oil to the gasoline factories at a controlled price; but it does control the price of the cracked gasoline made.

Even in the Arsenals, production is now usually much below capacity, the fact that some of the materials needed here, e.g. optical glass and Acheson graphite electrodes, can only be obtained from abroad, of course, contributes to the difficulties.

In the factories of the National Resources Commission too, underproduction is now the rule. The budget for expenditure is fixed for the financial year and cannot be altered, although the increase in inflation far outstrips the allowance made for it. Of, course, here again the difficulties are not only financial; for instance, the inefficiency of the chalcopyrite mines in Yunnan and the fact that no modern machinery can be imported for them, are partly responsible for the low production at the N.R.C. Copper Refinery, Kunming, and the ^{N.R.C.} Electrical Factory (Wires and Cable Section), Kunming. If government controlled factories have these difficulties it can be imagined that privately owned factories have them also, even more acutely. It remains to be seen whether the new Chinese War Production Board (Chairman, Dr. Wong, Vice-Chairman, Gen. Yu, Secretary, Dr. Franklin Ho), aided by the Nelson-Hurley Mission, will be able to improve matters.

Although the U.S. Army in China imports much the greater part of the supplies they need, yet Chinese industry

does find a small American market. A striking case in point is the China Electric Steel Works, near Kunming, supplying various steel products to the U.S. Army. This is a very exceptional plant, being even now in full production. This fact is probably to be explained by the extremely high quality of the special steels manufactured. It is interesting to note in passing that this factory could make good steel rails, of the weight needed by the Yunnan narrow-gauge railways, but in spite of the desperate ^{state} of road transport in Free China, there is no financial support available for additions to her unfinished railway system.

In the academic world also, the economic position presents even greater difficulties. The cost of living is now about 800 times as much as before the war, and the salaries paid to university professors are worth perhaps one tenth of their pre-war value. Increasing bonuses are given as the cost of living rises, but these never keep pace with the rise. Nevertheless, university life continues, and study, teaching and research goes on. We constantly wonder how these people manage to live, and how the academic institutions manage to supplement their totally inadequate budgets.

On an average, the total income of a university teacher is perhaps equal to about half the minimum essential expenditure for himself and his family.

The Chinese university families we visited in Kunming and Kweiyang were living, almost without exception, in the simplest possible way (for example, parents and 2 or 3 children in 2 small rooms) with very few comforts. Their diet, except on special occasions, consists almost entirely of rice and vegetables. The difference between expenditure and salary is made up in a number of ways - by taking on outside jobs; by the wife also working, even though she has young children; by selling books and clothes which remain from better times; by borrowing or gifts from relatives; by "business", a method which makes use of various ways of exploiting the inflation and the short supply of certain goods.

Turning now to institutions, take for example the case of Academia Sinica Chemical Institute. The total grant is enough only to pay for the fuel needed, the rest of the money needed to keep going must be found in some way by the director. This he has so far done partly by getting donations from sympathetic industrial firms, partly by earning money by the work of the Institute as a whole. No one working in the Institute is allowed to take on any outside job, or is expected to indulge in any speculative ways of money-making. The Institute makes certain fine chemicals for which a high price can be obtained, and sells them for

the benefit of the Institute. Another example of which we heard some details is the Department of General Physiology of Lien Ta, where excellent work is being done. Here again, the grant is quite inadequate; the director supplies many needs from his ^{own} private means, begs help from interested quarters and again makes a little money for the department by the laboratory manufacture of a few drugs. Again, the Peiping Academy at Heilongtan, by its manufacture of microscopes, both meets a real need and supplements its own budget for research; it also has a big ice-making plant, and sells the ice not essential for its own research needs in the city at a high price for the benefit of the Academy.

The question of the economic situation of university teachers leads on to political considerations, for the suggestion has often been made that the poor government support given to the old-established Universities in these times is a matter of policy, the Ministry of Education having preferred to set up new colleges and middle schools staffed with their own nominees. Certainly it is noticeable in Kunming that Lien Ta, made up of three universities of the highest standard and having a reputation for freedom of thought, is housed in extremely poor buildings, while a number of government supported middle-schools have sumptuous buildings. Although resigned to the fact that

much hardship is inevitable in the present blockaded state of China, academic people are losing faith in the present government's intention to support pure science even after the war is ended. Some leading members of Academia Sinica indicated that it is their firm intention to stand by the Academy, at all costs, until the war is over, in the hope of ultimate government help; but they fear that eventually they may be driven to go into industry. This might not be so bad if it were felt that the present Kuomintang government showed signs of understanding how to industrialise the country, but the vast majority of the scientists and technologists, though deeply appreciative of the fine work that Dr. Wong Wen-Hao and Gen. Yu Ta-Wei have done in leading the N.R.C., and the Ordnance Administration respectively, believe them to be voices crying in the wilderness as long as the present circle of reactionary politicians around the Generalissimo retain power. At the same time, we have not met many signs that the technical intelligentsia look to the communists in the north to save the country. They look rather for a central, democratic, or left movement within the Kuomintang itself, and if need be, would rally to its support.

The subject is often raised, especially among Chinese scientists, of the degree to which Chinese science is mobilised for the war effort. Many students and

research workers feel that their position in the lecture room and university laboratory is an anomalous one when the U.S. Army is arriving to fight the Japanese. Several observations may be made in this connection. In the first place, many scientists are actively engaged in war work, e.g. in the Arsenals, and the immediate reasons (financial, the blockade etc.) why they cannot do more have already been touched upon. In the second place, as has from time to time been pointed out in the previous pages, many research laboratories have taken up problems of war research and are making valuable contributions in this way. Thirdly, there is the opinion, held for example by leading scientists in Academia Sinica and with which we strongly agree, that it is essential to keep pure science alive in China at this time. Fundamental scientific research in China before the war was the new growth of only some twenty years; were it to lapse completely now, owing to total mobilisation of scientists, its roots would easily disappear, and much time would be lost in starting it again.

But when all these considerations are borne in mind, the contention that science is not fully mobilised, has good foundations, and a tour such as we have just made brings this home. It becomes more and more clear that the present government is afraid of any popularly-based war effort; rather than accept the help of a popular movement led by scholars, scientists and technologists,

it prefers to rely on the forcible conscription of vast ill-equipped armies of uneducated men. This same fear leads to disorganization everywhere; for example, to the state of affairs in which doctors trained at Army Medical Schools enter the army to find that their work is impossible there and immediately leave, no one stopping them, for civilian practice. As a young Chinese scientist said to us, "The present government has a vested interest in disorganization".

In Kunning, we had the opportunity of meeting the leading members of the "Democratic Group", a federation of a number of small progressive parties (Youth Party, National Salvation Party etc.). This federation has been working underground since 1941, and there have been many attempts by the Kuomintang to break it up. The federation may be described as left-KMT, willing to cooperate with the communists in the north. Its leaders believe that they now have a wide popular membership, including merchants and officials, with branches overseas, and they are planning a national assembly, hoping the time will soon arrive for them to come into the open. They would link naturally with Dr. Sun Fo and Mme. Sun and such figures as Dr. Quo Tai-Chi in the capital. The group has at the moment the protection of provincial government though this is a rather uncertain quantity. Many students and intellectuals are no doubt amongst the members and sympathisers. The conviction is steadily growing,

particularly amongst intellectuals and most markedly perhaps amongst scientists and technologists that deep-seated changes in government will be necessary both for the winning of the war and for the post-war industrialization of China, which is an absolutely necessary step towards improved standards of living for the whole country.

This report was written before the governmental changes in the latter part of November 1944. It remains to be seen how far the policies and actions of the new ministers will meet the criticisms of the government universally heard in Chinese educated circles.

ADDENDUM TO REPORT ON THE SOUTH-WEST TOUR, AUTUMN, 1944

Lectures delivered:

- | | | | |
|----|--|-----|--|
| 1 | EMSTS, Tuyukuan, Kweiyang | DMN | "The Machinery of Muscle" |
| 2 | -do- -do- | JN | "The Machinery of Embryonic
Development" |
| 3 | Kweiyang Science Institute | JN | "Science and Democracy" |
| 4 | Kweiyang Medical College | JN | "Organisers and the Cancer
Problem" |
| 5 | Army Medical College, Anhsun,
speech at parade of cadets. | JN | "Medical Science and the War
against the Axis" |
| 6 | Army Medical College, Anhsun,
Nutrition Inst. | DMN | "Biochemistry of Muscle " |
| 7 | -do- -do- | JN | "Biochemistry and Morpho-
genesis" |
| 8 | Army Veterinary College,
Anhsün | JN | "Future of Animal Science
in China" |
| 9 | Academia Sinica, Chem.
Institute, Kungming | JN | "History of Science in
China and the West" |
| 10 | -do- -do- | DMN | "Phosphorus and Energy -
Transfer in the Living Cell" |
| 11 | 53rd, Arsenal, Haikow | JN | "Science in the War Effort of
the United Nations" (in German) |
| 12 | Sino-British Cultural
Assoc. Kmg. | JN | "What is Biochemistry?" |

- | | | | | |
|----|---|----|------|--|
| 27 | Huachung Ta | | DMN | "Biochemistry of Muscle" |
| 28 | -do- | | DMN | "Protein Architecture of
Cells" |
| 29 | Yunnan Industrial Federation | JN | | "Science and Industry in
the West and in China" |
| 30 | Kweichow Ta | JN | | "Science in the War against
the Axis" |
| 31 | -do- | | LERP | "Trends in British Wartime
Agricultural Research" |
| 32 | Chekiang Ta | JN | | "Science and Democracy" |
| 33 | -do- ,Agricultural
College | | LERP | "Trends in British Wartime
Agricultural Research" |
| 34 | -do- ,Sci. Soc. of
China Mtg. | JN | | "History of Science in
China and the West" |
| 35 | Chekiang Ta, Sci. Soc. of
China Mtg. | JN | | "International Scientific
Co-operation" |
| 36 | -do- ,biol. students | | DMN | "Machinery of Muscle" |
| 37 | -do- -do- | JN | | "Historical Sketch of the
Organiser Problem" |
| 38 | -do- -do- | | LERP | "The Molecular Basis of
Morphology; Micelles
and polymers" |

Excerpts from the log of a journey on the Burma Road.
The purpose of this journey was to visit the most isolated University in China, Huachung University, in the vale of Tali in western Yunnan. From here some of the party went on to the advanced headquarters of the Salween front at Baoshan to visit the technological services. On the way back severe landslides necessitated a stay in the small village of Wayao for a number of days.

Mon. 11th.

afterwards.

dep. Chuhsiung, leaving marmite tins as contribution to maintenance of interest in life. Off at 8. Got to Chennan at 9 and bought cakes and pears. At 10 reached the foot of Tiendzemiaopo ~~Wangshan~~ (Emperor's Temple Hill), a big one. At 1 had a lunch of pears and nomimienbao (a kind of bread or cake made of glutinous rice and toasted) at a lovely deserted rain dragon temple, very clean, with a crystal clear spring, under a ~~huge~~ old tree. great
At 2 reached Yunnanyi, 325 km., round the ~~huge~~ vast new American airfield. Contacted Col. Wellington; he will inform Field Headquarters of our going to Baoshan. Otherwise OK to proceed.
Then a very high pass over the highest point on the Burma Road, just under 8000 ft.

Sun. 10th. Sept.

dep. Kunming. Up at dawn, and packed, leaving various things behind at the Academia Sinica Institute of Chemistry. Left at 8 $\frac{1}{2}$, plus Wang Do-An ~~and~~ (literary) and Shen Shan-Ping (mycological), both Huachung Univ. professors unable to get other transportation, ~~as~~ as the university truck has been commandeered by the army. Seen off by Wu Hsueh-Chou family (children dancing about) and other workers of the Institute. 9 $\frac{1}{2}$ passed the side road at Anning to the Hot Springs, where last week it had been so lovely with Su-Hsuen. 11 $\frac{1}{2}$ reached Lufeng, where the Geological Survey people had found the dinosaur named Lufengosaurus. Stopped for lunch and bought scissors, large and small, for which the little place is famous.

Up to this it had been rolling uplands with the Burma Railway roadbed on the left most of the way. Now we ascended a long gorge in the middle of which is Ipinglang, a small place with large factories, said to be for salt. ~~After~~ After the gorge came to a big hill, Chishanpo; road surface largely paved with stone here; brushwood all around. At 4 reached Chuhsiung (pronounced Tsuyung by the locals), 192 km. Went to the buildings of the famous and unique ~~old~~ old missionary Miss Morgan (used to have three entrances to her clinic, one for Government men, one for Communists, and one for plain Bandits), and received space to put up ~~our~~ our campbeds. Contacted HQ of Y-Force (Maj. Lloyd), found all still quiet; arranged to stay on return. Supper with Miss Morgan (mellowed, seeing that we ate rice). Coffee with Dr Becker and his wife (Chinese Red Cross) afterwards.

Mon. 11th.

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At 5 reached Hsiakuan, after a rapid descent along a splendidly-graded road widened by the Americans, with the Erh-hai Lake in the distance to the right, and Tali Mountain behind it. Dropped Wang and Shen, and went to American "transient" camp, but failed to get put up as Dorothy would have had to have been put in an 8-bed tent all to herself. So back into town again, picked up the professors, and off to Tali over a very bad road. At Tali put up with the Snows (CIM), and talked at dinner with Capt. ~~amborn~~ Amborn of the Burma Road Engineers.

Tu. 12th.

dep. Tali. Saw over the CIM Hospital, small but good. Pushed on to the north, with the lake on the right and the mountains to the left, past the ~~cluster~~ cluster of three pagodas described in C.P. Fitzgerald's book. Army telegraphists with field sets, stationed in the temple, were practising all around. While negotiating one particularly rotten bridge over the stony fan bed of a mountain-stream, the company skipped about among the wild flowers. D: "A heavenly place". Came to Hsichow ~~now no longer even a~~ ~~hsien city~~, now no longer even a hsien city. A notice welcoming our arrival was ~~set up~~ set up on the main road at the turning. D and I stayed at the Andersons'; Tien-Chin at one of the university dormitories. The Andersons' cook, though a tyrant, very good; produced many Yunnan specialities, such as ~~the~~ "rju-shan", crisply fried skin of goat's milk, and "gan-lan", a similar crisp made from rice, either savoury or sweet.

After lunch conferred about the program with the President of Huachung University, Wei Cho-Min (Francis Wei), philosopher of a charming personality. Tea with our old friend from Woods Hole, Hsiao Chih-De; his western wife Erica all right but greatly suffering from the isolation of Hsichow. Huachung University had originally been placed so far to the west just off the Burma Road ~~because it was thought~~ because it was thought communications would be good, and there would be no danger from the Japs. But now everything is reversed; the Burma Road has long been closed, and there is daily danger of a Japanese drive up from Burma. The present front is well in Chinese territory, along the Salween River.

In the evening, visited Bien Peng (brother of the geologist formerly met at the oilfield in the far NW) and saw his Physics laboratory. Got radio news there. Bien: "This ~~oscillograph~~ oscillograph would work well enough if the squirrels and rats didn't constantly upset the connections".

Wed. 13th.

Hsichow is a beautiful place, with ~~remarkable~~ remarkable new, but traditional, painting, carving, and gilding, on all the ~~big~~ big houses. The lake and the hills rather disappointing, however. Depressing continuous rain now began. In morning saw the biological and chemical lab-

oratories, with Chih-De's gear for investigations on the lake. In afternoon saw the libraries - quite good, especially for Chinese books.

3 $\frac{1}{2}$ pm: lecture "Science in the War Effort of the United Nations" at large new middle school, followed by tea. Dinner with Chih-De and Erica in their beautiful room. Chocolate cake in honour of the 20th anniversary of our wedding day.

Thurs. 14th.

In the morning, finished the proofs of book of essays "History is on Our Side". 3 $\frac{1}{2}$ pm lecture on "Biochemistry and Morphogenesis" to the university science club, in a brand-new completely empty western-style house, belonging to ~~the~~ some local rich merchant. Red sunset.

Fri. 15th.

dep. Hsichow. Left right after breakfast, seen off by D and Chih-De. Took \approx 2 hrs. to get to Hsiakuan, though road not as bad as expected. Contacted Col. Jantz: all quiet in the Yunnanyi direction, road OK to Baoshan. Wrote to Col. Wellington.

1 pm reached Yangbi (the characters of this have no meaning) along very impressive gorges with terrific foaming red mud. Crossed suspension bridge over a Mekong tributary. Over two big passes, the latter called Tieh Hsien Wo (Iron Wire Nest). 2 pm 470 km. halfway, rested and changed over driving with Kuang Wei. Beautiful conifer forests all round. @ 5 pm. down into the mountain valley of Yungping: stayed with a post of the Burman Road Engineers.

Sat. 16th.

dep. Yungping. Breakfast in the mess, pancakes, maple syrup, eggs, and coffee excellent. Capt. Elliott and Capt. Ching (Hawaii-born Chinese) most charming. Call again. Off at 8. Commenced ascent of Maichuangtzeko Pass. 8 $\frac{3}{4}$ landslide - dug ourselves through. ll came to the Mekong valley, an enormous rift, down a road beautiful but a bit dangerous with landslides forcing one too near the edge for comfort. Across the suspension bridge and past the AA guns. Shortly afterwards, found 3 Americans, including Capt. Salviani, MD, stuck in a weapon carrier; Lao Ling fixed the brakes for them.

12 left the Mekong, turning off to the right up the valley of a lovely yellow stream contrasting with the red Mekong. Bought bread and pears at the village of ~~Maichuangtzeko~~ Wa-Yao (the "Tile-Kiln"). ~~Shan-chih-yuan-tan-tan-tan-tan~~
A couple of miles further on, found a truck stuck in a landslide - kept us there from 1 to 3. Help by tough American army men, and tow by truck on the other side using our chains.

Mountains all the way to Baoshan until you come out into the valley of that hsien city. Found BRCS/FAU surgical team at the 37th. Field Hospital. Good talk and tea with Dr Bob McClure. Called on Gen. Chao Ching-Hui at km. 663, but saw his deputy Col. Wu Chung-Yun only as he was out.

Dinner with British unit, more talk with McClure. Slept in the dressings tent, comfortably enough, except for the continuous groans of ~~many~~ Chinese wounded in adjacent tents, which rather spoiled Tien-Chin's sleep.

Sun. 17th.

Trouble about power alcohol, but I think we shall get it somehow. Thence to American Field HQ and introduced ourselves to Col. Stanton. Got into a nasty position on a slippery road in the HQ pinewood, but OK in the end. Thence to km. 666 to visit 53rd. Arsenal Field Repair Shops. Found excellent work going on in rapid ordnance repairs, and examined captured Japanese stuff with much interest. Finally visited the Burma Political Group (Maj. Reid) in a dilapidated temple outside the SE gate.

Lunch again with the British unit. More and more impressed with John Perry of Harvard, the second in charge, really a psychiatrist though now a war surgeon; influenced by Morton Prince and Harry Murray, and had read philosophy under Whitehead before he began medicine. Read my two proofs of books of essays, and was delighted to agree on many things. After lunch, visited with him many samples of various grades of treatment of Chinese wounded. Purely Chinese wards ~~maintained~~ in the 37th. Field Hospital very bad, little medical attention and nothing but straw to lie on with insufficient mosquito nets. The British unit wards tough and ready but good. The 19th. Chinese Field Hospital containing the 36th. American Surgical Unit considerably better. The 21st. American Field ~~maintained~~ Hospital superbly ~~g~~ fitted out and run, both for American and Chinese wards.

My boots having come to pieces, I succeeded in buying a new and very good pair at American army stores, using a \$ 5 bill that remained over from my visit to the US the previous winter. Supper with the British unit, and more good talk with John Perry and the amusing Belfast man Walter Darling.

Mon. 18th.

dep. Baoshan. Up at 6 $\frac{1}{2}$ but Bob McClure had already left to visit the outlying hospitals at Tengchung and other places (3 days' walk over trails). Off at 8.

Landslides were evidently on the program. Dug ourselves through the first one not far from Baoshan. The second one was a rockfall with a large tree in it, but a very efficient foreman with a gang got it out of the way by 11. Raining all the time; my Chinese army hat lost all that remained of its shape. Way above and through the clouds. Precipices. 12 $\frac{1}{4}$ got to Wayao, where several people said we would not get much further.

Sure enough, just after entering the Mekong valley from the side-valley, stopped by a series of landslides. Information from Chou Chin-Yung, Shanghai-trained road foreman, to the effect that there's a really frightful landslide ("kai shan", opening of the mountain), at km. 601 which will take days and days to clear. Decided to send

the ~~man~~ truck back to Wayao, as small rocks were continually coming down, and to walk on to see the big slide ourselves and ~~and~~ try to get a message through to Americans probably working there. But when we reached km. 602 ~~was~~ Tien-Chin and I found the mountain coming down all the time. Worst place was an awful black mud-slide of ~~glutinous~~ glutinous and gelatinous consistency which had eaten away the road and was continuous to the Mekong two or three hundred feet below. Having got through this not without some trepidation, we were walking along when suddenly with a roar of drums increasing to thunder a huge slide with trees stuck in it came down square on the road just in front of us. Decided there was nothing to do but to go back and ~~find~~ find shelter somewhere. Got across the mudslide safely, and passed Mr Chou's house, in front of which a Chinese high official was sleeping in a limousine car. He was still there days later, apparently hibernating, as he seemed to have nothing either to read or eat. Reached Wayao around 6 pm. Inn quite full, but after ~~some~~ some trouble we found a wonderful quiet room in the house of Mr Chang Kuo-Hsün, Road Superintendent. Mrs Chang extremely kind.

Tu. 19th. Slept well, awoke late to find it still raining. Bkfst. all four of us with coffee and discussions. We will stay 3 - 5 days, and if road then still blocked, ~~will~~ Tien-Chin and I will try to walk out to the Americans at km. 574 maybe by shortcut paths.

Wed. 20th.

Thurs. 21st.

Fri. 22nd.

Established in the Superintendent's House. Chang Kuo-Hsün really a chemist, formerly at the cooper refinery, Kunming. His little wife is ~~mm~~ so kind to us, insists on bringing us ~~many~~ many meals, including fried potatoes, ham, eggs, etc and gives us sugared walnuts fresh off the trees. We are able to reciprocate with coffee and some good "doufurjo" (soya bean cheese) which we have with us. Thursday evening dinner en famille. Continuous rain. Mr Chang sallies forth almost indistinguishable from one of the peasants, wearing the big round hat and the chasuble-shaped palm-leaf rain protector on his back. Friday 10 $\frac{1}{2}$, first gleam of sunshine after ten days. I finished the index for "History is on Our Side", wrote a long essay "Syntheses and Contradictions at the Social Level" for C.C. Lienau in Washington, and read Rider Haggard's ~~ancient~~ Ancient Egyptian novel "Morning Star" at meals. We slept about 11 hrs. each night. Took some walks with Tien-Chin. Saw a butterfly with bright pink body and black spots, black wings with blue and white at the centre; also another with white body and black spots, and black wings with yellow spots. There is a truck half submerged in the little river at the point where the former road crosses it, said to have killed 9 men. We eat sometimes in the village where we can buy corn, pears, and flabby bing, but not shao-bing. During all this time we get news of fresh ~~land~~ landslides in both directions; fear it may be a matter of

weeks before the road is through.

The Changs' house is extremely pretty and well-built. There's a ledge outside our window where one can wash and clean clothes, and lovely flowers growing on the roof. Met another butterfly, body orange with blue spots, and on under surface of the wings black and metallic blue with white spots; upper surface olive green with white spots.

On Thursday night Kuang Wei noticed stars, and the following morning the sun came out for the first time. About 5 in the afternoon American bulldozers, grader and driller reached km. 614 and we ran up to see. A Chinese engineer regiment was clearing the top of a big dirt fall to let one bulldozer across, and then they worked from both sides. Mr Chang, very excited, pushed on to km. 601 with hundreds more men. News (or rather, a rumour) that the Japs, probably knowing of events here, have attacked from Mangshih and Lungling and made some progress. Our ammo trucks all held up by the landslides.

Jan. 23rd.

Day broke blue sky and pearly clouds. After investigating the position at 614 with Tien-Chin, I wrote a letter to Gwei-Djen. After lunch, going up again, passed bulldozer and ~~guard~~ huge grader coming down. Talked with Capt. Gallup of BRM; he suggests that we leave tomorrow afternoon and ~~join~~ join his convoy as now only 609 and 601 remain to be done. Wrote to Frances Cornford in the afternoon.

Jan. 24th.

Packed up and went up to 614 to say goodbye to Mr Chang. dep. Wayao.

Men, the country women here (mostly goitrous) wear a curiously Moslem-looking dress (turban of blue cloth, blue ~~man~~ waistcoat, and white trousers caught in rather bulbously below the knee. But the people in this neighbourhood are definitely not Moslems.

Off about 11^{1/2} and quite soon got to km. 601 - a hair-raising place with overhanging rocks - after some delay due to American trucks refuelling from westbound Chinese trucks, we got through safely with the wheels an inch or so from the edge of the precipice. Met Capt. Ching (proper name Cheng Kuan-Yuen) who had only just received the note we had sent him to pass on to D. Later the road much easier, though many falls and slipaways both sides of the Mekong. Lunch of pears and bing down by the anti-aircraft post where we got water. Reached the top of the pass at 4 and Yungping at 5. Stayed again with the BRM, apricot pie and too many cups of delicious strong coffee for dinner. Heard news about the air invasion (Arnhem) of Holland; Dimitrov said to have gone to Bulgaria; we have recaptured Lungling, but the Japs have taken both Kweilin and Wochow.

Jan. 25th.

dep. Yungping. Uneventful trip through the gorges to Hsiakuan, where the old fort still stands on the rock in the river where it leaves the plain and plunges into the mountains. Went to collect our power alcohol and found the ~~man~~ foreman asleep; had fun pretending not to understand any Chinese and listening to the soldiers telling each

other how "li-hai" some of these foreigners are, when we insisted on waking him up. We also frustrated his attempt to give us alcohol full of dirt and muck.

Reached Hsichow about 6 after getting stuck twice in some bad mud places. Six days overdue.

Around the rich vale of Tali the landowners wear flat hats covered with green shiny oildloth and decorated with pointed red streamers of ribbon which hang down over their shoulders. On horseback they wrap a bright blue blanket around them.

Tues. 26th.

~~At Hsichow~~. Packed audience for a lecture at 11 on The World-Outlook of Science

dep. Hsichow. While circuiting Tali (as the city-gates are rather too tortuous for the truck) stopped to examine one of the pagodas with D. Lovely view over the lake, and a nice quiet smoke. Reaching Hsiakuan about 5:30 we stayed with the Yen family, great merchants with an enormous rambling house of many courtyards, friends of President Wei's.

Wed. 27th.

dep. Hsiakuan. Off at 8, reached Yunnanyi 11 ~~am~~. A ~~at~~ Chuhsiung at 5, after tyre trouble, but otherwise uneventful journey. Walked up to the delightful temple occupied by the Y-force post, and got Sgt. Lauris to bring down a jeep to collect D and Tien-Chin. Y-force just leaving and turning the temple over to BRG. Lt. Cameron a charming mess-president. The situation of the temple, in a dell of the hills, surrounded by woods, is most beautiful, and the temple itself with its carvings and balconies also very pretty. Shower-baths etc. have been installed and one would wish to live the rest of one's life in such a place.

Thurs. 28th.

dep. Chuhsiung. While the tyres were being mended, went with Cpl. Toland in a jeep to pay a visit to Miss Morgan, then to visit the Chinese 99th. Route Hospital with Dr Becker. A sad sight, especially the dysentery ward, almost completely without equipment or drugs.

Got to Lufeng by lunchtime and into Kunming by 6.

A good notice here: "WAREHOUSE, THE 31TH. MILITARY OF WAR". Probably no worse than much of my Chinese.

Log of a journey from Kunning to Kweiyang in one of the British Scientific Mission trucks carrying scientific supplies.

20 km. of Annan when, on passing a stationary truck, it suddenly started, lurching out into the centre of the road and forcing us to the edge. Here the soft earth began to give way - we stopped poised - Lao Ling and I, sitting in front, had time to get out and try to hold the truck up, but it slowly toppled over and came to rest in a rice-field upside down. Depth from the road surface about 15ft - along this road it was just a chance that it ~~wasn't~~ wasn't 150 ft. in which case things would have been bad. Oil ran out from the engine over despatch-cases, etc. and the contents of the truck had to be unloaded and stacked in the rice-field. ~~Many~~ Cases of microscopes and other apparatus looked depressing enough, all in drizzling rain. It was fortunate that all the drums of petrol were on the side which fell first, otherwise they would have fallen on the passengers instead of vice versa, which would also have been bad.

1944

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Sun. 8th. Oct. 1944

dep. Kunming. Up at 6, collected Dr Picken at 7, and got a delicious French breakfast at 8 in the city. The French character of Kunming (owing to the influences of the railway from Indo-China) is always attractive - the wrought iron railings and banisters round the South Gate - the style of architecture of the western houses - and the rolls, brioches, and coffee, probably much better than could now be got in France itself.

Journey to Chiuching uneventful. Garratt locomotives now being used to bring supplies to this rail-head. Didn't call on the EAV this time.

Reached Pingyi (fast driving on these roads as before) about 4. Met by Kung Chieh-Min at the Kuanghua factory dormitory. To the Low Temperature Carbonisation Works, I walking with a stick, D and Picken in huagan (litters), Tien-Chin riding on a horse for the first time in his life. A beautiful walk up a secluded valley led after a few miles to the smoking chimneys round a bend. Welcomed at the works by the indefatigable engineer Wang Hsueh-Hai, Kung Chieh-Min, and Wu Hsueh-Chou, and past and present magistrates of Pingyi. Spent the time till dusk looking over the works. Everything constructed out of old steel gasoline drums, except the actual retorts which are cast in the works foundry on the spot. A railway, with wooden rails, strengthened with steel edging in the most worn places, brings the coal a few miles down from the pits. Good laboratory for routine testing of the products. The whole works are a marvel of improvisation in an industrially virgin area and have made a fine contribution to the country's war potential.

Sun. 9th. Oct.

Gay dinner, and slept well, though cold.

dep. Pingyi. Through the mountains, lunch at Panhsien. After passing the great ravines, got to within 20 km. of Annan when, on passing a stationary truck, it suddenly started, lurching out into the centre of the road and forcing us to the edge. Here the soft earth began to give way - we stopped poised - Lao Ling and I, sitting in front, had time to get out and try to hold the truck up, but it slowly toppled over and came to rest in a rice-field upside down. Depth from the road surface about 15ft - along this road it was just a chance that it ~~wasn't~~ wasn't 150 ft. in which case things would have been bad. Oil ran out from the engine over despatch-cases, etc. and the contents of the truck had to be unloaded and stacked in the rice-field. ~~Many~~ Cases of microscopes and other apparatus looked depressing enough, all in drizzling rain. It was fortunate that all the drums of petrol were on the side which fell first, otherwise they would have fallen on the passengers instead of vice versa, which would also have been bad.

Tien-Chin, D. Picken and I rode into Annam on a passing post-office truck, and got rooms at the CTS. Conferred with Americans at the Road Administration Depot; the lieutenant unhelpful but fortunately Capt. Willmore extremely nice. Discussion re wrecker. After supper, Tien-Chin and I returned to wreck in an American truck and salvaged all the most precious things. TC remained with the truck and Kuang Wei and Lao Ling all night, but they got little rest as it rained all night and the water flowed right through the truck. They needed the "maotai"

Tuesday, 10th.

After breakfast went back to (we had brought the wreck in an American truck, which (them. took 3 hrs. to do the 20 km. on account of some serious mud bends. Also took 3 hrs. back, including ~~the~~ unloading and loading incendiary bombs to get a Chinese army truck through. Saw Sgt. Jarvis who promised to have a shot at raising our truck with his convoy of windlassed six-wheelers the following day.

Wed. 11th.

At 1 went out with Gottlieb (a remarkable man, an Austrian Diesel engineer formerly in the Salt Administration and now Technical Adviser attached to the American Army and the SW Road Administration) and two small wrecker trucks, but met Tien-Chin at the top of the twenty-four hairpin bends saying that Sgt. Jarvis had been as good as his word. Our truck had been "flipped over and yanked out" but was now stuck at the worst of the mud bends. So only one truck, a 6-wheeler, went down, and pulled her through. No serious damage to our truck, except the woodwork. The engine had run again well as soon as new oil had been put in.

At 7 to Gottlieb's house and took coffee with his beautiful Chinese wife. I was able to give him his ~~heart's~~ heart's desire, an exposure-meter, and he insisted on presenting D with a lacquer cigarette-case and some chocolate. I hope we meet again.

Thurs. 12th.

Kuang Wei, who had been ill from exposure, better today. Ironwork repairs done by Road Administration, after some delay in starting. Then got carpenters to come and do the other repairs in front of the CTS.

Arrival of Bishop Hall on an American convoy from Kweiyang, reporting big landslides blocking the road that way. Dinner with him. Discussion on coining an objective term for the sequestering ~~method~~ and misappropriating methods of bureaucratic feudalism. Slipping away early next morning, he left a reference to Acts 2.10 under our door, which gives us just what we want.

Fri. 13th.

Continued carpenters' repairs and checked up on the scientific apparatus.

Sat. 14th.

Ditto, and ~~arrived at the depot~~ and gave a dinner to the Gottliebs and Willmore.

Sun. 15th.

dep. Annam. Off at 8, engine working normally, through, and immediately under, the clouds, over mountain roads with very bad wet surface. Eventually took off the

chains on coming out of the mountains. Passed many of the Miao tribespeople, taking ginseng ginger to Yungning market. Both men and women generally handsome. The men's dress is not so different from that of the ordinary Chinese peasant, but the women wear episcopal-looking hats like the Bigourdens of Brittany, voluminous pleated skirts, embroidered bodices with a very wide-open neck, the V coming down to the waist. Often they have a big silver ring round the neck, like Chinese children elsewhere.

of dark blue check pattern

At km. 148, coming out of a huge long valley and over a shoulder, stopped to look at a magnificent high waterfall ("pubu", cloth of bubbles), coming down a double hanging valley.

down from

About 2 1/2 reached Huangkuoshu, probably the biggest waterfall in China, where a river falls into a gorge in the style of Niagara. Lunch at a little CTS restaurant within its sound. Tea and popotang. A lovely place with a huge ginkgo tree.

About 6 km. out from Anshun, saw a pretty little girl in pink standing talking among the rocks to a Chinese 6-wheeler truck crew - it was none other than Betty Wan! Peter and Bessie were not far off. Took them in to the city. Installed ourselves and campbeds at the CIM as before, and Wan Hsing, the nutritional biochemist, insisted on taking us all out to a magnificent dinner. Then coffee at his house, where we gave the girls scissors from Lufeng and to Peter sweets from Kunming.

on 16th.

dep. Anshun. All entertained by Chen Bai-Kang the embryologist to a Cantonese-style breakfast. Off around 9 (Picken's umbrella absent-mindedly retained by Chen, but this tragedy not as bad as his loss of a suitcase case on the day of the accident containing much many precious clothes, passport, etc., which fell off an army truck). Reached ~~Guizhou~~ at 1 after stopping to see tea bushes growing. More of the front part of the truck fell off. Called on the BEM and had tea with Gould and Parsons. Finally out to Huachi and found the President of Kweichow University, Chang Ting-Hu.

Kweiyang

Following his directions, proceeded to the guesthouse through the park and gardens. Coming to a little wooden bridge, the President said to go on - I tested, decided against it - Lao Ling thought it might hold - so over. With a frightful rending noise it gave way, but the speed was sufficient to get us to the other side. D and Picken, riding in the back, said it felt worse than the previous narrow shave. Fortunately, another road out exists. At last arrived at the very comfortable guest-house; the Platonic ideal of a summer pavilion beside a river like the East Anglian Ouse.