REPORT OF A JOURNEY IN THE SOUTH EAST OF CHINA

OCCUPYING APRIL, MAY AND JUNE, 1944

- by -

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(July, 1945)

I. Introduction

The tour began on April 8th, 1944, when I left Chungking accompanied by my colleague Mr Huang Hsing-Tsung, who was with me throughout. I am glad to have an opportunity of paying a tribute to his faithful and efficient collaboration, even in situations which were, as will be seen, rather trying. The same must be said of Driver Kuang Wei and Mechanic Ling Mei-Hsing.

We reached railhead at Tushan on the 12th after passing through Kweiyang, and were in Kweilin on the 15th arriving at Kukong (Kuangtung) on the 18th. We proceeded by passenger sleeping-car express train, while the truck came on more slowly by flat-car. It did not in fact arrive at Kukong until May 5th, having been impounded by railway officials at Liuchow, on the pretext that the contents had not been declared at Tushan. This was unfair since all the steps indicated by the Tushan station-master had been duly taken, and indeed, as the result of correspondence with the railway management, the fine levied (≙ NC 14,000, a considerable sum for those days) was returned to us by the Liuchow stationmaster on our way back. Driver Kuang Wei showed praiseworthy initiative in extricating truck and crew from this predicament (since telegraphic communication with us at Kukong was very bad) and borrowed the money to pay the fine from friends in Liuchow. It is very unlikely that this incident

would have occurred had the truck been travelling with full diplomatic passes.

During the period between April 18th and May 5th we visited organisations in Kukong and neighbourhood, notably Chungshan University at Pingshek, Chungshan University Agricultural College at Liyuanbao, Chungshan University Medical College at Lochang, Lingnan University at Hsienrjêngmiao, Lingnan University Agricultural College at Pingshek, Tungwu University at Hsienrjêngmiao, and Lingnan Medical College at Kukong.

On May 7th we left Kukong by truck for Chiangsi and Fukien. Crossing Chiangsi, with its excellent roads (the best in China), and spending a night at the large city of Ganhsien, with its numerous industrial cooperatives, we passed over the provincial border and reached Changting, in the Fukienese mountains, the seat of the Amoy University, on the 12th. We remained there till the morning of the 16th.

The next day and a half was spent at the provincial capital, Yungan, and we reached Nanping, at the head of the Min River, on the 18th, proceeding by boat to Fuchow on the 19th. The return journey to Nanping was made on the 23rd, after which visits were made to Huanan College at Nanping, to the Pinewood Gasoline Plants at Chienow, and to Chinan University at Chienyang; so that Shaowu, the seat of the important Fuchow

United University (and of the small Hangchow (Chihchiang) University), was reached on the 26th.

It was while we were at Shaowu that news came of the Japanese advance southwards from Hankow directed on Changsha. This was the beginning of the campaign, which, by the successive reductions of Changsha, Hêngyang, Kweilin, Luchow, and Nanning to the southwest, gave the enemy that corridor of contact with Indo-China which they did not abandon until the early summer of the present year. It was clear, therefore, that we should have to make the best of our way back across Chiangsi to the line of the Hankow-Canton railway in order to pass over the great bridge at Hêngyang before that city fell, if we wished to avoid being cut off in the southeast provinces by the Japanese. We did not know until afterwards that it would have been possible to make our way into Kuangsi to the west by the secondary road through Lienhsien and Bapu, avoiding going north to Hêngyang.

We left Shaowu, therefore, on May 31st and proceeded by way of Kuangtse, Nanchêng (a city previously devastated by the Japanese), Nanfêng, Ningtu, Yinkang (omitting an intended visit to Taiho the provincial capital), Ganhsien, and Tayu (where we viewed the wolframite mines at Hsihuashan) to Kukong. Everything was at that time still normal there, though it was, of course, eventually lost to the Japanese, but the BMM and other British organisations were leaving. We were fortunate enough to obtain a flatcar for our truck the same day, and left at

1 a.m. on a military train, ourselves accompanying the truck. This was June 3rd. Owing to repeated delays and dislocation of traffic we did not reach Hêngyang until the 6th. The east station there was crowded with troops and the railway staff were making the greatest efforts to move as much rolling stock and railway equipment as possible across the bridge to the west, anticipating an early advance of the Japanese from Changsha. During the day, continuous activity of the US Air Force from the adjacent airfield was remarked. Finally, at about midnight, we had the satisfaction of passing across the bridge with our truck.

On the 7th we then took a fast passenger train to Kweilin, (hearing of the fall of Rome and the opening of the Second Front in France) arriving the same evening. The truck on its flatcar arrived on the 9th. It was only a few days later that the Japanese invested Hêngyang, and the great railway bridge as well as the American airfield were blown up.

At Kweilin a plan of action was worked out with Mr Whittamore (Consul-General), Mr Wallenger, (Counsellor, who happened to be on a visit there), and Col. Lindsay Ride (BAAG). During these few days visits were paid to the NRC Electrical Factories and to the US-Chinese Infantry training school commanded by Gen. Thomas Arms.

On the 12th we went out to Liangfêng, where there were three Academia Sinica Institutes, of Physics (mainly Geophysics),

Psychology (mainly developmental Neurology), and Geology. Kuangsi University was also located here.

On the 16th we set out from Kweilin for Pinglo via Lipu on a visit to Bapu in the east of the province where there are important mines of tin, coal, and ironstone, a blast furnace and other factories, mostly under the NRC. After inspecting this area we returned through Lipu going direct to Liuchow, which we reached on the 18th. The information concerning these roads, which we collected with special care, was valuable to Col. Lindsay Ride, and we were able to advise him on the strategic importance of the Bapu mining area.

The next visit was to the National Agricultural Research Bureau's very extensive experimental farms at Shatang, about 25 miles from Liuchow. The Kuangsi University Agricultural College was also located here. Returning to Liuchow on the 21st we found the town already beginning to fill up with refugees from points further east, the beginning of that great flood of refugees which was later on to gather, immobilised, around the Tushan railhead, during the furthest penetration of the Japanese in the month of December, and among which such appalling mortality was to occur towards the end of the winter in March, 1945.

I now parted from the rest of the group, returning to Kweilin by sleeping-car train (surprisingly still running),

while Mr Huang, with the driver and mechanic, worked the truck on to a flatcar and up to Kweiyang, where it awaited the beginning of the Southwestern Tour in the latter part of the year. Reaching Kweilin on the 22nd I made reports to Mr Whittamore and Col. Lindsay Ride, found that the Japanese were now bypassing Hêngyang and had got to Shaoyang in the west and Leiyang in the south, and visited a number of institutions, the CIC Research Institute, the Provincial Bureau of Reconstruction's Research Institute, and the Provincial Arts and Drama Institute. Everyone in the city had a foreboding of what was coming.

Finally I left Kweilin on a US Army plane on the 25th and reached Kunming before noon. The opinion of the US Vice-Consul, who saw me off, was that the city would fall by the 4th July, but in fact it did not do so until nearly two months later.

In Kunming I had the opportunity of attending to many important matters, e.g. the adjustment of our scientific supplies service, and the contacting of numerous scientists. I arrived back in Chungking by CNAC plane on July 1st. Mr Huang returned three weeks later, having successfully worked the truck to Kweiyang and left it in charge of Driver Kuang at the BMM depot there.

II. Itinerary

		truck km/day
Apr. 8th	dep. Chungking, arr. Sanchi	99
Apr. 9th	dep. Sanchi, arr. Tongchih	200
Apr.10th	dep. Tongchih, arr. Tsunyi	33
Apr.11th	dep. Tsunyi, arr. Kweiyang	162
Apr.12th	dep. Kweiyang, arr. Tushan	185
Apr.13th	dep. Tushan	rail
Apr.14th	arr. Liuchow, dep.	rail
Apr.15th	arr. Kweilin	rail
Apr.16th	dep. Kweilin	rail
Apr.17th	arr. Hêngyang, dep.	rail
Apr.18th	arr. Kukong, dep. Kukong, arr. Hsienrjêngmiao	"
Apr.22nd	dep. Ksienrjêngmiao, arr. Kukong	rail
Apr.27th	dep. Kukong, arr. Pingshek	rail
May 2nd	dep. Pingshek, arr. Liyuanbao	bus
May 3rd	dep. Liyuanbao, arr. Pingshek	chair
May 4th	dep. Pingshek, arr. Lochang	rail
May 5th	dep. Lochang, arr. Kukong	rail
May 7th	dep. Kukong, arr. Ganhsien	230
May 9th	dep. Ganhsien, arr. Hochipu	76
May 10th	dep. Hochipu, arr. Yutu	13
May 11th	dep. Yutu, arr. Changting	127
May 16th	dep. Changting, arr. Yungan	183
May 18th	dep. Yungan, arr. Nanping	145
May 19th	dep. Nanping, arr. Fuchow	river steamer
May 23rd	dep. Fuchow	river steamer
May 24th	arr. Nanping	river steamer
May 25th	dep. Nanping, arr. Chienyang	118
May 26th	dep. Chienyang, arr. Shaowu	100
May 31st	dep. Shaowu, arr. Nanfêng	175
June 1st	dep. Nanfêng, arr. Ningtu	118
June 2nd	dep. Ningtu, arr. Ganhsien	161
June 3rd	dep. Ganhsien, arr. Kukong	230
	dep. Kukong	rail
June 6th	arr. Hêngyang	rail
June 7th	dep. Hêngyang, arr. Kweilin	rail
June12th	dep. Kweilin, arr. Liangfêng	30
June15th	dep. Liangfêng, arr. Kweilin	30
June 16th	dep. Kweilin, arr. Bapu	264
June 18th	dep. Bapu, arr. Liuchow	300
June 19th	dep. Luchow, arr. Shatang	30
June 21st	dep. Shatang, arr. Liuchow	30
	dep. Liuchow	rail
June 22nd	arr. Kweilin	rail
June 25th	dep. Kweilin, arr. Kunming	plane
July 1st	dep. Kunming, arr. Chungking	plane

III. Transportation

(1) Roads

Nothing need be said of the familiar route to Kweiyang. Between Kweiyang and Tushan the road is of good average quality, but after the first railway works are reached at 152 km. from Kweiyang the road becomes bad as the works have encroached upon it and necessitated many "bien tao" (detours). The country is barren, resembling Wales or the West of Scotland, and the road goes over many low passes among the hills.

Leaving Kukong for Changting, the road is very bad until the Kuangtung-Chiangsi border is reached, when it greatly improves. The first 30 km. passes through much volcanic plug or mesa type of country. The border comes at the Tayling pass. Between this point and Ganhsien there is a stretch of some 15 km. where the road was much cut about and obstructed by the building of a large American airfield (which was not finished in time for use during the southeastern campaign).

In conversation with Mr Graham Peck, a US war correspondent, I heard much about bad feeling between American and Chinese armies. He said, however, that most Americans made a distinction between the "laobahsing" (common people), whom they liked, and the officials, whom they did not. The Chinese Govt. had recently asked the Americans to pay for the repairs to the Kukong-Ganhsien road, since their airfield traffic was ruining it, though the Americans were forced to pay heavily to Chinese

commercial trucks for everything transported. Who was pocketing the road tax ? No doubt there was "Chinese side" to the argument.

Leaving Ganhsien for the east one has to cross the Gung River on a producer-gas twin-screw ferry; quite efficient. From here to Yutu the road is excellent, through sandy country. At Yutu we were delayed two days by engine trouble, and flood-water covering the Rjuichin road. Rjuichin was the former capital of the Communist area. After Rjuichin the road rises through country resembling the French Jura mountains, or like northern California. The Chiangsi-Fukien boundary is about the top of the Meililing pass, and the road at once becomes more narrow, more winding and more steeply graded. In fact, throughout Fukien, the roads, though moderately well looked after, are poor.

Between Changting and Yungan, through wild mountainous country, the road, little used, goes over the Njudoling (the Bullring Pass), and then the Sungmaoling pass, where the lovely wild Gardenia angustifolia was found in profusion. After Pengkou, the junction of the road to Amoy, the Chinchiling (Gold Chicken pass) must be crossed; these hillsides were covered with wild pale pink Rhododendron mariaci, and at the top, among the clouds, with bright red R. indica, var. ignescens. The gradients on this road are bad and the scenery quite exhausting. There is a temptation to stop for wild strawberries an inch long.

The road from Yungan, down the Min River to Sanyuen and Shahsien, through thick forest country, is relatively good for Fukien. There is a ferry before Nanping.

This lovely but disease-ridden (malaria, plague, etc.) country was taking a heavy toll of the Chinese army. Between Yungan and Sanyuen we passed many small parties of sick soldiers being driven on to some concentration point. Some dying, too weak to get up, were being feebly urged by NCO's looking very shaky themselves.

The road between Nanping and Chienyang was very bad even for Fukien, the surface being deeply pitted, and the bridges with upper boards quite gone and many rotted timbers underneath.

Between Chienyang and Shaowu it improves. Shaowu stands in lonely country across a river from the isolated bus station.

After Shaowu the border is reached at Kuangtse after a ferry at Hohsun. The roads immediately improve; one could drive over 40 mph, which is not possible anywhere else, even in south Chiangsi. Crossing a long and ancient stone bridge into Nanchêng we were shocked by the destruction caused by the Japanese when the city had been in their hands in the previous year. Nearly every house had been destroyed by bombing, shell-fire, or incendiarism. The road surface continues good through Nanfêng to Ningtu, Yinkang and Ganhsien.

This completes our observations on Kuangtung, Chiangsi, and Fukien.

As regards Kuangsi, we made careful observations on the roads south of Kweilin as already mentioned. Among the karst limestone pinnacles, and through the sandy hills, and foothills of the mountains separating the province from Kuangtung to the east, the road surface was very variable, in general rough, but not spoilt by too much traffic, and with a tendency to be cut up by torrent runoffs. From Lipu to Bapu the road passes through a country of thin population and considerable animal husbandry. On this stretch there are two ferries. Between Pinglo and Chungshan the road is much better than it looks, permitting 40 mph. There is a curious bridge between Tongan and Chungshan, consisting of a floating barge permanently moored. While crossing the Pinglo ferry we saw boats coming upstream, with a capstan manned on the first one winding in a rope from a fixed point - the usual process reversed, the pullers on the ship and not on shore.

Westward of Lipu the road was excellent from there to Liuchiang, because practically empty of traffic but very bad from there to Lushai over a dreary moor, and better but grass-grown alongside the railway till Lorjung, and then all right again. Between Lipu and Liuchow four ferries.

The road from Liuchow to Shatang is bad.

(2) Truck

We used a 30 cwt. Chev ex-ambulance obtained from the BMM, which certainly did better than the 2½ ton Chev truck used on the Northwestern tour (see NW Report).

All went well until in Chiangsi, 5 km. out of Ganhsien on the road to Yutu, the insulation burnt out in the dynamo, so that it would not charge. At Yutu therefore we bore off on another road to a small place called Hochipu where the Chiangsi Provincial Road Administration have a repair station of a hundred workers evacuated against air-raids. Here Manager Pan Yung-Ting was extremely helpful, and the repairs were completed by the following afternoon, while we stayed in an exceptionally charming little wayside inn. Our stay there and in Yutu (with hospitable American RC missionary Fr. Flaherty) was longer than intended because the floodwater did not go down, but this gave time for a small leak in the cylinder-head to be mended "chapudo" by the curious method of shaking iron filings into it and letting them rust.

On leaving Shaowu we had difficulty in starting as the battery charge had gone right down, but much worse was to happen in the neighbourhood of Nanfêng as night was coming on and we were trying to push on to Kuangchang. Trouble developed in the feed system, and the constant testing of the engine soon reduced the battery charge to zero again. While the rest of

the party stayed with the truck in pouring rain, I returned to Nanfêng on a passing bus and with the aid of Mr Francis Merton of the FAU managed the following morning to persuade the manager of the local Farmers' Bank to send out his bus as a relief vehicle and get our engine started with its battery. Since the fuel feed system was still faulty, we took a long rubber hose, and fed the alcohol directly from the drums inside the truck into the carburettor. By this means, apart from a slight fire at lunchtime at Kuangchang, we made very good going to Ningtu, where a thorough examination showed that the alcohol had rotted the feed-pump diaphragm, and we put a new one in. We were also able to buy a reconditioned battery at Ningtu. Since all this happened when we were trying to hasten to the railway to get through the Hêngyang bottleneck ahead of the Japanese, we were very glad the difficulties were no worse. There was no further trouble either in Chiangsi or Kuangsi, except for tyres.

(3) Fuel

Power alcohol was used throughout. After leaving Chungking we took on a further supply at Kweiyang BMM depot (Maj. Gould), and at Kukong BMM (Capt. O'Hara). At Ganhsien we bought 120 gals. at 520 $ NC/gal. At Leichuan (near Kuangtse) we bought 30 gals. at 440 $ NC/gal. (the then Chungking price). At Nanchêng we bought 100 gals. at 400 $ NC/gal. In Kweilin we drew 120 gals. from the BAAG (Col. Lindsay Ride).

Cost figures of this kind have, of course, owing to the inflation, entirely changed since that time, but the relative values, presumably dependent on local conditions, may still be the same.

In Kuangtung we could have run, if desired, on cracked camphor wood oil gasoline. In Fukien we could have used the cracked pinewood oil gasoline (see below). These were about the same price as power alcohol.

(4) Rail

Three railways connect Kweichow with Kuangtung, the Chien-Kuei Railway from Tushan to Liuchow, the Hsiang-Kuei Railway from Liuchow to Hengyang, and the O-Han Railway from Hengyang to Kukong. The engineering on the first of these was remarkable, the descent from the high plateau of Kweichow to the pinnacled plains of Kuangsi being accomplished by many twists, turns, and tunnels, and a series of dead ends at which the train reverses, backing down or up as the case may be, to another dead end on a lower level. Best construction was that of the Hsiang-Kuei line, especially the bridges, as was found, somewhat unexpectedly, by those who had to blow them up at the latter part of the period covered by this tour.

Though qualified by some special study of railway technology, I had really no criticism to make of the operation of these railways by the Chinese. As is so often the case in

China, the commotion and confusion in stationmaster's offices, signal boxes, and the like, was more apparent than real. Times of departure, if not of arrival, closely approximated to those scheduled. Only towards the end, when it was foreseen that all the lines, at least as far back as Kweilin, would be lost to the Japanese, was there any real traffic dislocation.

As regards passenger comfort, the nightly sleeping-car rolling stock was excellent, and the service very good. Second-class was also good, third-class was no worse than that of France. Restaurant-cars were rum, but the food was, as in England, bad relatively to other restaurants.

The great difficulty of all these railways was coal. The C-Han had mines adjoining a place at the top of the Kuangtung-Hunan divide between Pingshek and Chenhsien, but both the Hsiang-Kuei and the Chien-Kuei were largely dependent on the coal from Bapu, in E. Kuangsi which reached them at Liuchow, having had to descend one river to Wochow in Kuangtung and then ascend another by boat to Liuchow or Kweilin. This bottleneck was a great handicap to railway operation.

At Tushan, which strongly reminded me of Grant's Pass on the California-Oregon border, most of the locomotives seen in use were Czech (Skoda). One was French-built, but all were of American pattern. On the other two railways there was a bewildering mass of rolling stock and locomotives, apparently

from every country in Europe, and the USA as well. A considerable number of freight cars built in Shanghai were noted.

The O-Han was operating a good suburban service in the neighbourhood of Kukong.

Numerous engines damaged too severely by bombing or otherwise to be repaired in wartime were frequently seen on sidings. Thus I examined a German-built 2-8-2 and a British-built 4-8-4 at Hêngyang on the way back. Pingshek had half a dozen more, and I remember a large number of derelict freight and passenger cars at Lochang and Kweilin. Temporary spurs had been run up for the Americans at Kweilin and Hêngyang.

The value of these standard-gauge railways for the development of the provinces was deeply impressive. It is to be hoped that nothing will be allowed to impede the rapid repair of these lines after the retreat of the Japanese, the early extension of the Chien-Kuei to Kweiyang, and the linking of Kweiyang with Kunming, Chungking, and Chêngtu by rail.

(5) <u>River</u>

The descent of the Min River by river steamer of the Minchiang Navigation Co. is very fine. The return takes twice as long on account of the delicate negotiation of many rapids. Though not good-looking craft, the steamers do their work well, and the cabins are not uncomfortable.

In Fuchow a visit was paid to the shops of the Minchiang Navigation Co. (Manager; Ling Chun-Yang: directors Hsu Rjung-Fan

and Ho Shu-Yuen). Chief boatbuilder was Chang Fa-Hsiang, trained at Manila. The company has upwards of 70 boats on the river, all built by themselves. Stem to stern length does not exceed 75 ft Camphor wood is used, caulked with tung oil, lime, and bamboo tow. They have their own foundry and machine shop, and are making all their own engines (semi-Diesel type, on German designs), and do all their own repairs, Diesel oil used comes from the pinewood oil cracking plant.

IV. Accommodation

Sanchi	NRC Electrochemical Metallurgical Works, with Dr Yap Chu-Phay
Tongchih	CTS (good)
Tsunyi	Min. of Social Affairs Hostel (good)
Kweiyang	Provincial Hostel (good)
Tushan	CTS (fair) with station restaurant (good)
Kweilin	Consulate, with Mr Whittamore
Hêngyang	US Air Force Hostel
Hsienrjêngmiao	Lingnan University Guesthouse
Kukong	Wulishih Hotel (very good) and Hohsi Hospital, with Dr & Mrs Moore
Pingshek	Shaokuang Hotel (good) at the station and Wulishih Hotel (fair) in the town
Liyuanbao	Chungshan Univ. Agric. College guestroom
Lochang	Chungshan Univ. Med. College guestroom
Ganhsien	CTS (very good)
Hochipu	Tonglo Inn (primitive but pleasant)
Yutu	with Fr. Flaherty and Fr. Tang (Vincentians) at RC Mission, American
Changting	at President Sah's house, Amoy Univ.
Yungan	CTS (very good)

Nanping	CTS (poor); police a great nuisance at night here, would have come in to my room at 2 a.m. and examined papers if I had let them.
Fuchow	Consulate, with Mr and Mrs Tribe
Chienyang	CTS (fair), hosp. Fr. Devine, RC Dominican Amer.
Shaowu	with President Ling and family, Fuchow Univ.
Nanfêng	with Fr. Duffy and Fr. Lucey, at RC Mission (Irish), either on account of asceticism, or previous plunder by Japs or Reds, nothing but dry bread and tea here.
Ningtu	CTS (very good)
Ganhsien	as before, but hospitality from Bp. O'Shea and Fr. Mottey, RC Mission, American
Kweilin	Lochunshih Hotel (very good)
Liangfêng	Academia Sinica guesthouse
Bapu	NRC Pingkuei Mining Administration HQ
Liuchow	with Fr. Madiar, Fr. Pelamot and Fr. Liao at RC Mission (French), kind and hospitable but food not good.
Shatang	Nat. Agric. Exper. Station guestroom
Kweilin	Consulate, with Mr Whittamore
Kunming	Consulate, with Mr Brewis

V. Institutions visited

(1) Universities

Chekiang University (Tsunyi, Kweichow)

This university, one of the four best in China, in our opinion (the other three being those combined in "Lien Ta" at Kunming) was only paid a cursory visit on the way south. Fuller details will be found in the Report on the Southwest Tour. On this occasion we viewed the rather good library in the

Chiangkungse temple, and the not very well equipped research institute of chemical engineering. I lectured in the theatre which is borrowed by the University when there is a large attendance.

Lingnan University (Hsienrjêngmiao, nr. Kukong, Kuangtung)

This university, originally of missionary foundation and formerly well-equipped at Canton, had lost most of its equipment by the time of my visit. Situated some distance from the railway across a forested heath, it had perhaps the most beautiful campus in Free China, on a hill among a grove of ancient and magnificent camphor trees. The buildings were all of recent wooden construction, but well planned and attractive.

The president, Li Ying-Ling, a former YMCA secretary, was more remarkable as a promoter and collector of funds than as a scholar. The best scientist was Chen Hsing-Tao, a parasitologist, from Harvard, expert on lung, liver, and blood flukes. But apart from some microscopes which had been smuggledthrough from Canton not long before, he was greatly handicapped by lack of equipment. In chemistry and physics the position was even worse, and little more than elementary teaching could be thought of.

An American, Prof. Rhodes, with a Chinese wife, was teaching English (he has now joined the OWI in Chungking) and was much appreciated. Other noteworthy scholars were Huang Yen-Yu (modern history) and Hsieh Chao-Chieh (political science),

both Harvard men. The excellent botanist Yung Chi-Tung taught also at Chungshan University, and the good biochemist Ling Shu-Mo taught also at Lingnan Univ. Medical College.

Adjacent to the campus was the small group constituting Canton Theological College.

The Lingnan Medical College was situated in Kukong city, across the river, in a few specially built buildings adjoining the Hsiho (Methodist) Hospital under Dr (later Capt.) Moore - an excellently, even brilliantly run institution in lovely gardens - which functioned as their teaching hospital. Apart from Ling Shu-Mo the British-returned Hu Chi-Hsun and his wife, both medical professors, deserve mention.

The Lingnan Agricultural College was situated at Pingshek, across the river from the railway station, with a fine view of the "Gold pheasant" mesa "which eats the grain of Hunan and fertilises Kuangtung". Energetically directed by Li Pei-Wen, it was also greatly handicapped by lack of equipment. The teaching appeared to be very good, however, and the students made good use of the small library at their disposal. Chêng Tien-Hsi, economic entomologist, was working in cooperation with the group at Chungshan University Agricultural College (see below).

On the whole, Lingnan University would have been of high quality if it had had sufficient equipment.

After the Japanese advance into Kuangsi, and before the fall of Kukong, the university disbanded, and no news of it has been received since.

Tungwu (Suchow) University, Hsienrjêngmiao, nr. Kukong

This small (originally missionary) university had formed a campus on the heathland just beside Hsienrjêngmiao station. Its buildings were few but good. Its president was the good scholar Shen Ti-Lan from Shanghai. Its scientific equipment was nil, but it was still offering blackboard courses in chemistry, astronomy and mathematics.

Intellectually, the atmosphere here was quite high, and the professors even better, if anything, than at Lingnan. One might name the brilliant young economic historian Wu Ta-Kun.

The students were dispersed when Lingnan and Chungshan gave up, and the professors were thrown on their own resources (as one of them told me the story afterwards) by a cable from their American committee instructing the president to wind up all commitments and close the university for the duration of the war. Some of the professors found their way to the west, others probably moved to E. Kuangtung.

Chungshan University (Pingshek, Liyuanbao, and Lochang)

This university, the Sun Yat-Sen University formerly well-equipped in Canton, has had a melancholy wartime story. It first evacuated to Yunnan, but was then recalled by the

Kuangtung Provincial Government, and what equipment was not lost on the westward journey was lost on the eastward one. Its present location, Pingshek, is a small old-fashioned town, almost a large village, on the bank of a fair-sized river, with no road through, only a long narrow lane. The Colleges are far apart; Agriculture at Liyuanbao, some 25 km. away; Engineering about 7 km. upstream at Sanhsingping; Law across the river from Engineering, Science across the river about 2 km. upstream, and the Teachers Training College about 5 km. downstream, near the railway station and on the hither side of the river from the Lingnan Agricultural College. They are not connected by telephone and the President's office is not efficient. The Graduate College and the University Offices are in the town.

It is impossible to classify this university among all the other Chinese ones. Mr Huang had some relatives studying there at the time of our visit, and we thus learned that the examinations were generally considered a farce, since at least half of the students were in the university owing to political influence and must therefore be passed, or woe betide the professor; that the questions to be asked in the examinations are almost publicly given out the week before; that examinees may use books and talk, etc. etc. There are said to be frequent riots against individual professors, and students still have the "revolutionary" right of "hire and fire". I was able

to confirm something of this during my lecture at the Cultural Research Institute - Li Chien, the professor of English, was clearly incapable of translating, and the students behaved in a manner unheard of in any other Chinese university, talking, laughing, and reading, until at last I insisted on the director, Wu Kang, a very good scholar, translating in French, which he did very well, and thus I held their attention and gained their interest for what I had to say.

All this, however, is only one side of the picture. Whatever the conditions may be, it remains a fact that many distinguished scholars are to be found in this University. I shall mention the remarkable woman astronomer Chou Yi-Hsin (who runs a teaching observatory, the only university one in China), Wu Kang (philosopher), Chu Chien-Tse (historian of Chinese-European culture contacts), Yang Chêng-Chih (editor of the Journal of Chinese Folklore), Sheng Chêng (formerly biologist, pupil of Bataillon and Dubosco at Montpellier, friend of Patrick Geddes, and for whose autobiography Paul Valéry wrote a preface), Chung Ching-Wen (anthropologist), Wang Ya-Nan (economic historian), Ho Chieh (geologist), Chang Tso-Rjêng (French-trained biologist), Rjên Kuo-Rjung (French-trained ornithologist). The librarian Tu Ding-Yo, is a very amiable eccentric; he presided over a renowned collection of all the books and pamphlets on, by, or about, Sun Yat-Sen. The president Chin Tsêng-Têng seems to be a run-of-the-mill

Djiaoyupu official; he is strictly speaking only Acting, the former famous president Chou Tsêng having been called to Chungking some years before "to advise the Government" and also perhaps to remain under surveillance.

The Engineering College personnel was rather uninspiring, and the equipment very poor. Some excellent wooden bridge models, however, had been made, and some ingenuity had been brought to bear in the making of apparatus for teaching the principles of electricity.

The Law College had a good library, including some marxist books, presumably remaining from before 1927 but not yet "gleichgeschaltet".

Near the Law College was an outlying building devoted to Chemical Engineering. The students were manufacturing matches and soap for commercial sale. It always makes me uneasy when I meet with arrangements like this, for while under normal conditions, and with labour-saving devices, some such enterprises may be educative, one fears that under Chinese conditions the students and professors may be driven to it in order to keep body and soul together, to the detriment of the true purpose of universities. One wonders also whether the student body gains the full benefit of the profits made.

As might be expected in this most unexpected of universities, the Agricultural and Medical Colleges are quite different in atmosphere. Both, indeed, are among the very best of their kind which I have seen in China.

The Agricultural College, at Liyuanbao, occupies a large old barracks and is directed by the veteran Soil Science expert Têng Chih-Yi. The student body was impressive and a large amount of genuine research was proceeding in all departments. Outstanding was the work of the economic entomologist Chao Shan-Huan on naturally occurring insecticides. He had tested many Chinese plants said to have insecticidal properties, and had narrowed the field down to about four important ones. Through the SBSCO he was in constant touch with the work of Tattersfield and others in England. He was also responsible for the mass production of copper and arsenical sprays. The work of his group was really one of the finest examples of initiative and success under adverse conditions that I have seen in China.

Very notable also was the work of Dr and Mrs Pu Chih-Long (diseases of silkworms), Wên Wên-Kuang (plant growth hormones), Chiang Ying (systematic botany and plant anatomy), Yu Wei-Ying (industrial fermentations and chemurgy), Ting Yin (rice crop improvement), Lo Tong-Chien (forestry), and Li Ying (chemistry) who more than 40 years ago had been a pupil of Sir William Ramsay at University College, London. I was sorry to leave Liyuanbao.

The Medical College, at Lochang, half-way between Pingshek and Kukong on the railway, a fair-sized town; directed by

Li Yu-Seng, had formerly been under German influence, and the teaching was still largely conducted in that language. The general atmosphere was one of old-style German cleanliness and good organisation. A teaching hospital of extremely modern design, but constructed of local materials, bamboo, plaster, and brick, had been built. Most of the professors were very capable, but outstanding was the pathologist Liang Po-Chiang, who had organised the most perfect pathological and clinical laboratory I had seen in China. He and his assistants had much research in progress.

Chungshan University is therefore unclassifiable, containing both very good and very bad. It will be interesting to see what becomes of it after the war.

Amoy (Hsiamên) University, (Changting, Fukien)

This, together with the Fukien United University at Shaowu (see below) should occupy a high place on a classified list of Chinese universities. While not attaining the Cambridge-Harvard level of the Big Four, already mentioned, they should be placed in the second group of the first class.

These two Universities have much in common. By their nearness to their original homes on the coast they gained the advantage of being able to take with them nearly all their equipment, so that their libraries, for instance, are relatively much better than those of other Chinese universities; but

staying near the coast in Fukien province had the disadvantage that they were greatly cut off from visits of foreign scholars going to Chungking from India, and from any material aid that might result. They have suffered also from a real isolation from the rest of China, and since the capture of Kuangsi and most of Kuangtung by the Japanese last year, this isolation has been complete. Since an Allied airfield at Changting is still in use, it would be possible in principle to send small amounts of books and chemicals, but military requirements make this difficult.

At the time of my visit President Sah Bên-Tong, well-known electrical engineer and physicist, had just left for the USA (our vehicles had passed unwittingly on the road) and acting-President was my old friend Wang Teh-Yao (biologist, pupil of Wintrebert). We stayed in the President's house, but had most meals with Mrs Hutley, a CIM missionary, who had been contemporary at Changting with Dr E.R. Hughes for many years. Dr Hughes' own house is no longer standing, the city having been sacked at some point in the anti-Communist civil wars.

The grounds of this university are the best kept in China. Laboratories and lecture-rooms are in old temple courts, while the excellent library is housed in the capacious and beautifully carved old Guildhouse of the merchants of Chiangsi which they used when coming to trade with those of Fukien.

Among the outstanding scholars are Chou Bien-Ming (philology and linguistics; a strong personality, he has a romanisation system of his own, something like Gwoyeuh Romatzy); Chen Yun-Tun (geologist, makes slide rules and logarithmic paper for sale, not found elsewhere in China); Tsai Chi-Rjui (young physical chemist); Chou Chang-Ning (physicist, interested in cosmic rays, formerly at the Cavendish Laboratory, Cambridge); Chen Tze-Ying (geneticist, keeps the best Drosophila stocks in China, has shown much initiative in preparing agar and iodine-containing drugs from seaweeds); Liao Hsiang-Hua (parasitology).

There is no College of Medicine or Engineering.

Huanan (Women's) College, Nanping, Fukien

Huanan College at Nanping at the head of the Min River is a Methodist foundation, similar to Ginling Women's College, but drawing mainly from Fukien instead of the whole of China. It has normally 90 students instead of Ginling's 400. It is 38 years old, perhaps older than Ginling. Its campus is very well built, on top of a hill looking down the river; all arrangements are neat, efficient, and as elaborate as could be expected having regard to the size of the institution. Libraries departmental and good but very small. About 65% of the students are doing science. The president, Miss Wang Shih-Ching, was formerly a chemist; the dean, Miss Hsu Ying-Ming, is a Michigan-trained parasitologist; and there is a biochemist, Miss Yu Bao-Sêng,

who worked with E.V. McCollum. Books later than 1940 were seen. The College must have strong American support, and there were a number of American staff members, including the veteran educationalist, Miss Ethel Wallace, there at the time of our visit. Some were evacuating but some intended to stay, come what might.

Chinan University, Chienyang, Fukien

This university was formerly located about 10 miles outside Shanghai. It was the Ministry of Education's special foundation for "haiwai" or overseas students - the character chi here means "reaching to" the south (though it was explained to us as an old word meaning "cooperation").

It now occupies the old Confucian temple outside the north gate across the river. It has 1000 students, more poverty-stricken than any others I have seen in China, mostly studying commerce. There is no equipment for scientific work, though a Faculty of Science exists. Science students go each year to the laboratories of the Fukien Provincial Science Institute at Shahsien (between Yungan and Nanping) which we had unfortunately passed by before learning of its existence; and also to the Chekiang Provincial Industrial Research Institute at Longchuan, which we had no time to visit.

President Ho Ping-Sung is a well-known historian who has written many textbooks with a marked Kuomintang bias. The

library consists mostly of Chinese books and Chinese translations of western books. Standard of English would probably be quite low. Women students now 10%; overseas students now 7% though formerly up to 30% or more.

The painted ceilings of this Wên Miao were quite exceptionally beautiful, reminiscent of the painting and carved stone pillars of the Changting Wên Miao. This region was for long the home of the philosopher Chu Hsi, whose temple is about 13 km. west of the city. The pailou bears the inscription "Nan Min yu li" (Fukien in the South glimpsed the Principle of the Universe).

Chichiang (Hangchow) University, Shaowu, Fukien

This was a missionary university. Its Schools of Law and Engineering evacuated to Kweiyang, and the other faculties to Shaowu, where it occupied at the time of my visit a few new but gaunt buildings in the lonely country across the river from Shaowu city. It had 100 students all doing "liberal arts" (pre-commerce and engineering). There were only four professors, including one American, Mr A.W. March, and they seemed woried and overworked. Their present difficulties were said to have arisen from the fact that it was expected that most of the staff would come out from Shanghai, but in fact they declined to do so. I was also told that some misappropriation of funds had taken place, and that the whole university would shortly close down.

The President was Li Bei-Ên.

Fukien United (Christian) University, Shaowu, Fukien

Under President Ling Ching-Rjun, this university, as already stated, deserves a very high rating.

The main campus has good, if miscellaneous, buildings outside the east gate and the end of the high street in an old missionary compound. The library of 140,000 books was extremely interesting, many rare Chinese collections having been acquired from prominent Fukien families. But the foreign books were also numerous and good. The science laboratories, relatively well equipped, occupy the old missionary hospital. The old missionary gardens and orchards, very extensive, form part of the university farm. About 8 American professors were on the campus at the time of my visit, but all evacuated later. One of them (John Bishop) was teaching a practical course of arts, crafts, and small-scale practical engineering suitable for co-operatives, etc., unlike anything seen in other universities. Another, Roderick Scott (a very stimulating teacher) had long taught a course of philosophy, but by Djiaoyupu order, this had had to be changed, in title if not in content, to "Western culture". A third, Samuel Leger, was a distinguished philologist, author of the dictionary of Fukien dialect.

One of the few drawbacks of this university is that it is located in the middle of the area where bubonic plague is endemic. In 1943-44 there had been 10 cases among the students, of which 1 had been fatal. Malaria was chronic among 90% of

the students. The university had its own isolation hospital up on the hills. Mrs Ling, wife of the president, is an MD of Johns Hopkins, and with an able German refugee, Dr Eugen Milch, gave good medical service to the students.

In the science faculty, the Biological Department was outstanding, one of the best in China. The energetic head, Chêng Tso-Hsin (since gone to the USA on a travelling professorship) said that the evacuation of the university had been a positive advantage to the biologists, since up river they were in a different faunistic region. There were splendid ornithological and ophidian collections, and a good marine one. There was plenty of large and small glassware, as everything had been brought up from Fuchow direct by river steamer and barge. Besides Dr Chêng there is a fine staff of colleagues, e.g. Chao Hsiu-Fu (specialist on dragonflies, with a fine collection), Ting Han-Po (sex physiology, especially amphibians), Tang Chung-Chang (parasitology, intermediate hosts of blood-flukes, etc.

Chemistry and physics were weaker than biology; there being little or no research; but the teaching was very good, especially in physics. The mathematician Chen Bi-Ta was a pupil of Eddington.

Another unique feature of this university is the Tea Research Laboratory under Chang Tien-Fu. We brought away a number of tins of Bohea, for which the university is now famous.

The other agricultural departments are also being run energetically, e.g. agricultural economics (Chen Ling-Kuan) which embodies a provincial information centre, animal husbandry (Ling Ching), and horticulture (Chen Wei, a Cornell man).

In sum, Fukien United University, like Amoy University, challenges comparison with the best in China, and should receive all possible aid.

Chungchêng University, Taiho, Chiangsi

Unfortunately not visited, owing to the necessity of getting back to the west of the Japanese.

Kuangsi University, Liangfêng, near Kweilin, Kuangsi

On the whole, this university presented an impression not unlike that of Kweichow University, at Huachi, nr. Kweiyang, as described in the report on the Southwest Tour, but distinctly better than that. Also a new foundation, it occupied sites in and near an old park and gardens at Liangfêng.

President Li Yun-Hua is a chemical engineer; the other officials were not particularly noteworthy scholars. The library is excellent, with good collections, both Chinese and foreign, with little rubbish. Physics and Engineering had quite a lot of equipment, but it did not seem to be in very active use. The Radio and Optical Labs. were specially well equipped.

Best section was undoubtedly Chemistry. The biochemist Pêng Kuang-Chin (Amos Pêng) is full of initiative, and had organised a group of workers to survey the plants naturally occurring in the province from the point of view of rubber latex producers. Several such plants had been found, and experimental rubber articles had been made from them, with much promise of success. There would, however, be a problem in the commercial exploitation of the plants as crop plants. Dr Pêng had shown himself capable of carrying out cooperative work with engineers, chemists and agriculturists under the usual frustrating conditions of wartime China, and deserved every congratulation. He was not badly off for equipment and chemicals. Parallel work was being done by Chin Tao-Chien on plastics from tung oil. Ting Hsu-Hsien was teaching semi-micro qualitative analysis. The Chemistry buildings were large and commodious, but dirtily kept.

The University's Agricultural College was located at Liuchow, adjacent to the very large experimental farm of the Ministry of Agriculture (see below). Visited later, it gave a good impression on the whole. With experimental grounds of 500 mou, it aimed to do research, but in practice wartime difficulties have confined it to teaching. The staff seemed very capable, Dean Wang Chen-Rju (Forest Botany), Lu Mou-Sêng (Forest Pathology), Chiang Shu-Nang (Economic Entomology), Hsiao Fu (Rural Economics), and Chêng Kêng (Animal Husbandry).

The College possessed a unique feature for China, a department of landscape gardening, with good and suitable books. The general library was well kept and had unusually good runs of periodicals.

After the fall of Hêngyang, the university, (and presumably the agricultural College), evacuated into the hills westward from Liuchow, in the neighbourhood of Lungshan. This had the advantage that the Japanese did not come there, but the University has been completely isolated from everyone else also.

(2) Research Institutes

Academia Sinica Geology Research Institute, Liangfêng, Kweilin
Academia Sinica Psychology Research Institute, " "
Academia Sinica Physics Research Institute " "

These three institutes were situated among pinewoods around a grassy slope like an English village green, with the Kuangsi Provincial Science Institute (see below) on one side, and the Kuangsi University buildings at the bottom. The institutes had a common guesthouse (very comfortable) and common functional services, workshops, etc.

The Geological Institute had about eight research scientists under the leadership of the internationally known geologist Li Se-Kuang (J.S. Lee), working on palaeontology, stratigraphic and small tectonic problems, mineral structure,

rock fabric in relation to compression stresses, etc., and palaeobotany. Dr Li himself was interested at the time in the deformation of stone under great strain, as in glaciers. The atmosphere of this, as of the other institutes, was of the highest possible scientific quality.

Among the sidelines of this group was the supervision of the preparation of geological models, made up in sets of 22 by the Provincial Science Institute, the best I have ever seen.

The Psychological Institute, which would be better named Institute of Developmental Neurology, is normally directed by Wang Ching-Hsi, but in his absence in the USA by the previous director Tang Yueh. There were very few workers. The main line of work was the experimental morphology of the nervous system, and transplantations were aided by the existence of a local species of tree-frog with perfectly transparent tadpoles.

This institute had an exceptionally fine library, housed in a special brick building.

The Physics Institute, mainly devoted to Geophysics, was directed by Dr Ting Hsi-Ling. Apart from a Radio laboratory under Chu Ên-Lung, housed in the Provincial Science Institute and greatly handicapped by lack of sufficient batteries, the main buildings were at some considerable distance from the "village green", up in the hills. Here Chen Tsung-Chi (Parker C. Chen) the well-known collaborator of Sven Hedin in many wanderings in Central Asia, was in charge of an excellent

station for study of terrestrial magnetism. Instruments for the continuous photographic recording of all three elements of terrestrial magnetism were housed in a specially built nail-less non-magnetic thermostatic house. Here also Shih Rju-Wei was studying the magnetic properties of pure metals under tension, in order to test Kondorsky's theory of magneto-striction. The equipment was quite good, including an electromagnet of 40,000 Gauss.

When the evacuation of Kweilin began, the institutes were able to move some, though by no means all, of their apparatus by truck to Kweiyang and on to Chungking, where they have now settled at Beipei. But almost the whole of the library of the Psychology Institute had to be left behind, and is probably a total loss.

Fukien Academy of Sciences, Yungan, Fukien

Fukien is the only Chinese province to have an Academy of Sciences of its own. This fine piece of initiative was taken by the former Governor. Present President is Chou Chang-Yun, concurrently head of the Fukien Provincial Geological Survey.

The Academy has sectional laboratories of Industrial Chemistry, Botany, Soil Conservation, Agricultural Technology, Forestry, and Rural Economics. In Industrial Chemistry there was work going on in actual experimental production of photo-graphic emulsion, films, plates, and paper (a typical and

successful piece of Fukienese initiative), on gasoline production from pinewood oil, on lubricants from vegetable sources, on brine electrolysis, use of local pyrites, and aid for various small-scale local chemical industries. There was a good deal of apparatus, but I got the impression that work is crippled for lack of funds. Also some of the leading spirits were ill. In Botany there is the very able botanist Ling Rjung from Changting, who was describing a large number of entirely new species. In Agriculture work was going on actively in Forestry, but lack of funds was much felt.

While there is no doubt that the foundation of the Academy has greatly contributed to the scientific and technological life of the province, it presents the appearance of an organisation semi-stifled at its birth by lack of financial support as well as isolation from sources of equipment.

(3) Industrial Installations

Fukien Provincial Pinewood Oil Cracking Plant. Chienow, Fukien.

Since the facilities for producing power alcohol from molasses, and for cracking tung oil for gasoline, are very limited in Fukien, and since on the other hand the province is one of the greatest lumber areas in China, the proposal was made some 6 years ago that the oily and resinous materials of pinewood should be used as a source for gasoline production. The idea seems to have emanated from the Chemistry Department

of Fukien Union University. Under the direction of the brilliant young chemist Ling I (who has never studied outside China), and with considerable support from the provincial government, which now owns the plants, a number of factories have been set up. Production of an entirely aromatic fuel, of high octane value, has been sufficient to keep the buses and trucks of the province running throughout the war period. The whole system forms one of the most enterprising undertakings which I have seen in China, and holds some promise for a utilisation of by-products of the post-war lumber industry.

This is not the place to enter into too great technical detail, but it may be said that pine tree roots (which would otherwise be left to rot) are brought down the rivers to collecting stations, where they are subjected to dry distillation. The resulting turpentine-like oil is separated by fractional distillation into high and low boiling-point fractions, and the former heavy oils are subsequently cracked, using special clay as the aluminium catalyst. The final products are gasoline, lubricating oils, and creosote.

Under the chief chemist, Ni Sung-Mao, there are laboratories for lubricants research and for controlling all stages of the manufacture. What needs emphasis is that this thriving emergency industry is built entirely out of makeshift equipment, e.g. bamboo piping, wooden condenser towers, derelict boilers from the Fuchow Navy Yard, and what may be constructed out of old steel gasoline drums.

Nat. Resources Commission Wolframite Mines, Tayu, Chiangsi

These interesting mines, at the centre of a region producing 90% of the world's tungsten, are located at the top of a mountain, Hsihuashan. The majority of the operations whereby the extremely heavy wolframite is won are in the hands of small private owners, who quarry the ore with very little tunnelling. The NRC buys the product at a controlled price.

Manager Chen Tao-Shan, Chief Engineer Yang Bang-Yin, and Assistant Fu Tang-Hsun, showed us the adit tunnels of modern style which the NRC itself was pushing into a part of the mountain not accessible to quarrying.

The main work consists in washing the heavy ore free from sand and coarse quartz lumps. The ore in sacks comes down the mountain, then by truck to Nanhsiung, then by water to Kukong, and out by railway. The mountain produces 7-800 metric tons a year. The whole region produces 500 tons a month. The supply normally about equals the demand. There were no stored reserves.

Nat. Resources Commission Electrical Factories, Kweilin, Kuangsi.

These comprised:-

Central Electrical Works, Factory No. 2 (Lamps, Tubes and Radio Valves)
Central Electrical Works, Factory No. 4A (Dynamos, Batteries & Accumulators)
Central Radio Works, Factory No. 1 (Radio Sets & Parts)

All these factories were situated in large buildings and grounds to the west of the city. Their construction had been a major wartime achievement.

The lamp, tube, and valve plant, the furthest out, directed by Feng Chia-Cheng, had an excellent glassworks and full equipment for blowing and annealing any type of bulb. It had its own liquid oxygen plant and its own coal gas plant, and very good electrical and optical laboratories. Much of the machinery was quite up-to-date, though in scale, of course, the plant could not compare with those in western countries.

The dynamo, battery and accumulator plant, directed by Wang Tsung-Su, had in its main building a fine meeting-hall for the NRC, and schools and creches in adjacent buildings. There was a large foundry with modern equipment. The accumulator shop produced motor-car and truck batteries on an extensive scale (we were presented with two). Holders were made from a large previously imported stock of vulcanised rubber; grids were made in the works, and sulphuric acid from an adjacent NRC plant. The dry cell shop used entirely locally available substances. The dynamo and motor shop was very large, the winding section using the products of Factory No.1 at Kunming.

The radio plant, directed by Yen Rjên-Kuang, a man of considerable personality, produced machine tools, military hand-generators, telecommunication transmitters, radio, beacons, field telephone sets, ammeters, voltmeters, antenna kits,

gasoline generators, etc., etc. The paint shop made its own amyl acetate, paint, and tracing paper. The delicate work of assembling the meters was done in a special building. Girls were much used in the assembly of the sets, the chassis of which were made from old steel gasoline drums, cold pressed to the required shape. Elaborate arrangements were made for welfare, including health club, sports, cinema, and engineering club.

At the time of our visit, all the equipment and products were being packed up for evacuation by railway to Tushan and Kweiyang. Information has not been received as to how much safely reached there, and how much was lost to the Japanese. The directors seemed a little too optimistic about the chances of quickly resuming production in Kweiyang. On the whole, it was very painful to see such a splendid effort ruined by the necessity of renewed evacuation.

Nat. Resources Commission, Pingkuei Mining Administration, Bapu, Kuangsi

This administration, dealing with a large area on the Kuangsi side of the mountains separating the two Kuang provinces, controls a coal mine, large alluvial tin mines, tin refineries, ironstone quarries, a blast furnace, ironworks, etc.; and buys tin from smaller private alluvial tin mines. The output goes down river to Wochow and thence up to Kweilin and Liuchow.

Manager Li Fang-Chêng is a most remarkable man, probably the only Chinese who has ever been a colliery manager in England, and a real expert on mining engineering.

The coal-mine at Bapu is unusual in that the seams run nearly vertical. It was being operated with efficiency and skill. Actual production was of the order of 2000 tons/month, but if economic conditions had been favourable, this figure could easily have been trebled. There was a reserve stock of some 20,000 tons at pithead.

At the time of my visit, the colliery had just received orders to evacuate; this it interpreted by crating surplus equipment, of which there was said to be sufficient for two further mines of about the same size. I have not heard whether this reached safety or fell into the hands of the Japanese.

There was an excellent machine-shop and foundry at the coal-mine.

The tin mines were only a shadow of their former extent, the NRC one being the only one working. There were formerly some 40 modern and 100 old-style mines in the area, producing some 2500 tons refined tin/year, now only about 480 tons/year is produced. But allied requirements have asked for an increase of production, which was under consideration. Economic situation was said to be the cause of the decline.

The tin refineries were closing down, as this work was being concentrated at Kweilin. Good scientific work, however,

was still going on in the laboratories attached to the plant.

The power plant was especially interesting, two large generator sets with their steam turbines and boilers being installed within a hollow limestone hill of the familiar Kuangsi karst type. Cave capacity was some 12,000 cub. ft.; output 3200 KW. This station is the second largest in China, and should encourage industry to settle in the area.

It will thus be seen that both economic conditions (the crippling inflation, price-control, etc.) and the movements of the Japanese (who seem, after all, never to have occupied the area), have greatly crippled the NRC's work here. But the area remains one of great potential importance after the war.

(4) Industrial Cooperatives

Chinese Industrial Cooperatives (SE Federation) Ganhsien, Chiangsi

As is generally known, in spite of the consistent under-cover sabotage tactics of the Central Government towards the CIC, the SE Federation, centred on Ganhsien, together with the NW Federation, centred on Baochi and Lanchow, (see my report on the NW Tour), have maintained some importance.

At the time of my visit, the CIC Machine-Shop was very active and doing good business. It was about four times as large as that at Lanchow. It was turning out 30 hp producer-gas engines for stationary use. The Boat-Building Coop., which formerly had been famous, was falling on evil days, and was

about to wind up; we were told that it was probably because the cooperative builders had conducted their business too honestly. There were 27 other cooperatives in and around Ganhsien.

On our return journey to Kukong, we met the camphor cooperative on the road, evacuating to the east, to Kuangtung or Fukien, and it is believed that most of the Ganhsien co-operatives did likewise, before the city fell to the Japanese.

(5) Government Scientific Organisations

Fukien Provincial Meteorological Survey, Yungan, Fukien.

This service, under the provincial Bureau of Reconstruction, is the best thing of the kind I have seen in China. Directed by the Japanese-trained, but good English-speaking, meteorologist Shih Yen-Han, the principal station is excellently equipped, with a fine library.

There are 19 second-class stations in the province and 63 rainfall stations. Records have been kept all through the war years and complete sets were forwarded by us to the Air Attaché, the Air Ministry in London, etc. New stations, especially along the coast, were still being set up. Many publications had been made, e.g. a semi-popular journal and pamphlets on meteorology, calculating tables, etc. Since the printing and paper in Fukien is exceptionally good, the Transactions of the All-China Geographical Institute, for

example, containing, e.g. Ma Ting-Ying's work on "Past Climate and Continental Drift", had been published here.

The whole station was beautifully kept and in applepie order.

Fukien Provincial Geological Survey, Yungan, Fukien

This service is also under the Reconstruction Bureau. Headed by the energetic Chou Chang-Yun, a long series of good publications had been made. At headquarters there was a good soils museum, and an impressive soil chemistry laboratory, in which was much home-made apparatus, such as drying ovens, and an electric fan had been adapted for centrifuging. About 10 research workers were active. The library is small but well-chosen.

Fukien Provincial Agricultural College and Station, Yungan

The station, under Yi Hsi-Tao, was specialising in cotton improvement. It was well kept and doing good work.

The college, under Yen Chia-Hsien, proved to be unexpectedly well equipped in all departments. There were plenty of microscopes, calculating machines, chemicals, etc. Although the laboratories gave an impression of not being much used, this must have been superficial, for the staff had an impressive number of publications, many of which, especially those in economic entomology, afterwards turned out to be of much interest to British scientists.

In the grounds was a well-built insectary. The library was excellent. Work in chemistry, phytopathology, especially virus diseases, citrus culture, etc., all good.

Fukien Provincial Entomological Survey, Shaown

The chief field laboratory of this organisation is in the neighbourhood of Shaown on the Chienyang road. Director Ma Chun-Chao, is quite first-class. He undertakes many expeditions in the wild country, such as the Guatun mountain region.

Nat. Health Administration Plague Prevention Units, Chienyang and Nanping, Fukien

We heard first about the work of these units in Fukien from Mr Francis Merton, an FAU member on detail to the NHA for this work, met at Nanping.

It appeared that the work was not as effective as it might be partly due to friction between Dr R. Pollitzer (former League of Nations plague expert) at Chienyang and Dr Shih at Nanping. The organisation was so poor that neither Merton nor his FAU colleague could find anything to do after 3 months' training at the Nat. Health Institute at Koloshan, (of which they spoke highly). The work should have been routine dissections of rats, first for post-mortem observation of macroscopic organ changes, and secondly blood-smears for identification of the plague bacillus. Unfortunately, in Fuchow itself,

the work of collecting rats was divided between no less than four authorities, National, Provincial, Hsien, and Municipal respectively, and very few rats were collected at all.

We had later on a very interesting talk with Dr Pollitzer himself (who made his headquarters in the RC Dominican mission station at Chienyang), and his aide Têng Ping-Ming. He explained the original advent of the plague to China about the middle of the 19th century and the establishment of endemic foci in Yunnan and Fukien. Plague does not travel out of these areas because the flow of rice from other parts of China takes place into them, and the flea larvae, which feed on rice débris, are therefore constantly driven back into the area rather than spreading. The original home of bubonic plague is Russian Turkestan. Dr Pollitzer gave us much other scientific information on the outstanding plague problems. He considered the Provincial Health Laboratory in Yungan quite good, and that in Fuchow too. Both are producing the Haffkine plague vaccine.

Dr Pollitzer was emphatic in his conviction that the story that the Japanese had attempted to spread plague in China was true. Rice and plague-carrying fleas had been dropped from planes. But while a few cases had appeared in towns which had never before had the disease, the factors governing the growth of epidemics were too complicated and the aim of the Japanese had not been attained.

In this connection, I also met later on one of Dr Pollitzer's colleagues in the plague warfare investigation - the bacteriologist Chen Wên-Kuei, at Tuyunkuan. According to him, the Japanese tried twice, once at Chinhua near Ningpo, and once at Changteh in Hunan. In neither place was there a history of plague previously, but at Changteh infected rats were found after the air "raid". The number of cases there was 30, and it was possible to identify the strain of bacillus from the literature as a Japanese one; it was extremely virulent, as all the cases died. None were soldiers. Chen himself stopped the transport of rice out of Changteh, and it did not spread.

Kweilin Science Institute, Liangfêng, nr. Kweilin, Kuangsi.

A special feature of the development of Chinese scientific life has been the provincial science institutes, e.g. at Lanchow in Kansu, at Supochiao in Szechuan, at Kweiyang in Kweichow, and at Shahsien in Fukien. These are intended to act as foci of popular education in science, to carry out a certain amount of research, and to manufacture scientific apparatus for schools and universities.

The Kweilin Science Institute occupied a very fine building on the Liangfêng "campus". Under Secretary Yeh Ya-Ke and with the help of the ingenious ex-astronomer Yu Ching-Sung, it was producing the best-made apparatus of all kinds yet seen in China, (cf. above, on the geological models). The lens -

grinding shop, machine shop, microfilm projector room, were very good; the library poor. Among instruments made were prisms and lenses, all kinds, stereoscopic solid geometry models, gyroscopes, gyrocompass models, microfilm projectors chemical balances good to half a milligram, hand centrifuges, plane tables, alidades, post-office boxes, potentiometers, micrometers, electrical and magnetic apparatus, and the ordinary chemical reagents.

I do not know how much of staff or equipment it was possible to save at the time of the evacuation.

Nat. Agricultural Research Bureau Experimental Farm, Shatang near Liuchow.

This is a very extensive farm of 7000 acres, one of the two largest in China, the other being at Wugung in Shensi. It is directed by Dr Ma Bao-Chih (Paul Ma), son of a famous scholar Ma Chih-Wu, who founded Kuangsi University. Paul Ma studied agricultural science at Cambridge, has translated many important books into Chinese, and is an admirable organiser and administrator.

Strictly speaking, the station is maintained by a number of organisations, the Kuangsi Provincial Agric. Exp. Sta.; the Nat. Agric. Extension and Multiplication Station; the Kuangsi branch of the Nat. Agric. Research Bureau; the Kuangsi Provincial Reclamation Centre; the Kuangsi Provincial Agric. Extension workers School, etc.; and it includes also a

Vocational Middle School. The Station has five divisions, agricultural chemistry, forestry, horticulture, entomology and phytopathology, and crop improvement. It has a tung oil tree experimental plantation of 1000 mou, and other forests amounting to 16,000 mou. It runs a farmers' week at the New Year, has its own bank and meteorological service, and an interesting library, including many Indian publications.

Scientifically the atmosphere was exceedingly alive, and I was shown work on fertilisers and soil science, soil bacteriology (Chang Hsin-Cheng, a pupil of Waksman's), economic entomology (very good), citrus diseases, production of waxes and oils, cereal genetics, especially of rice, and sugar-cane improvement, including a model sugar refinery.

At the time of my visit, the station personnel were getting ready to evacuate, and all the records had been packed to be evacuated also. I think that all the staff and much of the equipment has probably been saved, but do not know whether the Japanese occupied the buildings, nor if so, what damage was done.

One of the interesting features of the work was the Vocational Middle School, directed by Yu Kuei-Fu, under Paul Ma. Started 4 years previously, it aims to train extension workers for remote country hsien, so as to bring to them a knowledge of modern scientific agriculture and rural technology.

The students did not live in dormitories, but in several "villages", of 25 students each, doing all their own cooking, laundry, barbering, etc. So far, only 2 students have proceeded to a university, showing that the school is fulfilling its aim of training shock-troops of scientific agriculture, not academic scientists. There is an emphasis on cooperative arrangements for poultry raising, pig-raising, etc., the students being given loans from the Farmers' Bank. Students do two hours agricultural labour a day, and the rest of the time, apart from study hours, is taken up with housework, which they allocate among themselves in turn, 84% of the students are sons of farmers. In the third year, each "village" is entitled to a servant, if it wishes; generally it does not.

This school is one of the most hopeful things I have seen in China. It was reminiscent of the Baillie Schools of the CIC in the NW (see Report on the NW), but the inspiration had been independent, as Paul Ma did not know of the Baillie-Schools until I described them to him. There are other vocational middle schools, e.g. 9 agricultural ones in Hunan and 1 in Kweichow, and 2 engineering ones in Kuangsi; but none of them set out to build up this independence of character which would stand the students in such good stead later on in the remote parts of the country.

Kuangsi Provincial Bureau of Reconstruction Research Institute, Kweilin, Kuangsi

The Kuangsi B. of R. was the only one in China said to have its own research institute. Visited by us, director Chen Shao-Hsien stated that it was almost entirely concerned with economics and planning. The quarterly publication contains many interesting articles, and there is also a large book describing what has been done in Kuangsi and what ought to be done.

(6) Miscellaneous

CIC Research Institute, Kweilin, Kuangsi

This institute, entirely devoted to economics, was formerly directed by the brilliant economist Chen Han-Sêng, now in India. It consisted of a couple of rooms in a back street, which in effect were the publishing office of the journal "Chung Kuo Kung Yeh" (Chinese Industry) in which articles by Chen Han-Sêng and other distinguished writers appeared. A set of this journal was brought away.

Chang Si-Chang was in charge at the time of my visit.

Kuangsi Provincial Arts Institute, Kweilin, Kuangsi

This institute had a modern-style, but not very well kept, building, in the city, and served as the centre for a group of famous and politically progressive writers, artists, and dramatists. I met Eoyang Yu-Chien, the director, well-known

as a theatrical producer (the building contained a theatre); Tien Han the author and playwright; and Shao Chuan-Ling, famous poet and translator of Dostoievsky. No recent information has been available about the movements of this group after the fall of Kweilin, but they are probably in Kunming.

The buildings of this and of the last-named institute will certainly have been destroyed in the disastrous fires which swept through the city a few days before the entry of the Japanese.

VI. Lectures delivered

1	Chekiang Ta,	whole student body	"Science in the War Effort of the United Nations".
2	do.	faculty club	"International post-War Scientific Cooperation".
3	Lingnan Ta,	special class	"Science and Democracy"
4	do.	faculty club	"International Scientific Cooperation in War and Peace"
5	do.	students	"Nationalism and Social Evolution"
6	Canton Theological College		"Science and Religion in East and West"
7	Tungwu Ta,	students	"Science and Democracy"
8	Lingnan Ta,	biol. students	"Embryonic Organisers"
9	Lingnan Medical School		"Biochemistry & Morphogenesis"
10	Lingnan Agric. College		"Nutrition and Agriculture in Britain in Wartime"

11	Chungshan Ta,	students	"History of Science in China and the West" (2 lects)
12	do.	biol.students	"Biochem. and Morphogenesis"
13	Chungshan Agric. College,		"Biochemistry and the War"
14	do.		"Science and Agriculture in East and West"
15	Chungshan Ta, students of biol.		"Organisers"
16	Chungshan Medical School,		"Science and Medicine in England today" (in German)
17	Hsiamên Ta, English Society		"Science, Democracy and Literature"
18	do.	student body	"Science in the War Effort of the United Nations"
19	do.	chem. & biol. students	"Biochemistry and Morphogenesis"
20	do.	faculty	"Work of the Sino-British Science Cooperation Office"
21	do.	Econ.Society	"The International Political Situation"
22	do.	chem. students	"Chemical Constitution and Biological Specificity"
23	Fukien Provincial Government Officials, in presence of the Governor, at Yungan		"Science and Technology in the United Nations War Effort"
24	Huanan College		"The Importance of Women in Science"
25	Fukien Hsieh Ho Ta, biol. students		"Work of Biologists in Wartime England"
26	do.	do.	"Development of Modern Concepts in Embryology"
27	do.	faculty	"Prospects of Science in China"

28	Fukien Hsieh Ho Ta,	students	"History of Science in China and the West"
29	do.	sermon	"The Two Faces of Christianity and the Concept of the Kingdom of God"
30	do.	faculty	"University Education in England"
31	do.	Mon. morng. memorial meeting	"International Scientific Cooperation"
32	do.	chem. students	"The Configuration and Shape of Protein Particles"
33	do.	biol. students	"The Mechanisms of Differentiation"
34	Hangchow Ta,	students	"Science in the War against the Axis"
35	Fukien Hsieh Ho Ta,		"Social Background of Science"
36	Kuangsi Ta	students	"Science in the War Effort of United Nations"
37	Kweilin Science Institute,		"History of Science in China and the West"
38	Kuangsi Ta	chem. students	"Chemical Structure and Physiological Action in the Steroid Group"
39	Kuangsi Arts Institute		"Influences of Science on English Literature"

VII. Economic, Political and Military Observations

I have relatively little to say under this head. From the scientific and technological point of view, Fukien province, always rather a law unto itself, and the furthest from the capital, showed more initiative and enterprise than I have seen

in any other place. The Acting Governor at the time of my visit characteristically arranged a lecture to the provincial government officials.

By contrast, Kuangtung province seemed to be in rather unenterprising hands. Although I paid a call upon Governor Li Han-Hun and assured him of my willingness to visit industrial installations and to give any advice and help in my power, nothing came of it.

Chiangsi province was notable for its excellent roads, friendly people, and low prices. At Rjuichin, the former communist capital, the prices were lower than atany other place I have visited in China - a good meal for four persons cost only 160 $ NC. The Generalissimo's son was in charge at Ganhsien itself, a fine prosperous and large city, with plenty of beautiful Chiangsi porcelain for sale, but we had no time to call on him and view the famous model schools and orphanages, etc. It was very unfortunate that the Japanese advance prevented our visiting Taiho, the provincial capital, with its NRC industries.

American penetration in the southeast was very noticeable everywhere, and the railway sleeping-cars were almost monopolised by US Army personnel. We called on Mr John Caldwell (of "Birds of South China" fame) at the OWI at Nanping. He was very nervous about the situation, and anxious that all missionaries should evacuate while there was still time.

I was very grateful for American help on two occasions, first, for an enjoyable day spent at Hêngyang, while waiting for the night train, at the US Air Force mess in former missionary abbey buildings; and secondly for an air passage from Kweilin to Kunming at the end of June. This was arranged by kindness of Mr Ringwalt and Mr R. Service, U.S. Consul and Vice-Consul respectively. Also on the plane were Neil Brown of OWI and Hyman Hodes of FEA, and a Dr and Mrs Weiss (Austrian refugees) who had been working at the Kuangsi Medical School (unfortunately not visited), where in view of the evacuation, there had been a sauve qui peut.

I was with Mr Whittamore and Mr Heathcote-Smith at our Consulate at Kweilin during the last days before its fall, and should like to put on record my appreciation of the very difficult position they were in. The US Consulate personnel were in a great state of excitement and anxiety about the evacuation of their missionaries, but they had not much personal worry as they were assured of seats on the US Commanding General's last plane out. They were also harassed by the inconvenient visit of Vice-President Henry Wallace. But no plane was coming for our people, and both were seriously thinking of taking to bicycles on the road to the west. Moreover, there was no direct road to the west; one had to go south to Lipu and then west, and there was every chance that Lipu would fall before Kweilin did. I felt that Mr Whittamore and

Mr Heathcote-Smith did their best in most difficult circumstances. I was also much impressed with the work of the BAAG under Col. Lindsay Ride.

The fall of Kweilin was a blow to democracy in China as well as a strategic, industrial, and air-tactical calamity. The group of artists and writers which had gathered in that city were making fine contributions to Chinese democracy in the literary field, and their activities would have been impossible in Chungking, Chengtu, Sian or Lanchow. The very free political tone of the conversation at Kuangsi University was also noticeable. The Kuangsi provincial government was, as has been seen, progressive in many ways.

Of air-raids I met with none, but alarms many. In Kukong we used to have alarms when the Japanese were raiding Nanhsiung and such places, but one which occurred when I was waiting in a train at Kukong station, and which caused some panic among the passengers dispersing into the woods, only produced 7 USA P-40's when the planes eventually came. We also had Japanese planes over Kweilin, but few or no bombs were dropped. Our train when approaching Kweilin from the east was followed for some distance by a plane which did not look like an American one, but it did not interfere with us. The small airfield at Chienow was constantly being bombed, but not on the day we were there.

Of German citizens there were several among the RC missionaries, such as Fr. Lödding at Changting. There were also six German missionaries interned in the RC mission compound at Lochang.

Lastly, a few words about Fuchow. We were deeply indebted to the Consul, Mr Tribe, and his wife, and to Vice-Consul Mr Murray Maclehose, for kind hospitality and help. It was a matter of great interest to me to view a Treaty Port, where something of the old atmosphere remained, and to gain an insight into the traditional arts and craftsmanship of China, which, owing to the distribution of wealth, has been concentrated in the coastal areas these three hundred years past. Thus we were able to spend a considerable time discussing lacquer technology in the leading lacquer factory, and to see a great deal of fine work in ivory, stone, and wood carving. We also frequented the old bookshops and made many important purchases for the Cambridge University Library.

The foreign community, living in the small foreign quarter on the south side of the river (resembling as near as could be Hampstead or Clapham Park), were of the old style - Mr Pearson of the Salt Administration, Mr Kierkegaard of the Post Office, Canon and Mrs Williams of the Cathedral, some sea Captains, etc. I was desirous of bringing back as many English books as possible from the large but rather old-fashioned Fuchow Club Library, for the Sino-British Cultural Association Library at Chungking,

but the few members in residence were so convinced that the Japanese would not come again to Fuchow that I was only able to take away two small boxes full. This conviction was sadly falsified by events, and in the autumn of the same year the beautifully equipped houses of the Pearsons and others, and the Club, were completely looted.

I also rendered what assistance I could in the problem of the evaucation of Mr Tribe, who was suffering from serious illness, but it was decided that other means would be more comfortable than our SBSCO truck.

Abbreviations used

BAAG	British Army Aid Group
BMM	British Military Mission
CIC	Chinese Industrial Cooperatives
CIM	China Inland Mission
CTS	China Travel Service
FAU	Friends' Ambulance Unit
NHA	National Health Administration
NRC	National Resources Commission
OWI	Office of War Information
SBSCO	Sino-British Science Cooperation Office

Extracts from Journal of the SE Tour

N.B. This tour had started at the beginning of April, 1944. With Huang Hsing-Tsung as scientific colleague and Kuang Wei and Ling Mei-Hsing as driver and mechanic respectively, I had worked our 1½-ton Chevrolet ex-ambulance through Kweiyang to railhead at Tushan, thence by rail via Liuchow, Kweilin and Hengyang to Kukong in Kuangtung. From there we had taken the roads through Chiangsi to Changting in Fukien, from which point the narrative starts. It must be remembered that the whole of southeast China formed at that time an enormous salient between Japanese-held territory, i.e. northeast China to the north and Indo-China to the south. The middle and latter part of that year saw the success of the Japanese offensive which pushed southwest, capturing successively Changsha, Hengyang, Kweilin and Liuchow, and linking up with the Japanese at the Indo-Chinese border through Nanning. This wave effectively sealed off southeast China from Chungking, but though it swept up to railhead causing fearful suffering among refugees, Chungking was not in real danger for more than a month - December, 1944. Foreseeing, therefore, the isolation of the southeast, our aim was to get ourselves and our vehicle back through the Hengyang bottleneck in time, and this we managed to do.

At Changting we were staying with Dr Wang Teh-Yao, Acting President of the evacuated Amoy University, a biologist with whom I had worked twenty years before at the Marine Biological Station of Roscoff in France.

Sat. May 13th At Changting. Up at 5 because there was a copy of Cajori's History of Mathematics in my bedroom, and notes to be made on the Chinese section. Later checked with Li Nien's small Chinese book on the same subject. Day very hot. Breakfast western style. Afterwards visited the laboratories and library. The latter is set up in a spacious and beautiful building, the Chiangsi huikuan (that is, the Club where the merchants from Chiangsi province coming to trade in Fukien used to stay). Met the Cavendish-trained physicist, Chou Chang-Ning. How he keeps cheerful with such a complete lack of apparatus I can't think.

At 3 a lecture to the English Society on Science, Democracy and Literature. At 6½ another lecture, to all the students on Science in the United Nations' War Effort. Feast chez Sah in the evening.

Sun. May 14th. At 7 lecture on Biochemistry and Morphogenesis, then photographed the Confucian temple. Lunch with Australian-born literary critic Arthur Li.

Mon. 15th. Breakfast chez Mrs. Hutley on the verandah of her

house with lovely views over the valley, reminiscent of Deeside or North Wales, but pagoda prominent in the distance. Here it was that E.R.Hughes, the Oxford sinologist, spent many years of his earlier life as a missionary. Then to Liao Hung-Ying's family, met her elder brother, Liao Ti-Fu, a typical old-style scholar who entertained us most charmingly. Lunch with Benjamin Chou and family; he is the most amusing of philologists. 2½ pm lecture on Chemical Constitution and Biological Specificity. Questions by very nice young man, Huang Hou-Chih, who has thought a lot about organisers. Tea with the economist Huang and his family.

Tues.16th. dep.Changting. Up before 5 and away around 7, seen off by President Wang. Took with us Ling Yung the botanist, going to Yungan., also Mrs.Ko, wife of General Ko, also a gendarme who simply couldn't be kept off but was useful afterwards.

Country wild, mountainous, apple-green and dark blue like Ireland, road very little used, narrow and winding. Over Niu Do Ling (Bullring Pass). At 9, at the foot of Sung Mo Ling, another big pass, notified of road block due to landslide, so we followed the road gang up some four miles, taking the spade from the truck, and the gendarme duly dug. Everyone took turns and before long a bus could go down and our van could come up. All around were quantities of wild Gardenia angustifolia smelling sweet, and across the valley a lovely waterfall. Washed in a mountain stream.

11 am reached Pengko and all sat down cheerfully to lunch.

Ling : Did I know Queeniewoggin ? (??) A famous British woman scientist. Solution (eventually) Dame Helen Gwynne-Vaughan.

Lunch exceptionally excellent, but I left behind my private red chopsticks.

Here the old main-road to Amoy goes off.

Drove through wild Scottish-like country, and up a very big pass called Chin Chi Ling (Goldchick Pass). Stopping halfway up to rest engines, we picked masses of wild Rhododendron mariaci, pale and medium pink with sweet smell. Here I fell in a hole up to my neck, rather surprised but no harm. At the top, among the clouds, Kuang Wei and I picked a lot of bright red Rhododendron indica, var. ignescens. Women passengers very pleased. Immediately afterwards, however, brought down to earth by our first puncture. Lost time changing tyre. But wild strawberries an inch long all around compensated somewhat.

A tiring day, the gradients so bad, the scenery quite exhausting. Eventually came out of the hills and down some river gorges to Yungan, just as night was coming on.

Wed.17th. At Yungan. Program arranged with the Provisional Provincial Government, whose capital is here. Breakfast with Prof.Ling and Mr Wang of the Transport Bureau. Then

out for visits. First to the Meteorological Station and Service - about the best in China. Then to the Provincial Geological Survey and the Fukien Academy of Sciences. Lunch with the Commissioner of Reconstruction (and very good too). Then (rapidly tiring) to the Academy's Agricultural Station, the Provincial Agricultural College (unexpectedly well equipped), the Hydroelectric Plant, the Academy's Chemical Technology laboratories, etc.

Dinner with the Governor and officials - very nice but mosquitoes very numerous. Afterwards had a discussion on history of science in China, and relevant books, with Huang Tseng-Yueh, a most remarkable and witty scholar. Interviewed by journalists while half asleep.

Thurs. 18th. dep. Yungan. Up at 6 and lectured to some 300 Provincial Government officials, with the Acting Governor in the front row. Then breakfast of fried eggs, yutiao and douchiang. Off at 9½, through thick forest country, and eventually down the Min River to Sanyuen, where at 11½ we deposited safely Mrs. Ko and her friend, with suitable mutual compliments.

This lovely but disease-ridden country seems to be taking a heavy toll of the Army. Between Yungan and Sanyuen passed many small parties of sick soldiers being driven on by NCO's, themselves hardly able to stand, to some concentration point. Bubonic plague endemic here, of course, also malaria. Many looked at the very point of death.

Passed a hospital, too, in the neighbourhood of which wounded soldiers, each clad in a kind of short grey nightgown with a spidery red cross on it, were begging in the street. But you can't organise without anything to do it with - no industrialisation, no drugs, no hospital equipment.

Mem. dresses of countryfolk in the Southeast. In South Chiangsi, the "Ming" style is still very common, i.e. a broad, usually mauve, stripe or border edging to the top of the front of the dress. In S. Fukien, women's remarkable round flat hats, with cloth hangings of white and red vertically all round the edges to keep the sun off. Pale blue tunics frequently well-ironed and pressed.

Reached Nanping ferry by 4½ and were in by 5. Called on John Caldwell ("Birds of South China") of the OWI - jumpy about the military situation. Intends to evacuate his father and mother as soon as possible. Tea with Hsing-Tsung in an overseas place with a neon light sign (!), but cakes very deadly. Then worked on cardindex with guttering candles as the electric light failed to come on.

In came Francis Merton, FAU, young Cambridge botanist, previously heard of at Luhsien, where he was made Depot Master, so they say, because of dangerous driving owing to looking at plants by the side of the road. Now he is in the National Health Administration's Anti-Epidemic (Plague Prevention) Unit here, the 4th. Spilt

the beans about the difficulties of this work, internal and external.

To bed around 8½, but an awful night. Mosquitoes exercised unbelievable ingenuity in getting into my net, and noisy parties kept on coming to bed at half-hourly intervals. About midnight gendarmes nearly hammered down the door to check my papers, but they didn't get in, and after I had shouted "Waidjiao rjeng-yuen" at them for some time, they went away. Bugs to be dealt with about 3.

The following morning, we took the river-steamer down to Fuchow, where we spent an enjoyable five days. The narrative resumes after our return.

Thurs.25th. dep.Nanping. Bkfst.at the remarkable western-style restaurant with the neon sign. Furthest penetration of cosmopolitanism. Away about 7½.

Got to Chienou about 11, and went to visit the Provincial Pinewood Root Gasoline Works - Ling I and his colleagues - a very fine show indeed, demonstrating indomitable pertinacity in the face of every obstacle. Lunched with him at the works, and visited the cracking plant. Away 4½, with samples for analysis, determination of octane number, etc., past the often-bombed airfield.

Reached Chienyang just as dusk coming on, and found a room in the little CTS hotel OK and clean. Supper with Kuang Wei.

Rainy and drizzling all day. Road surface the worst yet met with, deeply pitted, traffic quite heavy (too heavy) all running on pinewood gasoline. Just before reaching Chienyang came across a bridge with some boards quite gone and many rotted to pulp. Had to fix it before crossing.

Fri.26th. dep.Chienyang. Up at 6, and to breakfast with Dr Pollitzer, famous plague expert, staying with Fr.Devine (American Dominican, not the negro) and 2 completely browned-off US Naval personnel. Pancakes and honey with coffee ad lib. Most interesting talk with Pollitzer and his colleague Peter Teng who later joined us. The plague (bubonic) does not spread beyond the endemic area of this province because all the rice flows in from Chiangsi, not out. Hence the flea larvae eating rice debris are not carried out. Then to the North gate with Hsing-Tsung, Pollitzer, and others, and over the ferry to visit Chinan University, where interesting talk with President Ho Ping-Sung, the historian. Hospitable lunch. But students looked more poorly here than almost any other university, some barefoot or with tattered grass sandals.

Chienyang was where Chu Hsi, the great 12th.century philosopher, ("predecessor of Herbert Spencer") was exiled. Mashan, near by, was where his books were printed. Off at 12½, past a temple dedicated to Chu Hsi, of which we saw only the pailou from the road. We could not

quite catch the inscription,but it was something like :- "In the South,in Fukien,we caught a glimpse of the Universal Principle" or "In the South,in the land of Min, is the threshold of the Order of Nature". We didn't think we had time to see it,as Ho Ping-Sung said there was nothing left there now. But shall we not always regret it ?

2 pm dynamo getting troublesome,stopped and then re-started. 2½ pm over the ferry at Mashan. 3½ pm reached Shaowu. Nothing but a lonely bus-station on the main road, and the city with its walls some way across the river to the left,the whole in a wide basin of low but wild hills. Parked. HT and I across the ferry,and on entering the city, met messengers coming to meet us from Fukien United University. HT went back over the river with them,and I waited a long time in a small tea-garden beside the ferry outside the city wall conversing with wounded soldiers.

Eventually to the University campus,and welcomed to a very comfortable guestroom by President Ling Ching-Rjan. The same evening,to a meeting of the students' biol-ggical society,and talked on Biological Work in Wartime England.

Sat.May 27th. at Shaowu. 7 am (!) lecture to embryology students on Development of Modern Concepts in Embryology. Telegram from Chungking saying Mess and Offices sanctioned at seven million dollars. After lunch to N.gate to visit ~~chemistry,soils,physics,and special tao laboratories.~~ 6½ pm lecture on Molecule and Particle Shape,especially Proteins.

Sun.May 28th. Off in hot sun,after 3 days continuous rain,to see the Provincial Agricultural Survey Entomological Station and the work of brilliant Ma Chun-Chao. Much work being published, He goes after insects a lot in the very remote mountains near here,and sometimes gets among bands of communist guerillas still holding out - they treat him well, but always take any salt which he has with him. In the afternoon,saw the extensive agricultural and horticultural labs and gardens of the university, 6½ lecture on Science and Society, audience rather poor.

the biological laboratories,in an old missionary hospital; really very well equipped. Tea chez Samuel Leger,the learned author of the Fukien Dialect Dictionary,and talk to a group of American missionaries on Science in China and the work of our office. 6½ pm general lecture to about 600 students on the History of Science in China and the West. Samuel Leger is the only westerner yet met who wears a chungshan-fu,a black one (except Fritz Jensen of the Chinese Red Cross,who has a grey one and my own khaki one). An exceptionally good supper chez Miss Asher,the university secretary.

Sun.May 28th. To the university chapel - sermon on the Two Faces of Christianity and the conception of the Kingdom of God,in relation to the Confucian"Ta Tung". In the afternoon visited

the University Library - a splendid collection of classical Chinese books, including many rare ~~xxxxxxxxxx~~ sets "tsung shu" in wooden carved boxes, purchased ~~xxxxxxx~~ from local families or given by them. 3½ tea (donuts) and talk on University Education in England.

Mon. May 29th. Spoke to the weekly Memorial Meeting on International Scientific Cooperation. The usual reading of Sun Chung-Shan's will, the ceremonial bows by all the staff and students on the sunlit campus, with the red and blue flag floating overhead. Spent the morning in the library.

N.B. At 1 pm heard radio news from HT that the Japs have pushed 40 miles south of Hankow ?? Presumably ~~xxxxxxx~~ the beginning of the expected big push south to and through Changsha, cutting off our return. Wonder how far they will get. Wish we hadn't said we'd stay an extra day, but to leave in a hurry would be really too bad.

After lunch to N.gate to visit the Chemistry, Soils, and a special Tea Laboratory. Bought some tins of tea prepared by this group. 6½ pm lecture on Molecule and Particle Shape, particularly of proteins.

Tues. 30th. Off in hot sun, after three days' continuous rain, to see the Provincial Agricultural Survey Entomological Station alongside the dusty main road, and found Ma Chun-Chao doing brilliant work in great isolation. Produces, together with some enthusiastic ~~xxxxxx~~ students, a mimeographed publication "Entomologia Shaowuiana". He goes after insects a lot in the very remote mountains near here, and sometimes meets bands of communist guerillas still holding out - they treat him well, but always take any salt he has with him, for of this they have great need. In the afternoon, saw the extensive agricultural and horticultural gardens and laboratories. 6½ pm lecture on Science and Society - audience especially large and interested.

Wed. 31st. Up at dawn and packed, breakfast at 5 am. Got across river to the truck at 6½ but couldnt go because the battery had run right down, 6 hrs. charging in the physics lab. not having been enough. So a battery had to be fetched from the university. It worked, and the truck went well enough thereafter.

N.B. Heard radio news Japs now 75 miles south of Hankow.

Mem. remarkable sight, nun riding a bicycle with a white sun-helmet on top.

Took on board the Provincial Rice Commissioner.

Up lovely gorges and across the ferry at Hohsun. Reached Kuangtse, over the Chiangsi border, by 9, and dropped the Commissioner. Reached Leichuan and bought a drum of power alcohol, direct from a small alcohol factory. Though these small towns in Chiangsi province,

they are on the Fukien side of the mountains. So on over the pass,which brings us out of the endemic plague area.

Roads excellent;fit for driving much of the way at 40 mph,which you cant do even in South Chiangsi. Eventually over a long old stone bridge into Nancheng, and driving through the town,were appalled at the destruction done by the Japs when they occupied the city formerly;most houses destroyed by bombing and shellfire. Very few people left now. Quite near the existing frontline. Bought two more drums of power alcohol from a little alcohol factory across river.

Thence to Nanfeng,arr.about 5,beyond our plan for the day,but not content with that,decided to go on to Kuangchang. We soon repented of this,however, for before we'd gone 11 km.trouble developed in the feed system,and what with testing the engine and constant starting,the battery was soon absolutely down. Night came on,and nearby village people unhelpful. Also incessant rain. No candles and my torch was out of order. Fireflies in millions,but not efficient as illumination. So I hopped on a belated bus going back to Nanfeng. The people very nice,especially an engineer going to build a new airfield at Nancheng,who insisted on paying a coolie to guide me to the Tien Dju Tang (Roman Catholic Mission). However,not being very clear in the mind he took me to the CIM (China Inland Mission) instead, where I found some acquaintances,and was given a slice of pummelo (unpleasant) and one draught cold tea (highly unpleasant). So to the RC's,where found Fr Duffy and Fr Lucey (Dublin Anglo-Norman with magnificent accent),and was given supper of dry bread and tea. The Irish fathers are much more ascetic than the Americans,or perhaps everything was broken or stolen during the Jap occupation. Bed comfortable,but could not sleep much.

Thurs.June 1st. dep.Nanfeng. In the morning up at 4½ am and accompanied by Francis Merton,who was also passing through,tried everywhere to get the loan of a battery, a most difficult problem,but eventually managed it from Mr Chen Chung-Chen of the Farmers' Bank. Went out on their bus about 8,found our van,gave the spark.

Hsing-Tsung,at the van,had tried to get food from the villagers,while KW and LL decided that the fuel pump gasket was wrong. No food came,so they all fell asleep anyhow,too exhausted to open the cans of Soviet fish and other supplies. Incessant rain all night. In the morning the diaphraghm was changed as well as the gasket,but still without curing the trouble. Stopping and starting,feebly going,a most nerve-wracking morning.

At last,around noon,we had a brain-wave,to

short-circuit the faulty feed system by conveying alcohol from our drums direct to the carburettor through our long hosepipe. This worked; I sat inside manipulating one end, Lao Ling sat on the wing holding the drip over the carburettor, and KW drove, with HT in the cab. Got to Kuangchang 1½ pm, and revelled in lunch, none of us having had anything to speak of since the previous lunch. After lunch a small alcohol fire broke out, and LL slightly burnt, but the first-aid kit sufficed.

Reached Ningtu at 4½ pm. While KW bought spare parts necessary, HT and I called on the RC's but Fr Mason was absent and so we could get no radio news. But Chinese newspaper says that severe fighting going on in N.Hunan between Hankow and Changsha.

Very nice room in a CTS hotel by a pretty lake. HT and I slept well.

Fri.2nd. dep.Ningtu. While repairs to the truck proceeded, HT and I held a council of war - to go to Taiho, the seat of the provincial government, where we were supposed to visit a number of factories and laboratories - or not ? Even if Changsha holds out, there may be severe dislocation of traffic at Hengyang, preventing us getting back to the west with our truck and valuable records so far. Decided not to go.

Got to the crossroads at Yinkang at noon and lunched there. Passed Wodjipu and Yutu without stopping, and reached the outskirts of Ganhsien at 3½ pm. Bright sunny day with violent but short rainstorms.

Called on the CIC Regional Headquarters and met Li Chih-Chiao and Miss Li Chi-Chung, joint o/c's in the absence of Walter Chen, now returning from Chungking. Found them in the middle of a council of war, discussing the evacuation of the Kukong cooperatives, as it is expected that the Japanese will certainly come up from Canton to contact those coming south. Evacuation of the camphor coop. is already beginning. Evidently we are none too soon. Visited the boatbuilding and machine coops, and then across the ferry.

On reaching the CTS hotel, found the FAU truck had just arrived, it also having been delayed. Learnt from Francis Merton "from an American army man" that Hengyang has been continuously bombed for three days and nights. Query exaggerated ? Local paper says nothing except fierce fighting around Changsha.

After dinner called on the RC's, Fr Mottey (met in the Bank) and Bp.O'Shea. Discussed the situation - Hengyang apparently only bombed by night so far. Listened to the radio ourselves. Can hear American plane pilots and ground staff talking. Yesterday they bust 22 Jap locomotives at Hankow. Suddenly in came Graham Peck, the OWI artist, leaving on Central Bank bus tomorrow. Bp.O'Shea, a scholarly man, playing chess with 3 Chinese Fathers, - a very photographable sight.

On the way back to the hotel,the air raid sirens went,and all lights were extinguished. The population dispersed into the country on foot and in trucks,but we stayed put and went to bed,believing it was probably a Jap attack on the American-held Nanhsiung airfield,and fortunately we were right.

Sat.3rd. dep.Ganhsien Up at dawn and off at 5½,leaving FAU truck winding up its charcoal-burner. Before leaving,had a most delicious breakfast of yutiao,doudjiang,and buns, arranged on nicely laid table under the characteristic arcades of southern cities - never seen anything so good elsewhere - with fragrant anti-fly incense between each plate.

At 7½ reached Tayu,and turned off 9 km.to the famous Tungsten Mines at Hsihuashan. An ascent of nearly 2000 ft. took us to the mine,where we were shown round by Chief Engineer Yang. Saw the washing of wolframite from the crude quartz,and the driving of rock tunnels through the mountain The older privately-owned mines are all of the nature of quarries. By 10 we were back on the main road and by noon had reached Nanhsiung.

After lunch passed an unusual number of trucks,going in the opposite direction,mostly full of gasoline for the American airfields,but three at least seemingly full of evacuating office or factory personnel. Before Yutu we had passed several miles through an inferno of activity - millions of men and women carrying loads of stone,no doubt for a new airfield. Could it turn the scale at Changsha, we wondered ? (Actually it did not). An inspiring sight, but very tiresome to drive through.

Reached Kukong (railhead) at 3;everything apparently quite normal. Proceeded direct to the stationmaster and asked for a flatcar. Much to our surprise,yes,they would put us on one if we came back at 6. To Pettendrighs place,therefore,where I had a long talk with him and Davis.

The situation certainly serious. Japs known to be reinforced at Canton but no move from there yet. Japs pushing down in several prongs from around the Tungting lake,though being much slowed in their advance by the American airforce. Chinese have good divisions up there too. Maybe the main attack will not come at Changsha,but by the flank along the railway from North Chiangsi - this not expected for another two weeks,however. As regards road avacuation,the road from Kukong to Pingshek is definitely out,bridges down and not yet repaired. Road from Linhsien to Bapu (which cuts across the base of the Kukong-Hengyang-Kweilin triangle) said to be passable,but has long been derelict,and the bridges certainly unsafe. Best thing will be to push on by rail at any rate to Leiyang, and if the line should then be broken,by road through Hengyang. Not a day to be lost,anyway,as the siege of Changsha has definitely begun.

Got the truck on to the flatcar about 8, but the military train didn't start till 1 am. Slept quite well in the truck.

Sun.4th. By 7½ am, when we got up, the train had only reached Lochang. Progress interminably slow. An airraid alarm here, so pulled out of the station and waited in a thick drizzle. Ate some breakfast. Then very slowly up the Pingshek gorges to reack Pingshek about 1. HT and I hurried out and bought some excellent bread and other food, but owing to shunting and waiting for down trains we didn't leave till about 4. On up the pass to the head of the Kuangtung-Hunan divide mountains, enjoying a high tea of bread and marmalade in the cab of the truck.

At a mountain station on the way up, near a local coal mine which supplies the railway; regrettable recently decapitated corpse of coolie between the tracks. Rather bad that (a) far too many people are allowed to run around the yards, including children selling things (b) after such an accident the railway people leave the results lying around for hours with a crowd of people looking on and saying "ai-ya"- perhaps pour encourager les autres. Afterwards, as dusk fell and moonlight came on, smoked a cigar with HT in the front seat, with beautiful mountainous countryside in the night all round.

Mon.5th. Slept well because we took off all our clothes and got between sheets. In the night passed Chenhsien and did some quite fast travelling. Now on the way to Leiyuan. Morning overcast.

Then got stuck at a little station called Gaotingse, from 9 to 2½, partly because the troops decided they must have a thorough good meal and the rice took a long time preparing. Reached Laiyang at 7 pm. Got rather nice supper of eggs, cucumber, and bing. On after a surprisingly short stop, and so to a very small station where the engine-driver found he had no coal. So he left and was supposed to be back with a full tender by midnight, but didn't actually come till 5 am. We slept well, though, between sheets as before.

Tues.6th. Arr. Hengyang at last, about 9 am. Saw stationmaster who says he will put us across the river by the great bridge in 3 hours or so, and doesn't recommend our detraining and driving over, as another flatcar might be difficult to get on the western side.

Situation at Hengyang very calm and normal except for numerous soldiers making machine-gun posts and putting the station in a posture of defence. The Hsiang-Kuei reilway is now running three expresses daily in the Kweilin direction, which is clearing the evacuees pretty well.

Heard news of the Fall of Rome, and of Emmanuel's abdication.

Notable, throughout the day, great air activity, squadron after squadron of P40ss, and other fighters with the Chinese star on them, coming up from the airfield just

east of the station,and heading north - other squadrons returning - a marvellous sight - the planes often flying very low,with the tiger-faces prominent.

Notable,during the afternoon,two trainloads of evacuees from Changsha (or rather,freight-trains,with evacuees sitting on top). Several trainloads of rails, signals,and miscellaneous railway equipment,going across the river,to comparative safety from the Japs.

Notable,on the platforms,some very good Chinese soldiers,tough-looking,with swords,fans,and umbrellas, as well as rifles,listened to a talk by a captain with revolver and walking-stick. Very different to the starved coolie garrison-troops so often seen in the back areas. Some of both kinds had been sitting on our flatcar all the way up from Kukong. One elderly NCO lay under the truck and groaned all the way (query malaria?) but he got off at Hengyang.

Passed the day in various ways,sitting,drinking tea with HT and studying the dictionary. Examined two large (4-8-4 and 2-8-2) engines,English and German respectively,too badly damaged to be repaired;and finally about 5,when all hope seemed to be gone of crossing this day,engines came and remarshalled us and set up a train to go across.

Not off till 7 though,and then stood on the bridge approach for a long time (a lovely target). KW went off to have a wash in a big pond,and we all felt so perspiring we followed his example,I first,then Lao Ling and HT. Later sat on the now all our own flatcar in brilliant moonlight and smoked cigars,a pleasant time. Mosquitoes not bad here,as they are at both the stations.

At last went to bed about 9.

Wed. 7th. A bad night. Woke at 11½ pm (a very hot night) to find ourselves already across the great bridge and in the West Station. Consulted the stationmaster,who said the flatcar would leave about 4½ but the fast train not till 7. So we got some tea,and HT ate some djiaodze,and I found some Cantonese biscuits still with us,and we tried to sleep again but now the mosquitoes very bad as the wendze-hsiang (mosquito-incense) had gone out and it was a hell of a job relighting it. Later more shunting so we got our baggage ready and finally dropped off at 4½,just before dawn.

Light came rather suddenly and also a pretty girl with boiling hot water,probably from an engine,and a basin,in which on the platform we washed and I shaved. Then at 5½ am the train came in and we got tickets without difficulty.

Just then up came William Dickie,a BRCS doctor from Flowers' unit,evacuating from Changsha. Says the hospital there was given extremely short notice to leave;

already a week ago the Japs were within 6 miles of the city. Walked out,then boat,then boxcar. Had to leave most of the equipment behind,and the doctors lost all personal possessions. Flowers staying at Hengyang for the present, but the hospital will reopen perhaps at Tushan,perhaps at Kunming.

Talk with the stationmaster. News slightly better, Japs pushed back somewhat on one sector,and air superiority definitely ours,though American pilots now utterly exhausted. News of the Second Front,invasion on five points of the coast of Northern France,in the Chinese papers today,but Dickie says he couldn't confirm it on the European radio last night. Also rumous of a Soviet brush with Japan and the transfer of three divisions of Japs from Changsha northwards accordingly.

At Lengshuitang enter another BRCS doctor and two nurses. Second Front confirmed.

A very tiring journey,but there were some nice people in nearby seats,such as Ma Wei-Hsin a railway engineer,and Sun Bao-Yun,a merchant just newly escaped from Shanghai.

At one point a plane,the markings of which we couldn't make out,flew alongside the train for some time over the misty hills,but sheered off without incident. Waited outside Kweilin a long time on account of an air-raid warning. Eventually pulled in about 1 am,and after various minor unpleasantnesses got ourselves deposited at the Consulate in Davis'truck. Disturbed poor Whittamore from his sleep,and later had mosquito trouble, but eventually slept deeply after a washing off the week's grime.

Two days later Changsha fell,the great bridge at Hengyang was blown up,and Hengyang itself was lost after a week or two. With the subsequent fall of Kweilin,Liuchow and Tushan,and the link-up with Jap forces from Indo-China at Nanning,the whole of the south-east,including the provinces of Kuangsi, Kuangtung,Chiangsi and Fukien,was cut off from Chungking. By that time,however,the Japanese were not in a position to consolidate themselves,and their stranglehold was broken by a Chinese-American offensive in the spring of 1945 before the atomic energy bombs of August ended 14 years of Japanese aggression.