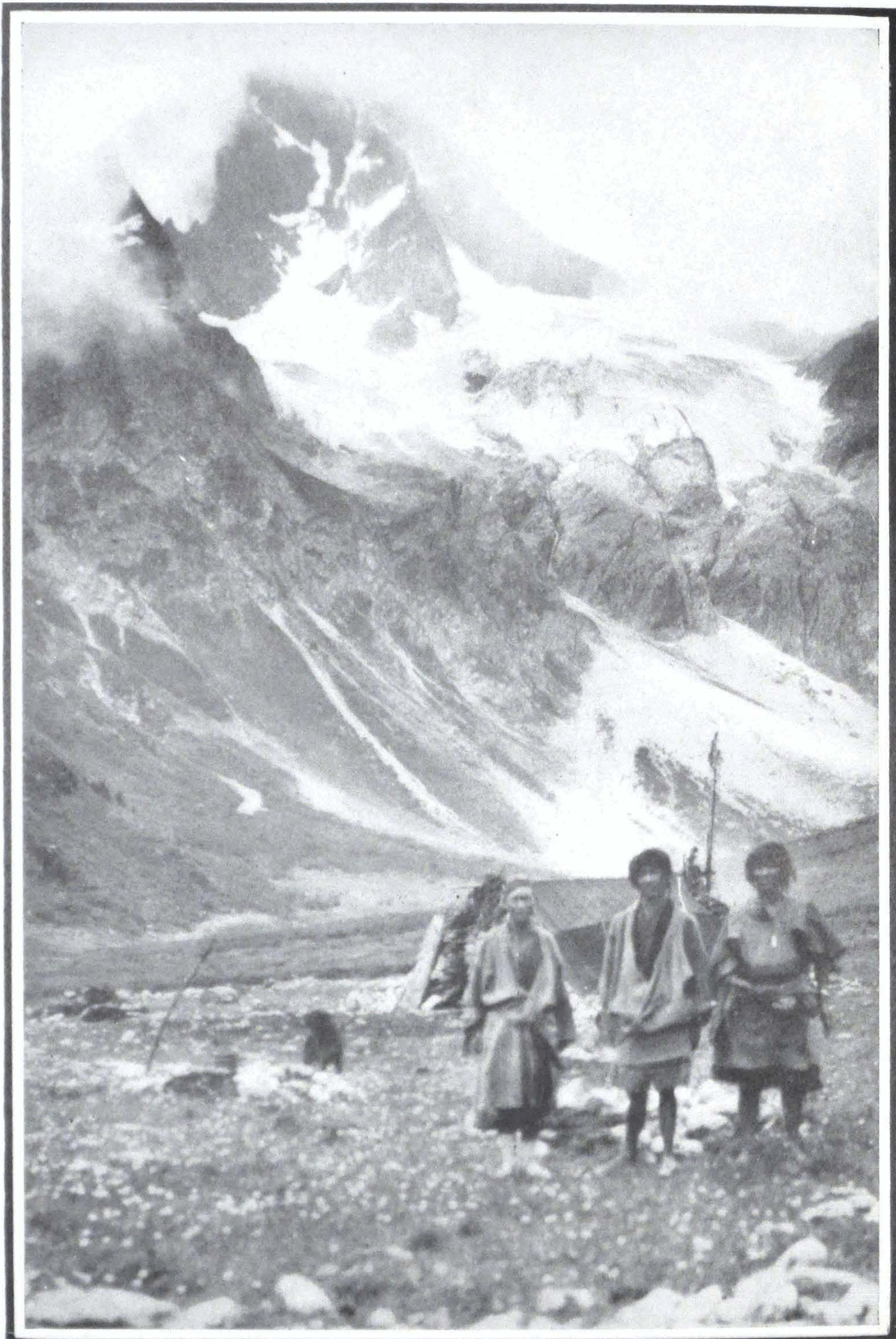

Plate I]

IN THE WHITE HORSE MOUNTAINS

Tibetan herdsmen in an alpine pasture, which is dominated by a crevassed glacier.

TO THE ALPS
OF
CHINESE TIBET

AN ACCOUNT OF A JOURNEY OF EXPLORATION UP TO AND AMONG THE SNOW-CLAD MOUNTAINS OF THE TIBETAN FRONTIER

BY

J. W. GREGORY, D.Sc., F.R.S.

PROFESSOR OF GEOLOGY IN THE UNIVERSITY OF GLASGOW

Author of "The Great Rift Valley," "The Rift Valleys & Geology of East Africa," "Geology of To-day," &c., &c., &c.

AND

C. J. GREGORY, B.Sc.

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PREFACE

THE journey described in this book had been long contemplated by one of us in order to compare the physical history of parts of East Africa with that of south-eastern Asia. Famine on one occasion, and war on another, rendered projected visits impossible. The delay had, however, the advantage that when the opportunity at length came the journey was not made alone.

The book has been written by us in about equal parts, but in order that it may read as a continuous joint narrative we have both referred to the senior author as the "Chief" and to the junior as the "Assistant."

The spelling of Chinese place names is especially difficult. We have followed the practice of the Royal Geographical Society—namely, to adopt the spelling used by the Chinese Post Office for places which have post offices. We have omitted the accented "ü," however, and retained hyphens. As examples we may cite "Yun-lung-chow" and "Sia-kwan" (Hsia-kuan). Under this system "ch" is frequently replaced by "k," and "u" by "w."

The great majority of the villages have no post office, and for them we have used Wade's System, but omitting the dialectic signs. Although without them the exact

pronunciation cannot be given, such complexities as "T'êng-yüeh-t'ing" are perplexing and unattractive. The omission of the accents is a step nearer to the Postal System. Its spellings are often not consistent, for the main requirement of the Post Office is to distinguish different localities, even by some arbitrary difference in spelling. Names of localities, with alternative spellings where strikingly different, are given in the index.

For administrative purposes, Chinese towns are divided into five classes, and in all but the lowest class a syllable is added to the name of the town to indicate its rank. Usually in speech, and often in writing, these suffixes are omitted. In decreasing order of importance they are *fu*, *ting*, *chow* or *chou*, and *hsien*. If not warned, the reader might think that "Ta-li-fu" and "Ta-li," or "Teng-yueh-ting" and "Teng-yueh," were different places.

Our journey was greatly helped by a grant from the Sladen Trust, and it was therefore one of the expeditions in memory of Percy Sladen. We are much indebted to many authorities both at home and in China. In addition to those mentioned on page 30, we should like to express thanks to Mr O. R. Coales, the British Consul at Teng-yueh, Mr J. H. W. Houston, Imperial Customs Commissioner at Teng-yueh, Mr W. N. Fergusson and the Rev. A. B. Cooke of Ta-li-fu, the Rev. Peter Klaver and his colleagues at the Pentecostal Mission at Li-kiang-fu, and the Rev. A. G. Lewer of the same mission at Wei-si-ting. We are also indebted

to Mr H. F. Lang and Mr R. H. Crozier for preliminary arrangements at Rangoon, and to Messrs Patrick Henderson & Co. for taking out our equipment free of charge to Rangoon; also to Mr R. Sinclair, the General Manager of the Irrawaddi Flotilla Co., who with great kindness saved what would have been a disastrous delay in the arrival of our equipment at Bhamo. We are indebted to Mr G. Peronne for the photograph of Ka-kar-po in winter and to the Royal Geographical Society for permission to reprint Fig. 1 and the Map. We are also much obliged to Dr Annandale and Mr R. F. Kemp of the Indian Museum, Calcutta, for their constant help, and for supplying us with the spirit and some of the collecting cases, and also for working out part of the zoological collections. The rest of the zoological and botanical collections are being investigated by the Natural History Museum, South Kensington: it is unnecessary to add that from its staff we have received all possible assistance and encouragement.

J. W. Gregory.
C. J. Gregory.

Glasgow, *June* 1923.

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TO THE ALPS OF CHINESE TIBET

CHAPTER I

THE PROBLEMS OF SOUTH-WESTERN CHINA

Seek knowledge, even if it be found in China.
MAHOMET.

SOUTH-EASTERN Asia is a land of alluring geographical enigmas. Their interpretation depends primarily on the explanation of its mountain structure. Mountain chains have been aptly described as the backbones of the continents. The backbone of Europe consists of the mountain chains of the Alps and their offshoots, which are grouped together as the Alpine System. The backbone of Asia includes the mountains of the Caucasus, of North Persia, and of the Himalaya, and their intermediate chains and offshoots; they together form the Himalayan System. The Alpine and Himalayan Systems were upraised at the same period in the earth's history and by the same cause; they are due to a band of the earth's crust having been buckled into folds by pressure from the side, just as a tablecloth may be wrinkled into folds if pushed across a table. The Alpine and Himalayan Systems extend across Europe and Asia, and they trend for most of their

course east and west; they are both subject to interruptions and irregularities where they met rigid areas that successfully resisted folding. If the tablecloth has been rendered rigid in places by patches of dried paste or gum, when it is pushed sideways the stiffened parts remain flat and the folds pass on curved lines round them.

Many parts of the earth's crust have been stiffened by compression due to mountain formation long before the upheaval of the Alps and Himalaya. The great period of mountain-building that preceded their formation gave rise in Europe to a system of mountains of which isolated fragments form the hills of Central Germany, Brittany and parts of England. From its best-known German representative, the Harz Mountains, this mountain system is known as the Hercynian. It was upraised in the period succeeding the deposition of the chief European coal seams.

Asia was disturbed by mountain formation at the same time. The Asiatic Mountains then formed have been grouped together by the late Eduard Suess, of Vienna, under the somewhat inappropriate title of the Altaids.[1] One member of this mountain group extended from south-eastern Tibet into Malaysia. It consisted of parallel chains, the remnants of which still form the backbone of Farther India and the Malay Peninsula. It was therefore happily named by von Richthofen the Indo-Malayan Mountains; as it dated from the same time as the Hercynian Mountains of Europe, it is immeasurably older than the mountains of the

Alpine-Himalayan Systems, which are, geologically speaking, modern. The continuity of the Alpine-Himalayan Systems has been proved from western Spain to eastern India. In Assam the Himalayan folds abutted against a block of the earth's crust stiffened by the foundations of the Indo-Malayan Mountains. According to a widely accepted view, the Himalayan movements made no impression on this mass, and the folds were bent back by its resistance in a hair-pin bend round Assam, and then passed southward through western Burma as the Burma Arc; they resumed their eastward course as the Malay Arc of mountains along the southern border of the Eastern Archipelago.

According to an alternative explanation, the mountains of western Burma and of the southern border of the Eastern Archipelago are not the continuation of the main Himalayan line, but are a southern offshoot hanging as a loop from the main line. Archibald Little,[2] impressed by the lofty, snow-clad chain of mountains east of Ba-tang, which he called the Ta-hsueh-shan, or Great Snow Mountains, represented them as the north-eastern prolongation of the Himalaya into China. The late Prince Kropotkin[3] adopted the same view, and regarded the Himalayan line as continued north-eastward across Central China and prolonged by the Great Kinghan Mountains across north-eastern China and Manchuria, and carried on through the Stanovoi Mountains of eastern Siberia past the Sea of Okhotsk to Kamchatka. According to these authorities, massive

though be the stolid foundations of the Indo-Malayan Mountains, the force that upheaved the Himalaya was sufficiently powerful to overcome their resistance, and thus the main line of the Himalaya passed eastward into western China.

The southern extension from Assam into Burma and Sumatra of a line of earth-folding simultaneous with the uplift of the Himalaya explains the geographical differences between south-eastern and south-western Asia. These differences are obvious on casual inspection of a map of Asia, for they present one of the most striking contrasts in the map of the world. To the west of the mountains of western Burma the geographical units are large and simple; the coastlines are even; the lands consist of ancient plateaux; the islands are few and usually, like Ceylon, regular in outline. East of that line, on the other hand, the interlocking of land and water is exceptionally intricate; the lands are varied in structure; the coasts are deeply indented; the islands are numerous and many of them are irregular in form, Celebes and Halmahera consisting of radiating sinuous arm-like peninsulas. This contrast depends on the difference in the structure of the region outside the Himalayan belt from that of the area within that belt, which has been broken up by the sinking of blocks and bands of the crust.

The question whether the mountains of the Burma and Malay Arcs represent the main chains of the Himalaya or a southern offshoot is essential to the

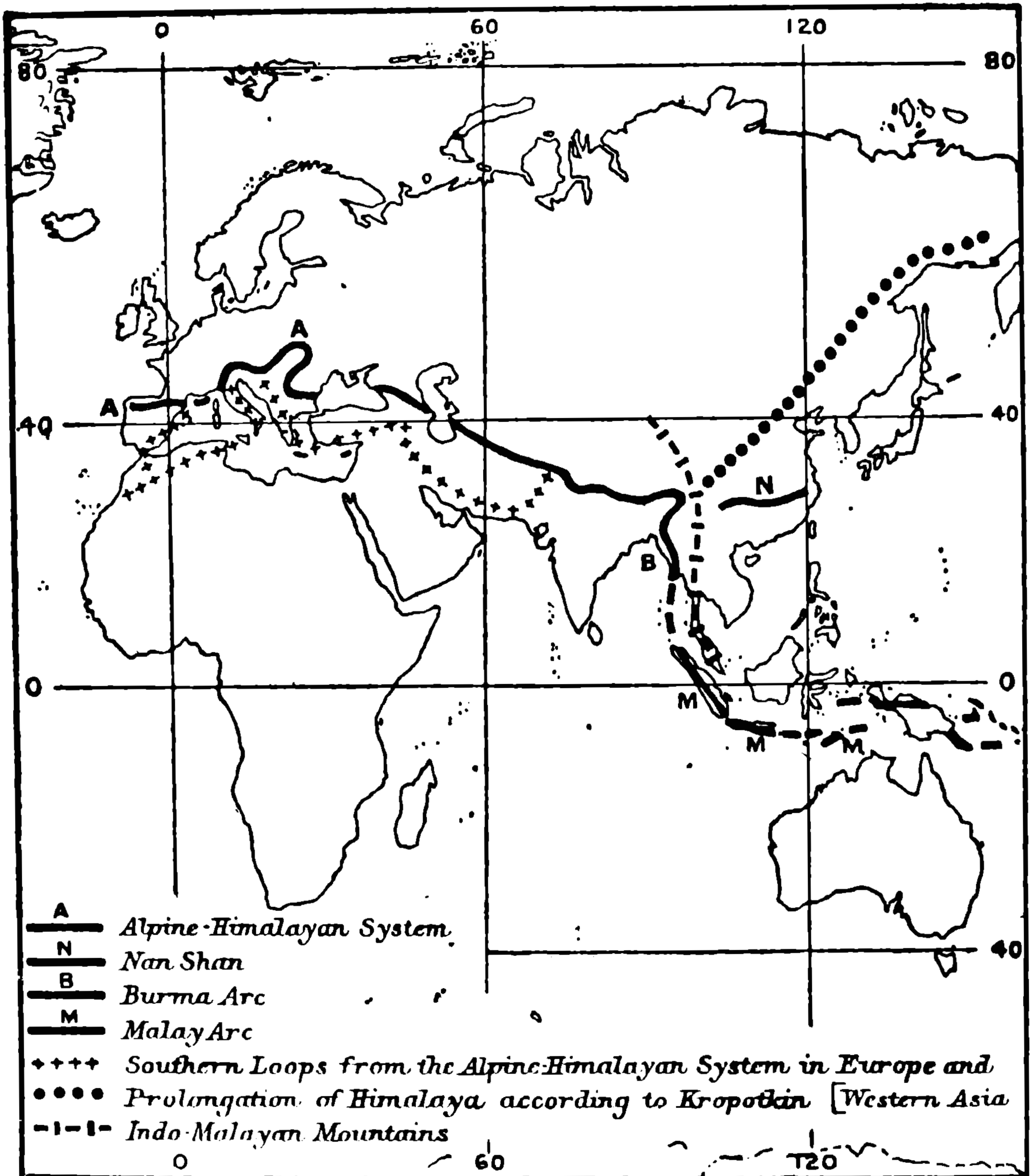


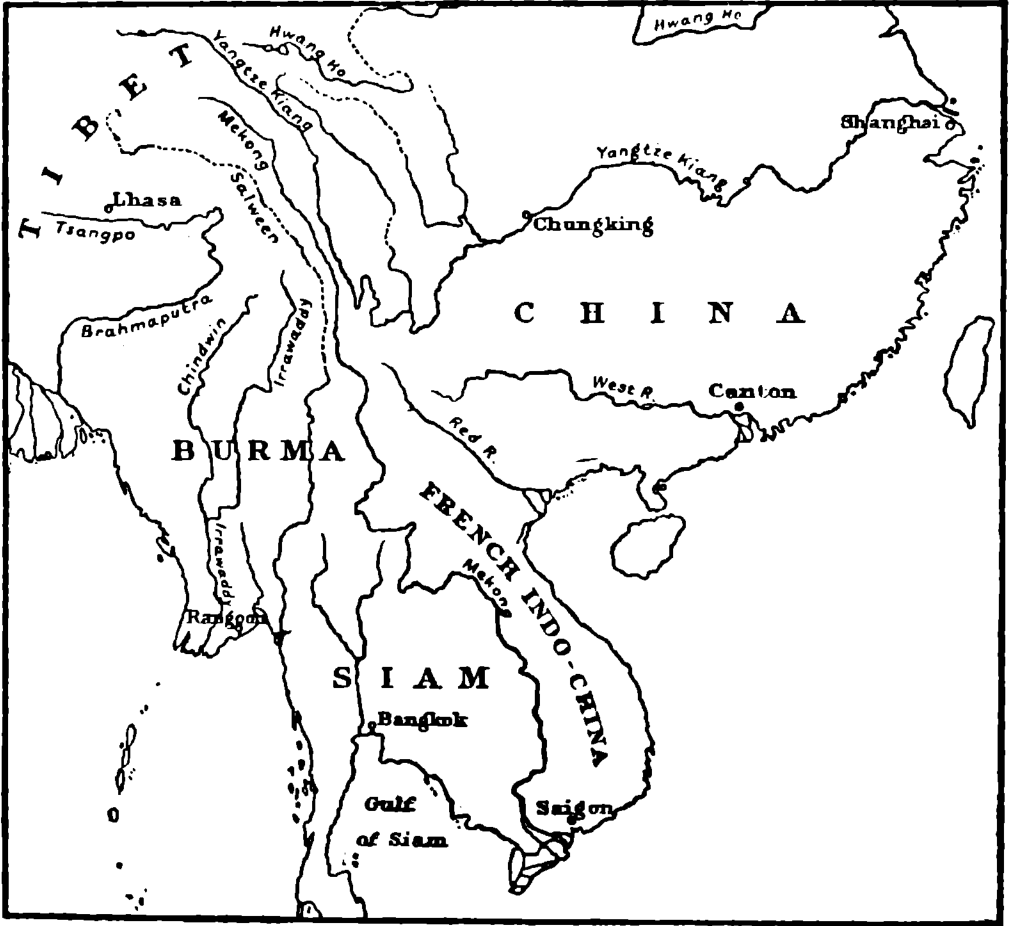
FIG. I.—THE ALPINE-HIMALAYAN SYSTEMS AND THEIR HYPOTHETICAL EASTERN CONTINUATIONS

(From the *Geographical Journal*, vol. lxi., p. 155.)

interpretation of the mountain plan of south-eastern Asia. It is also essential to the explanation of the strange courses of the rivers that drain south-eastern Tibet.

Three of the world's great rivers, the Salween, Mekong and Yangtze, rise in northern Tibet and converge as they flow southward, as if they were going to unite; but instead of joining they flow in adjacent parallel valleys across the high platform of Chinese Tibet for 170 miles; for 130 miles they are in a band fifty miles wide; then they suddenly diverge. The Yangtze by an abrupt bend at Shih-ku leaves its long straight course from Tibet and, after an extraordinarily zigzag course in the western mountains, flows in broad curves across southern China to the Pacific. The Salween, the westernmost of the three rivers, by a series of jerks to the west, reaches the Bay of Bengal. The distance between the mouths of the Yangtze and Salween, which in Chinese Tibet are only forty-two miles apart, is over 2000 miles, measured in a straight line.

This arrangement of rivers is unique. Yule compared the approach and divergence of these rivers to a fasces of thunderbolts in the hand of Jove. Sir Sydney Burrard and Sir H. Hayden in their *Geography and Geology of the Himalaya* (1908, p. 127) say that "The parallelism and proximity of the Yangtze, the Mekong and the Salween in their exits from Tibet are amongst the most extraordinary features of the Earth's land surface." "Cette région tibétaine," says M. Bacot,[4]



THE RIVERS OF S.E. ASIA

FIG. 2.

"des grands fleuves est unique; quatre gorges parallèles, démesurées, absolument pareilles. Il n'est rien, je crois, de si géométrique ailleurs dans le monde."

Other enigmas in south-eastern Asia depend on the former extension and relations of the mountains of the Himalayan System. South-western China is an area of special interest in connection with the history of its animals and plants. It is near the meeting ground of the fauna of the northern lands of the Old World (*i.e.* of the Palæarctic zoological region) and of the Oriental region of south-eastern Asia. A mixture of the animals and plants of these two regions is therefore natural. It has, however, been long well known that the plants of southern China resemble those of the warmer districts of the United States. This resemblance is rather to that of the south-eastern states of America, and not of the Rocky Mountains, where the arid plateaux naturally have a different flora from that of the moist, warm lowlands in the Mississippi basin and along the Atlantic borders. This striking resemblance of the flora of the southern lowlands of North America and of China was pointed out by Asa Gray and has been confirmed by many later botanists. The evidence has been summarized in Professor C. S. Sargent's Introduction to E. H. Wilson's *A Naturalist in Western China* (1913).

The passage of these plants between Asia and tropical America is possible by three routes: they may have spread around the northern margin of the Pacific

Ocean across a former land connection at Bering Straits; or they may have used a former extension of the Antarctic continent which may have united Australia and South America; or they may have crossed by lands that once existed in the tropical Pacific.

As these plants are absent from the southern lands in both hemispheres, the Antarctic route affords no explanation of their range. The alternative is between migration through the Arctic land connection of Asia and America, or passage by some mid-Pacific lands.

One apparently strong argument against the mid-Pacific route is the great difference between the mammals and birds of south-eastern Asia and of tropical America; it may be said that if there had been any land-bridge across the Pacific the mammals and birds would certainly have used it as well as the plants. This argument would be fatal to any such land connection during the existence of modern mammals and birds. But they have had a relatively short residence on earth. They have come into being since the great earth movements which upraised the Alpine-Himalayan Systems. If those earth movements had extended beyond the Eastern Archipelago into the Pacific, and had upraised a land belt which was broken shortly afterwards, that land would not have been available for the migration of mammals and birds of modern kinds. It could only have been used for passage between Asia and America of land animals of older types.

Some members of families which date back to the

geological period of the Alpine-Himalayan movements exist on the opposite coasts of the tropical Pacific. One of the most striking cases is the alligator, which is characteristic of tropical America; it occurs elsewhere only in China, in the Yangtze Kiang. This, says Boulenger, is consistent with much other evidence.

Some of the smaller land lizards of China are strikingly like those of the southern parts of the United States.

The snakes known as the Amblycephalidæ range through most of South America and Central America; they live also in southern China, the Malay Peninsula, and some of the islands of the Eastern Archipelago. That they crossed between the Old World and the New by the Bering Strait route is rendered improbable by their absence from North America and from northern and north-eastern Asia; that their migration was through the tropics is indicated by their occurrence far out from the Eastern Archipelago into the Equatorial Pacific.

A group of butterflies, known as the Morphidæ, has essentially the same range; its members live in southern Central America, south-eastern Asia, the Eastern Archipelago, and the islands of the tropical Pacific, in which they extend half-way from New Guinea to South America. They are absent from North America and north-eastern Asia.

The moths, the Castnidæ, also inhabit south-eastern Asia, and Central and South America, but they occur also in north-eastern Australia, eastern Africa, and

Madagascar, which is evidence of a wide range through the southern lands, and makes their absence in north-eastern Asia and North America the more significant.

A family of land shells, the Bulimulidæ, ranges through south-eastern Asia, Australasia, the Pacific islands and tropical America. The snails belonging to the family Helicinidæ have essentially the same distribution. Pilsbry, a leading authority on the land shells, has insisted that their distribution in the Pacific can only be explained by the islands being the remnants of an ancient Pacific continent.

Some of the numerous cases of identity between the inhabitants of tropical America and Asia may be explained by their ancestors having crossed by the route around the northern Pacific; but the close affinity of some of the reptiles and other animals in China and tropical America would be more naturally explained by their being survivals from a time when they ranged east and west across a series of mid-Pacific lands or chains of islands. For if they have lived for a long period in their present homes, under steady climatic conditions, they may have existed for a long period unchanged. Whereas, if the Chinese and tropical American forms had migrated to their present habitats from the Bering Straits, they would be expected to show marked differences that had developed during their long and adventurous migration.

There is accordingly biological evidence that finds its easiest explanation by the former existence of extensive lands in the mid-Pacific; and this conclusion

is in harmony with much geological and geographical evidence.

Darwin's famous theory of coral islands, which seems to be now generally accepted, regards each Pacific atoll as a garland of coral marking where one of the mountains of a former Pacific continent has sunk beneath the sea; and the long ridge which supports the Sandwich Islands may represent the remnant of a parallel submerged land or at least part of the sea-floor that was upraised at the time of the Himalayan uplift. If the coral island ridge in the South Pacific is an eastern extension of the mountain lines of the Eastern Archipelago, and the ridge below the Sandwich Isles in the North Pacific is an extension of the main fold-belt of the Alpine-Himalayan Systems, then these ridges, as well as the east to west trending mountain lines of Central America, the West Indies and Venezuela, may all be due to the buckling of one zone by the pressure of the northern cap of the world against the tropical or sub-tropical belt.

The problems of south-western China are therefore intimately connected with the former history of the Pacific; and they are still more intimately associated with that of the Indian Ocean. One of us had his interest first roused in the geology of south-eastern Asia in connection with the relations of the Indian Ocean to the structure of Africa. In 1892-1893 a study of the Rift Valley System of East Africa led him to the conclusion that these valleys, their long fiord-like lakes and the associated widespread volcanic eruptions,

were caused by the breaking up of a land that once connected East Africa, India and Australia. The subsidence of this land, block by block, below the sea caused the volcanic eruptions on its borders, and ruptured the land along north and south lines. The fractures and volcanoes of East Africa therefore result from the foundering of the floor of the western basin of the Indian Ocean. This conclusion raised the question whether similar events had happened at the same time on the eastern side of the Indian Ocean.

The information from south-western China and Farther India available in 1896 showed that those countries were fundamentally different in structure from eastern Equatorial Africa, and revealed no geographical features corresponding to the Rift Valley System of East Africa. But in recent years the work of Loczy, Coggin Brown of the Indian Geological Survey, and the French Surveys in French Indo-China have thrown much light on the highlands on the eastern rim of the Indian Ocean. These geologists have shown that south-western China has been rent by great fractures trending north and south, and their observations suggested clues as to where the most instructive evidence could be sought.

As a corollary, therefore, to work in East Africa, and in the hope of throwing further light on the history of the Indian Ocean, one of us was anxious to visit the Asiatic area whose structure might be expected to yield critical evidence on the enigmas of south-eastern Asia. Opportunity for this journey came in

1922. The Far Eastern Department of the Foreign Office, the Foreign Department of the India Office, Sir J. Jordan, then British Ambassador in Peking, and Mr Lewisohn, the Chief Secretary to the Government of Burma, secured the necessary permits, on the understanding that we were not to enter autonomous Tibet and would not do any elaborate topographical surveying. We accepted the limitation to our survey work with regret, but readily agreed not to enter "autonomous Tibet," because the area which promised most profit in the time available to us was the part of Chinese Tibet in line with the eastern prolongation of the Himalaya. The Percy Sladen Trust gave us a grant which paid about half the cost. Sir Charles Sherrington, President of the Royal Society, and Dr Hardy, its Biological Secretary, Sir Francis Younghusband, then President of the Royal Geographical Society, and Mr Hinks, its Secretary, Colonel Ryder, Director of the Survey of India, Mr V. K. Ting, a distinguished graduate of Glasgow University and then the head of the Geological Survey of China, and many others did their best to smooth our way in answer to our request:

> Wish me, I pray,
> On the remotest mountain of Cathay.

NOTES

[1] Cf. *Geogr. Journal*, vol. xlv., p. 503.
[2] *The Far East*, 1905, pp. 207-208.
[3] *Geogr. Journal*, 1904, vol. xxiii., p. 333 and pl.
[4] *Le Tibet Révolté*, 1912, p. 166.

CHAPTER II

THROUGH THE BACK DOOR TO CHINA

Five months' journey, a thousand miles—away to Yun-nan.
We heard it said that in Yun-nan there flows the Lu River.[1]
As the flowers fall from the pepper-trees, poisonous vapours rise.
Po Chu-i (A.D. 772-846). *Tr. by* A. Waley.

BURMA is a fascinating country. If no mention is here made of its ubiquitous pagodas, the tropical sunshine and "them spicy garlic smells," the brilliant colours and happy faces, the reason is not that these things passed unnoticed, but that they have been often described and appreciated. Much as we should have enjoyed a longer stay in Burma, we needed every day for work in Yunnan, and haste was imperative. Shortly after landing at Rangoon we reached Bhamo, on the Upper Irawadi, which was as far on our route as rail or steamer could take us. Thanks to the preparations kindly made by the District Commissioner, Mr H. P. Hewitt, and the assistance of Miss Kohn, mules were awaiting us, and we started our march next day.

We had just time to see two of the public buildings. It would have been a slight to the Chinese Empire not to have visited the Chinese temple, and the other sight was one that it would be hard to avoid. Beside the road to China is a stretch of water, and on the

other side stands a solid mass of white masonry in the shape of a bell. According to tradition, this Bell Pagoda was built on the site of a temple raised in the third century B.C. by Asoka, the first Buddhist king of India. Probably there has been a shrine here from the earliest times, for it would be natural to offer a prayer at the start of the long journey. The route has probably been in use from at least the seventh century B.C. for carrying silk, which is still one of the chief exports from China along this road.

On the afternoon of the 8th May 1922 we set forth into the wilderness. The muleteers at last finished the anxious job of tying on the loads, and we mounted our gharry and made our quiet exit. A motor road goes out for the first seventeen miles, and we made a short stage of nine miles to shake things into order. The old cab nearly shook us out of order, but it never once capsized, and the experience pointed out the advantages of walking, of which we had plenty before us. Besides three Chinese muleteers, we had two Madrassi servants whom we had brought up from Rangoon, and one of them could cook.

The road at once enters forest of teak and other great trees, with clumps of bamboo and abundant creepers. Now and then we could catch a glimpse of the line of hills in front—the abrupt western face of the old cut-up plateau which stretches back into China. After the months of preparation, there lay the beginning of our field work. To-morrow the geological hammers would be in action, and we should

have the first taste of what was to be our life for the next four months.

Next day we soon reached the end of the metalled road and worked uphill along a bridle-path. It was the hottest time of the year, just before the rains; the earth was parched and the air hot and dry. One of the muleteers had fever, and when the Chinamen urged us to stay for the night at Khalikat, after covering only twelve miles, we allowed ourselves to be persuaded. Here was one of the three Government rest-houses between Bhamo and the frontier, which can be used by travellers on payment of a small sum. They are thatched bungalows simply furnished with comfortable chairs and beds, and a table.

Next day we were urged to keep within sound of the caravan as one locality we passed was said to be haunted by tigers. Near as these hills are to a British post, they are not always peaceful. The wild Kachins who for long gave trouble have been reduced to order, but the frontier is difficult to administer, and there are still occasional disorders. A descendant of Thindon, a former king of Upper Burma, who lives on the Chinese side of the line, foments trouble, and only a few weeks before we passed, a band of his supporters a hundred strong had invaded Burma some distance south of the main road. They had been met by troops from Bhamo and Maymyo and practically annihilated. We saw no signs of wild men or beasts, however.

The earth track followed the valley of the Taping

River, through jungle composed chiefly of bamboo. The foliage was feathery and graceful, and often so nearly joined overhead that the path became an arcade. The hills were wooded to the top, except where a fire had left a blackened scar with a few charred stumps, for every now and then strips of forest are cleared by burning. In the stream-flats were tiny areas of rice-fields, with an occasional shelter rising on piles in the middle. Of people we saw but few, even at the sleepy hamlets. The only other travellers were Chinamen in charge of caravans, of which we met several, sometimes numbering hundreds of animals. Small pack-mules were common, but bullocks, also with pack-saddles, were much in use. After we had left the metalled road we did not see a wheeled vehicle, even the wheelbarrow so largely used in eastern China, until our return to Bhamo.

After the first two days we had little need to spur on the muleteers, for they pressed forward to Teng-yueh as fast as they could. The man with fever had to ride at times, but he grew better as we reached higher ground. On the third day we covered twenty-three miles, and at sundown we were still some way from the next rest-house. Wild banana plants were common and some of the fruit was ripe. We tasted it, but a couple of mouthfuls was enough. Besides being full of black pips of the size of small peas, the fruit left a rough feeling in the mouth for long after. The boys were horrified to hear that we had been eating "jungly bananas," as they declared they were poisonous

and would make us ill. Although the fruit was disappointing, no bad consequences followed.

The moon was full, but overhanging trees frequently made the path so dark that it was hard to see our way along the rough, but fortunately broad, track. We all closed up, for, as further geology was impossible, there was no object in separating, and the boys were careful not to lose themselves. When the caravan crossed an open space the long line of mules could be seen in front, or from time to time a shaft of moonlight would catch the great straw hat of a muleteer and it would flash like silver. No one spoke, and the only noise was the faint tramp of hoofs, the creak, creak of the harness, and the jingle of the bells of the two leading mules. The path now ran above the river, which was itself invisible, but the wooded hills on the other side rose clear above the mist in the valley bottom.

At last we turned into a broad grassy space, to learn that the rest-house had been burnt down and that only a tiny temporary shanty was available. Little is to be bought in the frontier hills, and to our disgust we had to use the tinned foods of which we had brought only a small supply from Rangoon to meet emergencies, or for work in the higher and barren mountains. No one could grumble at a breakfast of bully, hard biscuit, jam and tea, if there is enough of it, but caution and hunger struggled against one another and effected a compromise.

Next day the early morning was as beautiful as ever,

with the coolness which would only last for so short a time. From across the valley monkeys yodelled to one another, with a sound which is not unlike the cry of the muleteer to his beast and is unlike anything else human. The frontier was now close at hand and we longed to cross it. The path was fairly level, but it gained its flatness by making enormous loops up side valleys, running round three-quarters of a circle. The only important village on this day's march was protected by a bamboo palisade with a gate where the road entered. Water was led to some of the houses by aqueducts of halved bamboos supported on poles. The huts were all of bamboo. The framework is formed of the stronger poles, the walls of interwoven split strips, the roof of thatch or of more split strips, while the floor is either beaten earth, or raised a little off the ground and of the same construction as the walls. It is said that such raised floors can be cleaned by the inmates jumping on them, for the dirt then falls through the crevices, but we never saw this custom in practice.

At midday we reached the stream which forms the frontier between the two most populous countries in the world. There were no formalities at this gateway between India and China; no customs officials ransacked our loads, asked whether the spirit in the fish-tanks was potable, or scrutinized our passports, as is done in all more advanced countries. A hundred yards across the frontier stood a tiny hut in which dwelt the Chinese frontier guard. We rested at it

for lunch, and snoozed uneasily afterwards on the hard log tables which were the only flat places in the shade, but they were so narrow that one was in constant danger of rolling off and falling the whole twenty inches on to the ground.

The afternoon march was quite a disappointment, for where were the lakes and temples, the pig-tails and slit-eyed Cathayans, the playful kylins and the sober dragons, which one had the right to expect? The only token to show that we were truly in the land of our dreams was that the mile-posts, which were now of stone, not painted iron, had the distance chiselled on them in Chinese as well as Arabic numerals.

Again it was moonlight before we ended our journey. The caravan was ahead, and as the ground was hard and the light bad it was difficult to be sure of the path. Eventually we entered the village of Man-hsien, which is built down either side of a long street. This was indeed China. In the houses one could see groups of men sitting intent on gambling, but nearly everything was shut and the road deserted. We found one man and addressed a question to him, but he was drinking too intently to take any notice. We made a second attempt with some gamblers, but they seemed to think it unreasonable to apply for information after office hours, and in no very high spirits we went on. A hundred yards farther down the street we passed a half-closed gateway, and from the darkness under the arch a man hailed us. It was one of our muleteers, and we gladly turned into the courtyard of the little

rest-house. One is provided at each stage for the use of the customs officials stationed at Teng-yueh, but there is no furniture, and no doubt the men would have preferred an inn.

Early next day, just before we set out, an extraordinary sound came from next door. It was the village school beginning its day's work, and each child was learning its lesson at the top of its voice. The noise in the actual room would have driven a British schoolmaster crazy in a week.

As we left the village we met a long procession. Market is held every fifth day, and the peasants were coming in with their produce, live and dead. Most of the women wore the tall top-heavy turban of blue cloth which is distinctive of the Shan race, and gives them an appearance of fine stature though they are really small. Live sucking-pigs were carried in cylindrical wicker baskets of just the right size, one at each end of a pole balanced on the shoulder. Among other produce were cucumbers and bananas. The cook appeared fond of cucumbers. He was certainly welcome to eat some of the supply which he bought for us, as they were cheap enough, but it was a mistake to try to subsist wholly on them, for by the end of the day he was complaining of a " sore foot."

The road now led over a long plain some miles broad bounded on either side by a tame and straight line of hills, a great change from the frontier forest. Scattered thickly over the plain were villages nestling in groves of bamboo. The houses looked more solid

than the ones of the day before, and some were substantially built in Chinese fashion. Over some doorways were Chinese inscriptions. Plastered on any large surface of whitened mud wall were a number of dark cakes over a foot in diameter by an inch or two thick. They consisted of dung stuck up to dry before being used as fuel, a practice which is widespread in India also.

The whole of the plain was used for growing rice, or paddy as it is called until the grain is extracted from its husk. From now onward any flat valley-bottom was used for the purpose, unless a piece was occupied by a house. (For an example which we saw farther on, see Plate V.) The plant begins to grow under water, and great skill is shown in flooding the land. The ground is divided into little fields separated by mud banks. On sloping ground each field is a couple of feet above the next, and by making the fields small and shaping them to follow the contours the area under paddy can be extended far up the sides of a valley, provided that water can be led to the top fields.

The ground was now only ugly bare mud under a layer of water, but on our return we found fields vividly green with tall rice plants. The peasants were busy repairing their dykes. They use a large hoe, which is swung into the mud at the foot of a bank. A lump of clay is pulled up and dropped on to the top of the bank, which is heightened by a couple of inches all along; any breach is repaired at the same time, and

the field is enlarged by making the sides again vertical.

Nowhere else did we see such complexity of irrigation. Water from the higher fields found its way into those below, but while generally it overflowed the bank and fell into the next field, here it was often conducted in little channels to some distant place. One such stream would cross another in an aqueduct made of a half bamboo, or they would join and separate again farther on. A natural brook coming down from the hills would be welcomed, and canals would deprive it of as much water as was required, while any surplus might be returned to the brook lower down. When water had to cross the road, many systems were available. If the quantity was large, mules were allowed to ford, while foot passengers were provided with a bridge, generally consisting of only two or three bamboo poles side by side. If there was but a trickle of water, it might be led in a split bamboo, either let into the ground, so that one stepped over it, or else carried on supports overhead. The neatest method of all was a culvert made by burying one or more bamboos with the partitions removed and using them as drain-pipes. On the flat ground the fields were larger and more regular than on these slopes.

The grain is sown in a few small fields where the young crop can be carefully tended and protected. We saw several such nurseries of young plants, often with a few strings stretched across to scare off birds, just as English gardeners use threads to protect their

flower borders. Generally some attempt at a fence surrounded these patches of green—the most vivid and beautiful "grass-green" imaginable.

Many and happy were the living things in these plains. Flocks of crows contrasted with the snow-white egret. From time to time a duck would be seen confined in the water under a bottomless wicker cage, which allowed the bird to paddle about in a circle while the owner could detach his mind. In the villages were swarms of pigs, some so big that it seemed that all they could do was to lie on their sides and present a disgusting exhibition of vegetating. Their snouts suggested kinship to the wild boar, but, malevolent though they looked, they were allowed to run everywhere.

The most striking animal was the water-buffalo. He is a huge lumbering brute with a broad snout, and horns which are so long and straight that when he raises and turns his head one of the horns lies along his back. He moves slowly, swaying from side to side. In India the water-buffaloes may be unfriendly to Europeans, and it was at first alarming when on a path a couple of yards wide, with water on either side, to be met by a dozen of these animals. But the Chinese buffalo shares his master's philosophy about the barbarian, that he is too far beneath contempt to be worth taking seriously, and at the last moment the herd would string out into single file on one side of the track, or bump down the slope into a flooded field, and let us by. Their minders were the tiniest boys to be

found (Plate IV.A), who often looked as if they had only just learnt to walk, but they would run round their charge and turn it in the required direction with a shrill cry or a touch with a switch. When the animal had to be guided, as for ploughing, a thong was made fast to the end of the snout and led aft—nothing more.

Ploughing was now in progress, and it did not look a scientific process. It was done under water, with a buffalo as tractor. The ploughshare was often merely a vertical wooden post which was dragged through the soft mud, causing a swirl of dirty fluid which completely hid the result. Once the water was shallow enough to show that a furrow is actually made.

Some of the hedges consisted of prickly pear, a form of cactus, and a succulent spurge. They would have been worse to cross than a wall with broken glass on the top, but in most of them gaps were frequent. On the hills bounding the valley the woods were now few, but at the hamlets were fig-trees, whose buttress roots rose above the ground in little walls which radiated from the trunk. Each tree shaded a large area, but the fruit was small and proved to be of no value.

When we entered the town of Lung-chang-kai we found a great crowd in the street, and our Indian servants emerged from it to ask us to "speak to Chinaman." The local official fortunately spoke some Burmese, which the boys could interpret. He first asked for our passports, but when told that they were

with the caravan he waved permission for us to go on without showing them. He next asked our names, to which the boys replied: "Gree Gor Ee An Son." There was a shout of laughter, while the official alone restrained his mirth. We too were amused, though wounded in our feelings. The production of a visiting-card printed in Chinese made a favourable impression, though the official had to ask the aid of his two assistants in deciphering it. As there was no more competent business on the agenda, the meeting was adjourned *sine die.*

That night the junior was writing sleepily when a voice at his elbow said: "Good-evening." He must have been tired, for he was not in the slightest surprised when he looked up to see a white man, and all he managed to say was that it was a beautiful evening. The visitor was a prospector who had spent many years in these parts. We had a second caller that evening, a Chinaman who came in at the yard gate leading his riding-mule. The Chief instinctively doffed his topee, whereupon the new-comer untied the ribbons beneath his chin which secured the great straw hat, slipped it off, and lifted the close-fitting cap underneath. He proved to be connected with the firm for whom our muleteers worked.

Next day at lunch we were a merry crowd. Besides our own loads there were seventy-four pack-saddles of another caravan arranged in long rows and dressed as neatly as a regiment which is about to be inspected. We rested in a ring of bamboos and all the muleteers

forgathered. They obviously talked a lot about us, and laughed every now and then when we did something specially mad, like eating with knives and forks or talking to one another. After lunch they came over and examined a geological hammer and a pair of field-glasses with great interest.

We reached the town of Ka-nai on the second night after Man-hsien, and next day we left the long plain to enter the gorge at its head. On our return the gorge looked a puny affair, but now it towered above us. It led to a second long basin which was not so flat as the last one, and contained areas of true loess as well as loose sand. After only a day on the flat the road struck upward to turf-clad downs over which it ran as far as Teng-yueh. On the way up let us pause for one peep at the view. It is early morning, and the mist still blots out the distant valley. The path is here running through a wilderness of boulders, some of great size, and between and among and under them are growing brambles, rambler roses and ferns. A pointed hill partly covered with fir-woods is seen in snatches between the flecks of driving mist. It is a picture which a Chinese artist would adore.

At the top of the climb the valley of Teng-yueh came into sight. All around were dome-shaped hills, once volcanoes, and on the top of the one which hid the town from us was a pagoda, "The Luck of Teng-yueh." The building of the temple on that particular spot was supposed to guard the town from misfortune. We passed round the foot of this hill, and by the

graveyard on the other side. Each grave is an oblong masonry building with an ornamental front, consisting chiefly of an arch over a stone panel with a pillar at each side; and except for the arch the general effect is much like that of a Greek necropolis. We were soon comfortably lodged in the house of the Chief Commissioner of Customs, and the first stage of our journey was at an end.

NOTE

[1] The Chinese name for the Salween.

CHAPTER III

AN INLAND PORT

Green, green,—the grass of the Eastern Suburb;
And amid the grass, a road that leads to the hills.
Resting in peace among the white clouds.

Po Chu-i (A.D. 772-846). *Tr. by* A. Waley.

TENG-YUEH is the treaty port on the Bhamo road into western China. The term "port" suggests a harbour and shipping and ancient mariners; but the small river at Teng-yueh leaps near the town over a picturesque waterfall and is useless for navigation. The city is a port in diplomatic language, as it was opened by treaty to foreign traders, and as most of the towns thus privileged were the ports along the eastern coast, the name treaty port has been applied to them all. Teng-yueh, as the nearest important Chinese city to the Burmese frontier, from which it is ninety miles distant, is the chief centre of the administration of north-western Yunnan. It is the seat of the leading magistrate and of the Imperial Maritime Customs House, through which a hundred thousand mule-loads pass each year. It is also the residence of the British Consul, who at the time of our visit was the well-known Tibetan traveller, Mr O. R. Coales. It is an important industrial and commercial centre,

owing to the mines of iron, copper and lead to the north, the fertile rice-fields, and the rich volcanic soils on the hill-sides which support prolific orchards and gardens. It is an ancient Shan town and is still often known by its Shan name of Momien. It was occupied by the Chinese about four hundred and fifty years ago, whereon the Governor of Yung-chang rebuilt it as a square town enclosed by well-built battlemented walls twenty-five feet high and each five furlongs long.

The Imperial Commissioner, Mr Houston, proved a most instructive, helpful and generous host; he and his assistants did everything possible to help us. Mr Coales had by correspondence given us much information and had already secured for us a sympathetic reception from the Chinese officials. An interview with the Magistrate, or Taoyun, was arranged for the morning after our arrival, and as Mr Coales was unfortunately too ill to go, he sent his clerk as interpreter and ally. There was some delay in the arrival of a chair, and to avoid being late the Chief suggested that he should walk, but the Consulate clerk insisted that it was better to arrive late in a chair than to be punctual on foot. The chair coolies did their best to make up time by rushing through the town, scattering the population in the narrow, crowded streets. It was a relief when the chair passed between two stone dragons into the courtyard of the Magistrate's yamen, and stopped in front of a screen decorated with a gorgeous dragon. After a slight delay the screen was folded back and the chair was carried through a gateway

into a courtyard where the Magistrate was waiting. He led the way to his reception-room and guided the Chief to a seat on his left, the place of honour in a Chinese interview. Official etiquette in China is elaborate and rigid, and had to be carefully observed. Since the revolution all titles have been abolished, so it would no longer have been correct to address the Magistrate as Tharin or Your Excellency. He was now plain Mr Lu Pang Shun. Cups of tea were brought and placed beside each of the company, but they were taboo for a time. The clerk explained the objects of our visit and our desire for permission to visit A-tun-tze. The Magistrate replied that the A-tun-tze district was then overrun with robbers and unsafe; but after some conversation he agreed to let us go to Li-kiang, on the borders of Chinese Tibet, where we could learn from the officials what routes were open. He promised to secure us mules for our journey to Li-kiang and instruct all the officials on the way to help and protect us.

After the formal business we had a short conversation on the state of China, and when it seemed that our petty affairs should occupy no more of the great man's time, the Chief raised his cup, the Magistrate did the same, they drank the tea together, and thereby brought the interview to an end. The Magistrate led the way to the pavement outside his room, where the Chief by many bows indicated that he should come no farther; but he, with even more bows, declined the suggestion, and came through the courtyard to

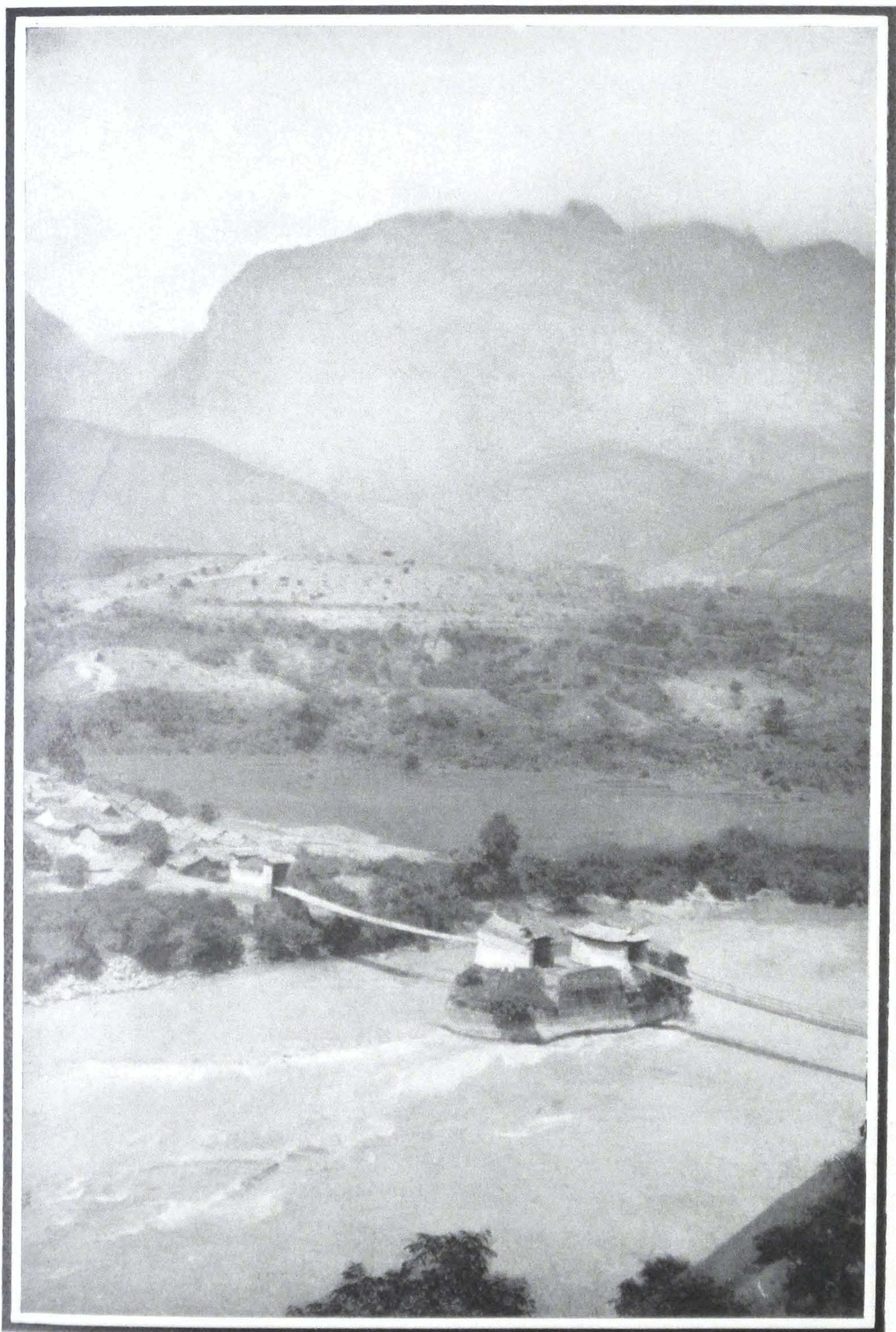


Plate II]

THE WESTERN WALL OF THE SALWEEN VALLEY

The main road from Burma crosses the bridge, which is supported by iron chains underneath the roadway.

the next door. There the mutual bowing was repeated, and the Magistrate, being in a particularly gracious mood, insisted on crossing the next courtyard to the chair.

The main difficulty at Teng-yueh was the engagement of staff; our Indian servants could go no farther and it was necessary to secure Chinese. The Consul had found us an interpreter, but the man declared he could not walk and must ride the whole way. He was well dressed and sleek, and looked the type of man who would hinder instead of help us to enter rough and difficult country. Mr A. Jex, who was building a new Consulate at Teng-yueh, found us a man, Tien Chuan Koa, who had been to A-tun-tze, Ba-tang and Scotland. He was then working as a road contractor, and was used to managing men. He looked quick-witted and intelligent, and being small and wiry might be expected to withstand fatigue and discomfort. But on our provisional agreement to take him the cook and servants who had been engaged refused to go. Mr Houston refuted their charges against Tien and we agreed to take him if he could obtain servants. To secure harmony in camp it seemed better to let him find out friends of his own. His attempt, however, was quite fruitless. Mr Houston rescued us from this dilemma by offering us his second cook, whose place he promised to keep open till our return. The cook soon secured us an excellent coolie. Tien failed to get a tent-boy, but said he could do that work himself, so we engaged him as interpreter and head man.

The next difficulty was with money. We had hoped to send the necessary amount to Li-kiang by draft from Teng-yueh, but the banker there said that his agents in Li-kiang could not possibly raise so large a sum in specie. All the authorities at Teng-yueh agreed that it was impossible for us to take as much silver as was necessary by cross-country routes, and that if we had to take it with us we must travel with a strong escort and by the main road through Ta-li. We were anxious to avoid that route, as most of it was geologically known, and we wished to cross country that was geologically, and in part geographically, unknown. At length a firm of silk merchants, who had a large office at Sia-kwan, the commercial centre near Ta-li-fu, agreed to dispatch the money to the mission at Li-kiang, sending it if necessary from Sia-kwan under escort. They accepted a cheque on the Rangoon bank, provided the bank were informed that the cheque had been given; and they seemed to place more reliance on the promised letter than on the cheque left with them. We had meanwhile arranged terms with the muleteers sent to us by the Magistrate, who also provided us with an escort. We engaged a chair, and three coolies to carry it, in case any of us were ill on the way; and we bought the goods necessary to complete our equipment. Mr Houston generously insisted on increasing our supply of tinned provisions by a present from his own store. Thus fully equipped, at two o'clock on 19th May we marched out of the courtyard of the Commissioner's beautiful

establishment, and accompanied for a short distance by Mr Coales and Mr Houston started along the causeway across the Teng-yueh rice-fields.

As we strung out in crossing the plain, we made an imposing show. Tien and the cook had each a riding-mule, and we had the chair. The baggage was loaded on twelve mules, with three men to look after them. But the most impressive members of the party were the escort, which consisted of four soldiers and two policemen, each spick and span, with a well-oiled magazine rifle, an umbrella and a fan.

On the farther edge of the plain we stopped to look at the rocks, and while we were doing so a Chinaman came up and began smiling and talking and fussily examining the rocks. As we moved off we solemnly presented him with a chip to encourage his interest in geology, and his gratitude was ecstatic. He bowed, and laughed, and hugged the chip. He proved to be a merchant whose wife had died some years before, and he had been insane ever since.

The rest of the day's march was uphill, and on the way we found the first gentian and edelweiss, both of which we saw so often hereafter. The summit was a broad stretch of treeless turf with some patches of rocks and brambles, and from it we had our first long view to some of the ridges we were to cross in the next two or three days. What contrasts in scenery were met with in this distance ! Next day we crossed the River Shweli and found the valley very different from the Teng-yueh basin. The sides of the valley were

moderately steep, while the floor sloped gently to the river, which flowed in a sinuous course, often in a trench. The next range was densely wooded on the upper part, and except for a little hollow on the top, in which a few houses nestled, the ground fell steeply on either side. To the west the drainage was to the Shweli and so to the Irawadi. To the east lay the Salween, here close to this edge of its drainage basin. Its valley was a mighty trough (Plate II.), the western wall rising 6000 feet above the river. The floor seemed flat by contrast with the mountain range on either side, and on it were several rounded hills. The vegetation was scantier than on the hills to the west and it was formed largely of low scrub, with some pepper-trees. The bottom of the valley was made of red earth, and the abundant dust from it caught the throat and tickled the nose. As the altitude of the river was only 2200 feet, the heat was intense, and the sun beating on the earth made the air feel like the blast from a furnace.

Besides being very malarious, the valley is regarded by the Chinese with superstitious dread, especially during the wet season. On our return during the rains we were told of the risks taken by those who cross it, and we heard of one danger which was new to us. At times a smell comes off the ground something like gunpowder, and he who smells it dies. We were also told a more familiar version, that sometimes a red mist hangs in the valley, and to inhale it banishes sleep for ever, so that death soon comes to the victim.

A village stands on the river, inhabited by Shans,

who do not appear to be affected by the evilness of the place. It was market-day, and the goods for sale included sugar-cane, apricots, ducks, pigs, salt, opium pipe heads and percussion caps. When we passed through again in August the scene was different, for the village was nearly deserted.

The river is crossed by a two-span suspension bridge (Plate III.B). The roadway is a number of planks supported on a series of great iron chains, with another at each side to serve as a hand-rail. The central pier is strongly built of masonry and, as the second span is offset from the first, travellers must pass along the pier after crossing one half of the bridge in order to gain the second half. The longer span crosses the main river, while the shorter one passes over a channel which was now dry, but when we returned the river stretched from bank to bank (Plate II.), and the pier stood in the middle as a steep-sided island bearing the full brunt of the river's assault.

The men seemed in no hurry whatever to start the climb up the eastern side of the valley, and they rested in the reputed death-trap until the sun had begun to lose its strength. While working up the narrow gully which the path follows we fell behind the caravan, and when we reached the village near the top of the climb where we were to stay for the night the light was fading. We were just entering the village when we heard a series of sharp reports. We thought of taking to the ditch, but being somewhat tired we continued to walk up the road, and as we were unarmed

a military action would hardly have been our best line. Was the village in the hands of robbers, were we to be bound and dragged before the ruffianly captain, while the rout scattered open our boxes, stole our notebooks and tried on our spare socks? Not so. A marriage was being celebrated in the usual way by firing rockets.

Perhaps it was partly due to the merry-making that our start was delayed next morning. When the mules were driven back from being watered one was missing. The head muleteer was not hopeful of recovering it quickly, but as the village headman was responsible for all articles lost in his village he was summoned, and after a surprisingly short wait his men recovered the animal.

After a further short ascent we reached the open basin in which Pu-piao stands, and after passing through the market of Fang-ma-chang (Plate III.A) we rested at the temple of Kuain-n-sze. The entrance portico sheltered between two huge figures, whose ferocious faces and upraised weapons were expected to frighten away evil demons, a temporary tea-shop. The temple extends up the hill-side in a series of courtyards and chapels. In a portico beside the first courtyard is an image of a venerable philosopher, no doubt Confucius, with an incense-burner before him. Behind the portico is the Buddhist chapel, bare except for an altar and image of Buddha and a simple image on each side. Behind this building is a square courtyard bounded on either side by rooms

for the temple keepers. An incense-burner on a large octagonal column stands in the centre of the courtyard, which is defended by a statue of a stern-faced warrior. A final flight of stairs leads through another portico to the Taoist chapel; in it are a gilded statue of Buddha on the altar which is supported by an image on either side, an incense-burner, and a tom-tom; on each side wall is a row of nine statues, in various attitudes and with expressions serious and comic. In one of them the chest and abdomen had been cut open to show that the man's heart was good; he was indeed so hospitable that two snakes were found living inside him. According to Huc and Gabet, the operation was being performed in Mongolia on a religious fanatic during their journey about eighty years ago; according to our interpreter, it is still practised in China as well as in Tibet. The decorative inscriptions in the inner temple Tien told us were expressions of gratitude to pious benefactors.

The chapel had fallen into neglect since the revolution of 1911. It is mainly used as a rest-house, and when we passed it on our return journey in the rainy season, when mule traffic on the road had ceased, the tea-shop had gone and the temple was absolutely deserted.

We were growing used to tea-houses and their charges. Wherever we went, the cost of a pinch of tea-leaves, unlimited hot water, and attendance was the same—ten cash, or less than a farthing. Two small bowls and a saucer are supplied. The tea-leaves are

placed in the larger bowl, which is then filled with hot water. The saucer, which is a little smaller than the top of the bowl, is inverted over it to keep back the leaves, and the tea is poured off into the smaller bowl, out of which it is drunk. The larger bowl is smaller than a breakfast-cup, and all the crockery is thin and made with no handles. It takes some practice to decant the tea with one hand without burning oneself.

The Assistant took a somewhat apathetic interest in the temple, for he had acquired a foot of sugar-cane from which he was industriously engaged in extracting the sugar, an operation which was new to him. It was just as well that he never came across another piece, for although chewing the fibre may sharpen the teeth, it is an occupation in itself and it does not encourage more serious work.

We had looked forward to reaching Pu-piao, for it was one of the few spots we were likely to visit where any fossils had been discovered, but we could find none worthy of the fame of the place, and as our quarters were especially uncomfortable we left with no pleasant memories of the village. However, on our return journey things went much better, for we found the fossils, made a satisfactory haul, and had a good room in the inn.

The last milestone was far behind and all distances were now measured in "li." A li is one-third of a mile, and it is given by Count Szechenyi as 0·5565 kilometres. The mere change of unit did not matter, but we soon found that a li not only measures distance,

A WAYSIDE TEASHOP

The men in the centre are coolies refreshing themselves at a tea-stall. Some of their loads are seen on the right.

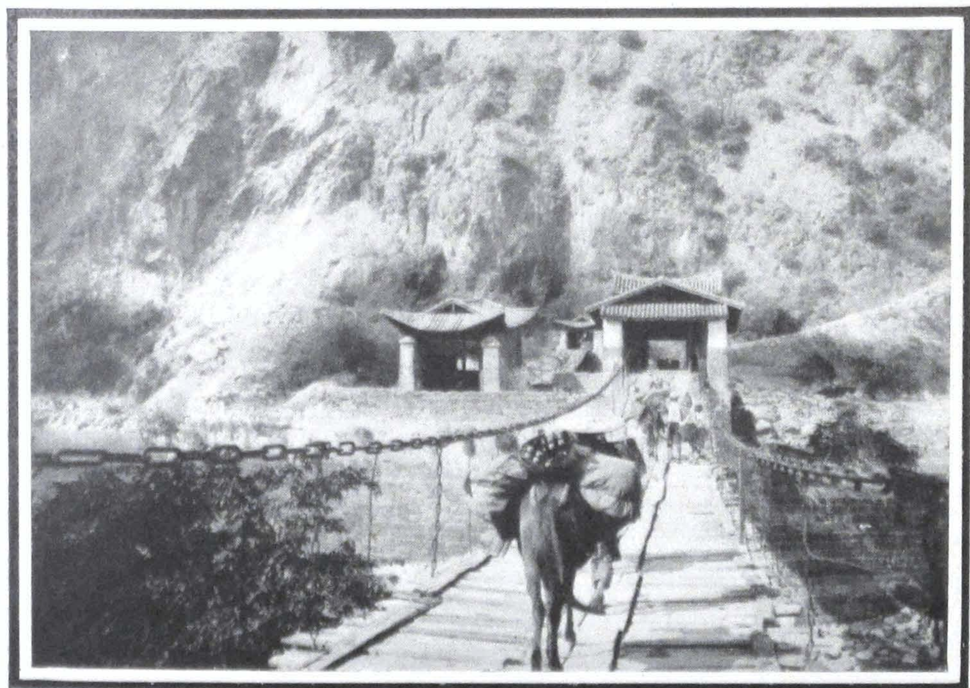


Plate III]

THE SALWEEN BRIDGE

With the caravan crossing. The central pier bears two separate bridgeheads, for the second span is offset. The further span is seen between the two bridgeheads. The road on the further bank is on the right.

but also energy expended. If we go steeply uphill from A to B, the distance is, say, forty li, but walking from B to A the same distance may be only twenty li. Ordinary mules should be able to cover ten li in an hour, but the amount is generally less. The only reliable definition is that a li is from one-sixth to half a mile, according to the gradient, the state of the road, the weather, and the traveller's physical condition. Sixty li means a comfortable march, eighty li a long march, and a hundred li a very hard day's work. The system of measuring has its advantages, but its drawbacks are many. To make it worse, a shorter li is in use in some districts.

The last march of the stage led us out of the Pu-piao plain over a line of hills. During the ascent we could see the western wall of the Salween valley, which still looked imposing. On the other side we passed down into undulating country with brown plough-land among little fir-clad hills. Now the Yung-chang plain came into sight and some way along the plain we could see the city itself, with its wall and the tall pagoda on the hill behind it. For the last couple of miles the road ran straight towards the town along the broad plain. A great deal of the irrigation water was supplied from a reservoir which was impounded behind an earthern bank some six hundred yards long. The discharge is by a tunnel through the bottom of the retaining wall, and the water is distributed between nine channels which radiate like a fan and run out of sight across the plain. The lake was now a

pleasant sight, but on our return the sluices were fully open and it was an ugly mud-hole.

We passed through many hamlets with clumps of trees, and among innumerable rice-fields (Plate IV.A). In the distance we could see more hamlets, more trees and more rice-fields. The fields were here unplanted and deep under water. In one of them a water-buffalo was drawing a plough through three feet of water, and the man behind was up to his waist. Eventually we reached the long southern suburbs and then the town itself.

CHAPTER IV

ON THE TRACK OF MARCO POLO & ACROSS THE MEKONG RIVER

The walls are high, and the shores are steep,
And the stream is strong, and the water deep.
SOUTHEY.

THE city of Yung-chang-fu covers an area of about a square mile, and is enclosed by well-preserved battlemented walls, which extend westward up the lower slopes of the hills so as to protect the suburban villas of the wealthier citizens. The western hills are still in places clad in forest, and they rise in a steep straight front, formed when the Yung-chang basin was made by the sinking of its floor. The original undulations of the area beneath the plain have been buried by drift washed from the hills. The floor of the Yung-chang basin is now a fertile plain about a hundred square miles in area; it extends from the red sandstone plateau on the west and north-west to the rugged volcanic hills which on the east separate it from the deep canyon of the Mekong.

We felt here that we were actually in China, and not, as at Teng-yueh, at a garrison town whence a few foreign officials governed an alien country. Yung-chang and its neighbourhood is typically Chinese.

The roads are straight, well drained and lined by avenues of willows; and they are often so well paved that we regretted the absence of bicycles. We were accommodated at a large well-kept inn with several clean courtyards; our room was well lighted and airy, and in the morning the money due was collected by a business-like young woman about ten years old. The roads near the city are adorned by the ornamental portals, or *pailo*, so familiar in Chinese landscapes. They have been often called triumphal arches, though they have nothing to do with triumphs and are not arches. They are usually erected as a memorial to some respected citizen, and often to honourable widows who have not remarried, but have devoted their widowhood to the care of their estates and their dependants.

Outside the city wall is an artificial lake stocked with goldfish, and with its banks ablaze with nasturtium. On an islet stands a gay summer-house, and on the hill-side above rises a lofty pagoda, which, though doubtless built from religious motives, would also have been useful as a watch-tower. Cemeteries are numerous, and the graves are mostly of the ordinary Chinese pattern; some, however, are enclosed in a circular vertical wall, and this old pattern has lasted much later in the Yung-chang district than elsewhere, as it is used for some new graves along the by-roads.

The city has a rich and an active market, and being a great mule centre, one of its main industries is the manufacture of mule shoes, which are wrought from iron smelted in the neighbouring hills. The salt

mart is especially important; mule caravans bring in large cakes of salt from the mining districts several days' march to the north and east.

The gates in the outer wall of the city are protected by elaborate outworks, which must have been impregnable, if resolutely held, when arrows were the only military missiles. The long vertical loopholes show that the fortifications were built in the bow-and-arrow period.

The Magistrate of the city was away, so we sent cards to his office with the request for a new escort. The six men who had come with us from Teng-yueh were to return from Yung-chang, and we were told that, as the route on to Yun-lung was safe, three men would be ample. The soldiers of the new escort were unusually smart and trim; their grey uniforms were tidy, their puttees were neatly rolled, and each had a well-kept rifle and the inevitable umbrella. During the evening our room was suddenly invaded by some soldiers under two Chinese officers. Our interpreter was away, so explanation was impossible; but we were told later that this was part of the ordinary daily routine, as the military police visit each inn every evening to inspect the visitors and to see that the household arrangements are in order. As on our return to Yung-chang the inspection was not repeated, we became sceptical of this explanation. The two officers were most polite; they stayed only a couple of minutes, and withdrew, after renewed salutes, without learning much about ourselves or our projects.

After arrival at the inn the muleteers told us that three of the mules were ill and that we must halt for a day to allow a local doctor to cure them and prepare the others for the high country we were about to enter. We therefore spent the next day collecting outside the town. We obtained a couple of fresh-water crabs and some shells and frogs; but, as it was the end of the dry season, the plain was parched and bare, so that our search yielded less than we expected.

We were not sorry for the halt, as Yung-chang is a city of especial historic interest. It is the Vochan of Marco Polo, and was probably the south-westernmost city in China reached by the great Venetian traveller. According to his account, the Shan agriculturists must have been then, the thirteenth century, in full occupation of the Yung-chang plain, while the hills to the west were held by wild "naughty" people, who were probably Tibetan tribes then still untamed. That Marco Polo visited the locality himself is indicated by his graphic account of the great battle of Yung-chang in 1287 or thereabout. A Burmese host of 60,000 horse and foot, supported by 2000 elephants, each converted into a military tank by a fortified structure with a crew of from sixteen to eighteen men, were routed by 15,000 Tartars, who were compelled to fight on foot as their horses would not approach the elephants. The Tartar victory was so complete that it led to the overthrow of the old Burmese kingdom. Marco Polo probably did not himself go farther west, for he describes the country in that direction as "wild

and hard of access, full of great woods and mountains which it is impossible to pass; the air in summer is so impure and bad that any foreigners attempting it would die for certain." He arrived at Yung-chang from the north and returned to the north-east, and after our day's halt we continued our journey along the track by which Marco Polo had come.

The road for the first few miles from Yung-chang was level, and in such excellent condition that it was a pleasure to go quickly across it. We stopped occasionally to examine the memorial portals, and to watch the women harvesting the wheat by picking the ripe ears by hand. In a few fields the men were transplanting the young rice plants, for with the end of the wheat harvest the most laborious stage in the cultivation of the rice crop was beginning.

This length of road, the best we saw in Yunnan, ended at a handsome covered bridge at the entrance to the market town of Pan-kiao. There we left the main route to Ta-li-fu and turned north into country of which the geology was quite unknown. For a few miles farther we passed through rice-fields in which the transplanting of the young plants was being done by the women, and the weeding by the men, who stood on planks to avoid injury to the crop. The conditions of life of these villages must be very similar to those of England in the sixteenth century, but with a happy freedom from religious feuds, a more wide-spread education, and a similar standard of handicrafts, especially in working leather and iron, and in weaving.

The main industry in this neighbourhood is the manufacture of blue cotton cloth. The looms are of enormous length. The country is spacious and there is no need to economize land that cannot be tilled, so along the roads are looms of the full length of the strip of cloth required. We measured one loom 108 yards long. With the usual Chinese economy of work and material, one end of it was fastened to a firm clump of bamboo roots. Beside each village is a high scaffolding like those used for drying nets by Highland fishermen. They are used for drying the cloth after it has been dyed, with locally grown indigo, in the evil-smelling vats outside the villages. Their stench reminded us that we were not at a cinema exhibition of Medieval Europe.

After lunch outside the market village of Sha-pa-kai we left the irrigated plains and entered a deep valley which led up into hills of red sandstone and limestone. We crossed a low pass into a deep basin which doubtless once discharged southward by that pass but now through a gorge on the western side. From the crest of the ridge north of this new outlet we enjoyed a magnificent view southward over the Yung-chang basin and northward to the jagged spurs which branch off from the high range overhanging the Salween. Our route led us along the eastern bank of the gorge to the village of Lan-tien-pa. The soldiers secured accommodation for us in a farm-house whose small courtyard was filled with our loads. Our camp-beds were placed in a loft which served as granary, hen-roost

and chapel. It had no window, and was lighted by cracks in the roof, so that it leaked badly when the rain began again. The village stands among some low hills which next day proved to be the divide between the Salween and the Mekong. The watershed between the two rivers is here inconspicuous; for it is a shallow rise on the floor of the deep valley up which we had come, and which continues northward to the village of A-shih-chai. The steep hill-sides are marked, as in Switzerland, by paths, one above another, leading to different high-level hamlets and fields. Our track led us up the eastern bank and over it into a broad shallow glade which appears to have been the remains of an old valley that ran east and west across the country, before the formation of the deep north and south valley from A-shih-chai to the Yung-chang basin. Turning north again, we halted for lunch at the Lolo hamlet of Cheng-mu-pa on a platform above a deep valley. It was our first opportunity of seeing the Lolo at home. We examined them with interest, as they have been regarded as a non-Mongolian race, and as the descendants of a Caucasian tribe which came from India. These people, however, had features as exclusively Mongolian as any of the other inhabitants of the district. After lunch we descended five hundred feet to the floor of the valley, and on the ascent of the northern side to the village of Lao-wu we found some fossil sea-firs or graptolites, which we collected during a heavy downpour of rain. Later on the weather fortunately cleared and we had our first view of the Mekong River

at a point where it makes a remarkable back-bend, which occurs in line with similar bends by most of the rivers from the Mekong to the eastern Szechuan tributaries of the Yangtze. Why these rivers, when they reach that line, should suddenly, by a sharp elbow bend, leave their southward course and turn northward was one of the problems we had come to investigate, and we were lucky to have clear weather at this viewpoint. This back-bent stretch of the river lies in line with a tributary, the Ho-wan Ho. During our descent into the valley we saw the best fossils which we had yet found in any of the Yunnan limestones.

In this part of China, while the largest rivers are known as " kiang " or " kong," as in Yangtze Kiang, Mekong, and Lu Kiang (the Salween), many of the tributaries are known as " ho." Hence " kiang " is often interpreted as a large river and " ho " as a smaller river. This interpretation agrees with the present practice in many cases, but the terms were not originally used in that sense. They are derived from different languages: " kiang " was the name for a river in southern China and " ho " in northern China. " Ho " is found in those parts of China that have been inhabited by North Mongolians such as the Tibetans. " Ho " is doubtless derived from the same root as such words for river as the Mongolian " ghol," the Burmese " hka," and Tibetan " chu." The root of " kiang " and " kong " ranged across southern Asia into India, where it gave rise to the names Ganges and Gangawali.

The name Ho-wan Ho therefore indicated that we

were entering territory which had been occupied by people of the northern or Tibetan group.

We crossed the Ho-wan Ho by a picturesque stone bridge, built with a high arch to accommodate the powerful floods that sweep down the valley. A number of flour mills beside the river use its water during its spells of good behaviour. The village of Ho-wan at our arrival was tired, listless and untidy after the day's market. We found accommodation in a small inn, where we slept in the granary, space being found for our beds between grain baskets four feet high and three feet in diameter.

Our start the next morning was delayed by dealing with a sick coolie. He had been given some medicine the night before, but the results were unhappy. On inquiry again into his ailment it appeared that his actual symptoms were exactly the opposite of those which had been described the night before; and as the medicine given him was not one that works by faith-cure, it required several days' application of other drugs to soothe his offended constitution. "A doctor may cure disease, but he cannot cure fate," says a Chinese proverb; and if fate misleads the doctor he cannot cure even a simple disease.

From this village we followed up the Ho-wan River into the mountains along the Salween-Mekong divide. The caravan started ahead of us and a soldier led us by a short cut along the edge of the village aqueduct. His straw sandals gave him surer footing on its narrow, slippery edge than our leather boots

gave us, and as the drop from it was often high and vertical we were not sorry to get back to less acrobatic progress on a footpath. We followed up the valley at the northern foot of a mass of rugged mountains to one of the many villages named La-shi-pa. The main valley apparently continues to a low pass over the Salween divide in line with the sudden turn of the Mekong, which with the pass and the Ho-wan valley are probably all due to one line of weakness in the rocks. We regretted that we could not follow up this valley to find out exactly what happens at its head; but we had to turn north up a series of side valleys till we camped for the night in the village of Chung-tang. We were recompensed for the extreme filthiness of our resting-place by the interest of the local rocks and by the opportunity of seeing the village iron-works. A brown hæmatite is mined in the adjacent hills. This ore is smelted in a blast furnace about twenty feet high, which is charged at the top through an aperture four feet in diameter. Charcoal is used as fuel. The flux is a limestone which is crushed in a rock-breaker worked by a stream that also drives the blower. The air blast is obtained by means of a hollow tree-trunk, four feet long and two feet in diameter, in which a piston is driven to and fro by a crank worked by a horizontal wooden turbine five feet in diameter. The molten iron runs on to a moulding platform and is cast into small pigs, which are then hammered by hand into bars and carried to the adjacent town by mules. The method is effective

and superior to the systems of native iron-working that have been developed in India or Africa.

Our start next day was delayed as the mules had wandered on the hill-side to feed. We had been told that when Yunnanese mules are allowed out at night to graze they trot back into camp in the morning after a couple of calls from the muleteers. Our mules, however, were not so dutiful; whenever they had the chance they wandered far away, and the search for them sometimes delayed the start for hours.

After the mules had been recovered we climbed from the valley by a zigzag path up a steep spur, passing through a belt of rhododendrons, of which, however, the flowering season was past, on to moorlands decked with alpine flowers. We had extensive views to the south which showed that the country in which we had spent the last few days was a dissected tableland sloping down from the edge of the Mekong valley to the Yung-chang basin.

After a three hours' climb we reached at the height of 9500 feet a slight depression in the range which forms the western rim of the Mekong valley; a knoll to the north of the pass commands a long view up the straight trough-like valley of the Mekong, and past a series of spurs projecting from the western side. The river lay hidden in a deep defile on the floor of this immense trough-shaped valley. The descent was very steep, and as the western slope is protected from the afternoon sun, everything was sodden with moisture. The track led through forest composed first of bamboos

and lower down of rhododendrons, the trunks of which were covered with moss and lichen. The path entered a deep gorge littered with debris from continuous landslips. Near the dangerous parts of the track small shrines provided shelter and rest, and encouragement against the perils of the way. In the lower part of the valley the track lay on the floor of a stupendous V-shaped cleft, and must in windy weather be swept by a cannonade of falling boulders. We did not see the Mekong itself until a few hundred feet above it near the village of Lu-chang. The chief building there is a temple, which consists of an open hall containing three large red mud images representing air or heaven, fire, and water. In the temple a local silk-spinner had set up his appliances, consisting of a small boiler for heating the cocoons, and a spinning-wheel.

The river flows past the village at the bottom of the gorge and occupies practically the whole of the floor. There is no space on it for any beds of sand or gravel, and all the sediment brought in by tributaries, or which is dropped into it by landslips, is swept down-stream. Rapids occur only where great boulders have fallen into the river and have not yet been broken up and carried away. The current is so swift that at one place the water-level is three feet higher in the middle of the river than in a depression between the main stream and the eddies beside the bank.

From Lu-chang, for one day's march up the Mekong, the track, going for miles as close to the river as a towing-path, leads to the highest mule- or foot-bridge

over the Mekong in China. The day was marked by our first disagreement with the muleteers. The Chief had to stay behind at the village for a few hours in order to secure an extra man to relieve the invalid coolie. The muleteers made an early midday camp and then let the mules stray, apparently to ensure spending two days on the stage to the bridge. As the muleteers were paid by the day it was to their advantage to go slowly. If a through rate had been arranged from Teng-yueh to Li-kiang they could have fairly insisted on going by the easiest and most direct route. After a short afternoon's march the chair coolies, in obvious collusion with the muleteers, led the way into an inn at the village of Chiu-chou; but we walked on across the basin, refusing to enter the village, so that the men and mules had to follow.

The Mekong valley after a bend to the west widens to a broad basin, the floor of which is covered by extensive beds of coarse gravel and boulders rolled from the adjacent hills. As these deposits are still growing, they encroach on the river, which has to cut them back in order to maintain its right of way. The river has a boisterous passage through this basin in contrast to the more settled condition in the rock gorge above Lu-chang. We kept ahead of the caravan until near Tan-ka. As there is no inn in that village, the owner of a large house consented to receive us. We were delighted to camp in a clean courtyard and sleep in a large airy room. The men, however, probably found things less comfortable than in a muleteers' inn, and the

inconvenience served them right for not having reached the bridge. The next day was very wet and we marched on to Fei-lung-chiao, the village at the bridge-head, through heavy rain which caused the irrigation channels to overflow the track. We waded alternate stretches of quagmire and torrent. The village of Fei-lung consists of one street of shops and inns, and it descends in steps under a series of arches; they were probably built to prevent the houses falling forward into the road during the severe earthquakes to which the locality is subject.

The chain suspension bridge, eighty yards long, crosses the river where it is contracted between two rocky projections, and the river races below in a powerful rapid. At the entrance to the bridge on the western bank a roof across the street affords a sheltered meeting-place and serves like the Glasgow railway bridge known as "the Highlanders' umbrella." We were delayed here in the search for an extra chair coolie, for the Chief, who had been unwell for a couple of days and now realized that his malady was an attack of dysentery. He was therefore anxious to avoid the fatigue of climbing the 4200 feet up to the next pass on such a cold, wet day. We called at an inn, where the innkeeper at once entertained us with tea, for which he refused payment. He sent round the village to find us a chair coolie. The only man available was a master of excuses. He pleaded the bad weather and advanced plausible arguments which our kind ally demolished one by one. His last difficulty

was that he had no sandals, but that our friend the innkeeper promptly removed by sending out to buy a pair. He gave his messenger fifteen cash for the sandals, so their cost was about one-third of a penny the pair. This footwear is, however, not really as cheap as it seems; in wet weather a pair does not last for more than a day, and sometimes for only half-a-day. The tracks in Yunnan are littered with derelict sandals.

After the chair coolie had been engaged and equipped we crossed the bridge, and passed through the loop-holed walls and mud forts which guard the eastern approach. The track followed the Mekong up-stream to the next gully and climbed it by a steep slope over slippery loose slabs of slate. From the head of this gully a valley goes eastward into the hills, and across it we had, through a break in the clouds, a superb view down the Mekong valley. On its floor, 2000 feet below, the flooded rice-fields glistened like glass roofs. All the time could be heard the roar of the Mekong river, due to the rattle of the boulders washed from the coarse gravel through which the river cuts its way below Fei-lung bridge.

We stayed that night in the village of Sha-chou, and next day, as we could get no extra chair coolie to replace the man of excuses, the Chief had to walk the rest of the ascent up to the pass, a shallow notch in the ridge at the height of 8800 feet. The summit is in wet forest, and for the first time we collected some of the primulas which are among the most characteristic of the alpine flowers of Yunnan. On

descending the pass we had an extensive view to the east across country, where, from one theory of its structure, we expected to see ranges of mountains forming the Yunnan Arc. The rain had ceased and the air having been cleared by it we could see for a great distance over an old plateau, about 7500 feet above sea-level, which had been carved by rivers into a series of deep canyons separated by branching ridges. The prevailing rocks are red sandstones and clays, in which occur numerous beds of salt. We descended to the city of Yun-lung, one of the best-known centres of the salt-mining industry in Yunnan. As we had stopped on the way to examine the rocks and collect plants, we reached the town after the mules. In our search for them we passed the entrance to a temple outside of which were such crowds of children that we thought it must be the city high school, and that the pupils had been given an hour off to see the arrival of the foreigners. We were beckoned to enter by a muleteer who forced his way through the crowd, and we found the mules in the temple, in a charming courtyard gay with hollyhocks.

CHAPTER V

AN UNKNOWN ROAD ACROSS THE SALT-MINING DISTRICT OF YUNNAN, WITH SOME REMARKS ON CHINESE EDUCATION

> The charmed sunset lingered low adown
> In the red west : thro' mountain clefts the dale
> Was seen far inland, and the yellow down
> Bordered with palm, and many a winding vale
> And meadow, set with slender galingale ;
> A land where all things always seemed the same !
>
> TENNYSON.

YUN-LUNG is an unwalled town that straggles down the hill-sides to a two-arch bridge (Plate IV.B) across the Lo-ma Ho. Most of the town stands on the floor of a basin which the river enters from a canyon to the north. Below the bridge the river flows into a narrow sinuous canyon, through which it makes its way to the Mekong. The town had seen better days. We passed large houses in the suburbs now in utter disrepair. A temple on a commanding viewpoint had been left derelict except for its partial use as a school. The shops in the main street had clearly once had a better business than the peddling trade now done in them. Yun-lung, in fact, has suffered from one of the vicissitudes to which mining districts are liable. The main business of the town is salt-mining, and mineral deposits do not last for ever.

The salt springs near Yun-lung yield less than formerly, and the more enterprising salt merchants have removed to centres where production is larger and cheaper.

The town has been visited by Mr Coggin Brown of the Indian Geological Survey and by Mr Fergusson of the Chinese Salt Commission; but the people were unused to Europeans and their curiosity was at first troublesome. The courtyard of the temple was filled with a crowd that swarmed in to look at us. The temple had been secularized after the revolution and some of the rooms were occupied by one of the lower schools; but its main use was as the city club and meeting-house, so the people naturally felt they had a right to enter. We put up with them with as good grace as possible, until they began to tear down the paper windows of our bedroom. The Chief rushed out to remonstrate and the crowd pressed back in a dense mass to the other side of the courtyard. He pointed to the window and signed that they were to leave it alone and returned to the room. He had only just entered when there was a report at the window like a pistol-shot and a stone fell into the room. Stone-throwing is usually the first expression of serious Chinese hostility to foreigners, so the Chief rushed out to stop any such movement at the outset. While he was looking at the crowd to detect the culprit our head man ran out and said that he had thrown the stone from inside in order to frighten the mob and that it had fallen back into the room. The crowd afterwards gradually withdrew and we enjoyed our comfortable quarters in relative quiet.

The Magistrate called the next morning; he was most courteous and invited us to stay some days to see the local sights and visit the adjacent salt mines. We explained, while thanking him for his invitation, that we were so pressed for time that we should like to go on that afternoon. He was probably really relieved at this decision, and promised us an escort which should be ready in time for us to make half-a-march that day.

From Yun-lung to Li-kiang-fu there are two roads, one going eastward to the main road from Ta-li-fu, and another crossing the hills to the north over one of the attractive blanks in General Davies' map of Yunnan. The Magistrate admitted that the northern road was the shorter, but he advised us to go by the main road as it was safer. We pointed out that the road to the north up the Lo-ma Ho had not been, to our knowledge, visited by Europeans and therefore would be much more interesting. His last remark on leaving was a renewed recommendation to follow the main road. We thanked him for this advice, but said no more, hoping that we might be able to go by the other route.

After his visit we went for a walk through the town and to the salt-works. The brine used in them comes from springs in the hills and is brought into the town by a bamboo aqueduct across the river. It runs into a Government tank, whence it is distributed to the various refiners who form the corporation of the "salt gentry." We visited one of their works where the brine is evaporated in a structure like an old-fashioned kitchen

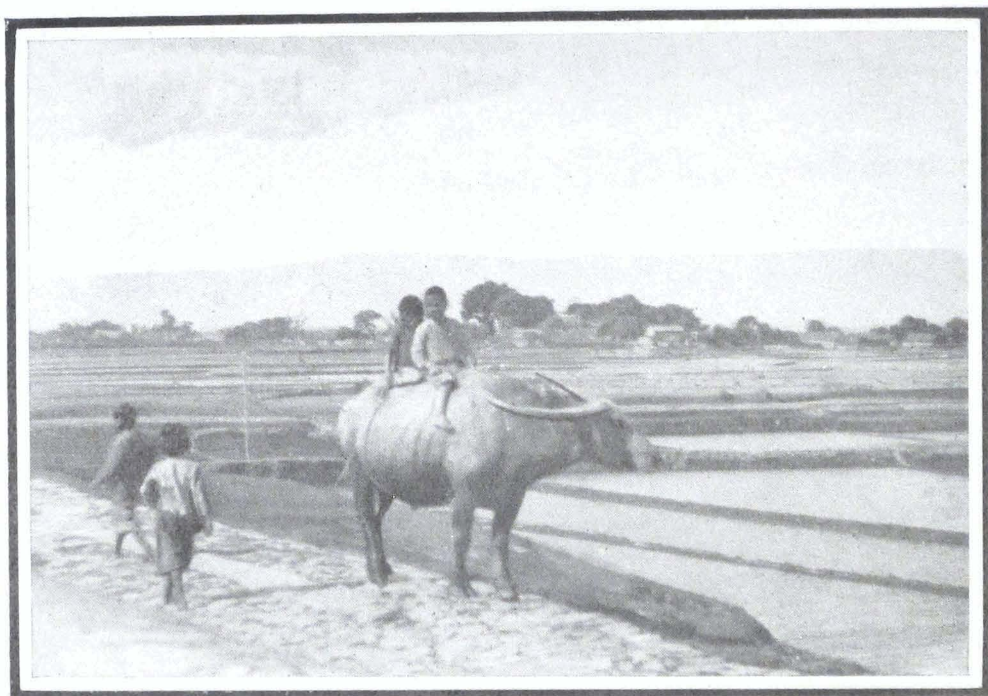
copper over a wood fire. The top is oval and about ten feet long by eight feet wide. The brine is ladled from the income tank into a series of iron pans and is ladled from pan to pan as the evaporation proceeds. The final pans are in the front, and from them the solid salt is passed to a basket where it is drained and cooled; any brine left in the salt drips into a bowl and is poured back into the last evaporating pans. The dry salt is pressed in moulds into large cakes suitable for mule transport. The impure mixture of salt and sand at the bottom of the evaporating pans is cleared out from time to time and piled between them in heaps of mud, which after being dried are broken up and re-dissolved. The whole process is crude; the furnaces are certainly not models in heat economy; but fuel and labour are both cheap and the method has the usual Chinese merits of simplicity and effectiveness.

On leaving Yun-lung we crossed the bridge, admiring the two massive beams lying there ready to close the gate should any enemy threaten the town. We turned north under the brine aqueduct and crossed the basin towards a deep V-shaped gorge. High up on the hill-side we saw a house that at first appeared to be some hermit's eyrie; but it proved to be a picturesque fortified gate through which the road passes. This fortification closes the gorge to any enemy approaching from the north, for the sides of the valley are so steep that in places the mule-track is upheld by a retaining wall. On the opposite side of the gorge a steaming hot-spring suggested the recent fracturing

of the rocks. Farther up-stream the valley is wider and a branch from the east is used by the main road to Ta-li and Li-kiang. At the junction is the salt-mining town of Shih-men-ching, where we were told there were sixty salt-workers. One of the citizens of this town had become a former governor of the province of Shensi, a fact which was recorded on various public monuments by his proud birthplace. We were entertained for the night in a temple, which, after the revolution of 1911, had been converted into a school. As it retained the ample endowment of the temple, education in the town was free and practically universal. We were disposed to speak of the change as secularization, but that term would have been locally regarded as inappropriate. The process would have been rather described as the transfer of the institution from the contemplative to the constructive side of religious work.

During the evening the three head teachers called upon us and told us about the school. They had 200 boys in the upper school and 400 in the lower. The temple had been founded by a local landed proprietor, Chung-su-fung, who endowed it with land which was now the source of the school revenue. None of the teachers spoke any language but Chinese, but they were men of culture and had been trained in eastern China. The wall maps of the world, of China and of the province of Yunnan, all of course printed in Chinese characters, were the best school maps we had seen in western China.

Education is a subject of primary importance and interest in China, for it is the key to that great riddle—the durability of the Chinese Empire. China, despite many disadvantages in physical conditions and serious deficiencies in the Chinese character, has outlived the ancient Western empires and promises to outlast the civilization of modern Europe. Several explanations of this enduring vitality have been advanced. The answer to the riddle appears to be that the stability of Chinese civilization is due to its suitable system of national education, while the unity of the empire has been maintained by its written language. The Chinese appreciation of education dates from prehistoric times. A national educational system was firmly established by the Chou or Chow Dynasty more than a millennium before the Christian era. Those who use Chow as the slang name of the Chinaman are wiser than they know; for the wise educational policy of the Chou Dynasty has made China and the Chinaman. The Chou Dynasty was the longest in Chinese history; it lasted from 1152 B.C. to 255 B.C. That it found a widespread system of education already in existence is shown by the *Ki Li* (the Book of Rites), which is attributed to the Duke Chou in 1130 B.C. The standard European translation by J. M. Callery (Paris, 1853) is based on texts of 135 B.C. According to this work, there was already in China a graduated series of educational institutions ranging from the village school through district academies and departmental colleges to the university of each principality.



A PLOUGH-TRACTOR AND ITS GUARDIANS

The road is paved with cobbles, with a central line of stone flags. The hills in the distance separate the Yung-chang plain from the deep canyon of the Mekong.

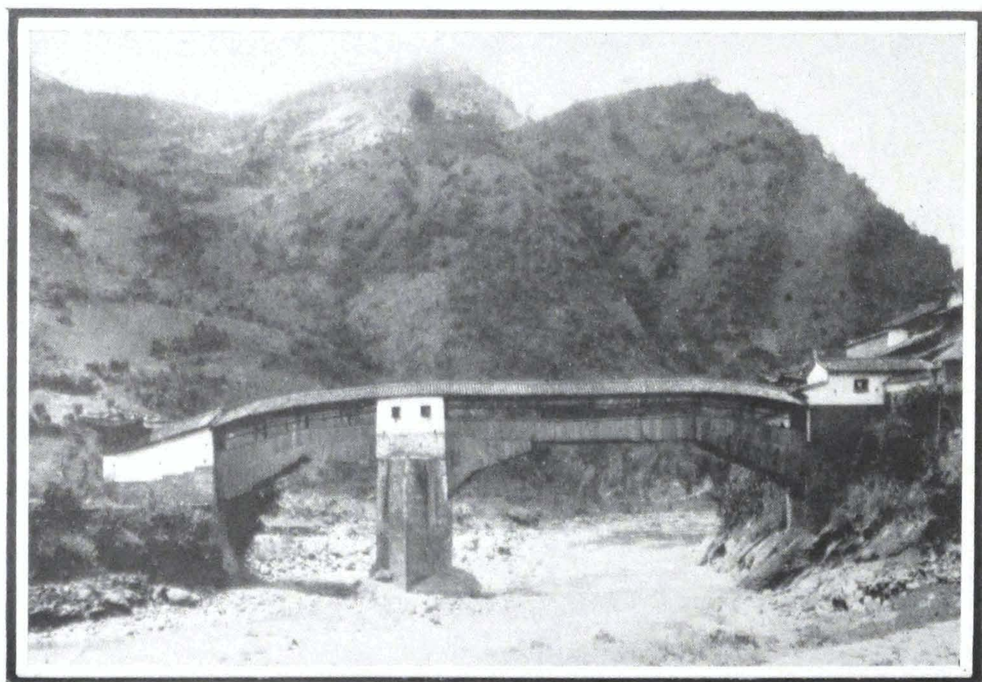


Plate IV]

YUN-LUNG BRIDGE

The town is built down to the right-hand end of the bridge. The steep easterly dip of the Red Beds is seen there, and on the hill above the houses.

The Chou Dynasty developed this system, and under it every hamlet had its "shu," or hall of study, and every village its school, where the teaching was given by the older men, and especially by the retired officials. This educational system often for a time fell into decay; but it was revived by men who by their services in this sphere rank as the real makers of the Chinese Empire and authors of Chinese culture. Confucius, who lived under the Chou Dynasty, gave education its religious or ethical basis, and his religion, which numbers more adherents than any other in the world, owes its permanence and usefulness to its broad basis of sound national education. The poets in China have throughout the ages reiterated the moral value of education, and have well supported the administration by constant insistence on its supreme importance. The attitude of the poets may be illustrated by the following lines by Wang Pih-hao of the Sung Dynasty (A.D. 1050):—

> Men at their birth are by nature radically good;
> Though alike in this, in practice they widely diverge.
> If not educated, the natural character grows worse;
> A course of education is made valuable by close attention!
>
> . . . .
>
> That boys should not learn is an unjust thing;
> For if they do not learn in youth, what will they do when old?
>
> . . . .
>
> As gems unwrought serve no useful end,
> So men untaught will never know what right conduct is.

The early kings of the Han Dynasty were not educationalists, but the educational revival under their successors, from 140 to 86 B.C., was one of the great

steps in the artistic and intellectual development of China. The Emperor Wu-ti in 140 B.C. proclaimed his grief at the neglect of knowledge and fall in the standard of music. To improve education in the villages and towns and develop the higher talents he appointed an "officer of general knowledge," and summoned to his help a conference of wise men; in 124 B.C. he founded a great college, the Thai-hio. The progress of the students was tested by annual examinations, according to which the competent were promoted and the idle and less able were debarred from the higher educational course.[1]

The last of these epochs of educational reform followed the revolution of 1911. An educational ordinance of 1913 made four years at a lower primary school free and compulsory for children from the ages of seven to ten, with teaching in the Chinese characters, moral instruction, arithmetic, and often physical drill, drawing and singing. An upper primary course of three years and a middle school course of four years were instituted by the same ordinance.

The Chinese national system of education rests on the early recognition of the fact that brain-power is the most important of national assets. The Chinese statesmen were successful in developing a system of education which was well fitted to the conditions of the time and place, and has given the Chinese nature three striking characteristics. The first of them is the real preference for a simple life which has rendered possible the universal courtesy expressed by such

Chinese maxims as " Murder is often excusable, rudeness never." The second is that high standard of artistic appreciation which is so widespread in China and makes the Chinaman an honest craftsman, keenly interested in his work. The third is the democratic nature which is now part of the very being of the Chinese; it has precluded the development in China of any system of caste, of any hereditary aristocracy or servile class, and has maintained the subordination of the military to the civil power. " Where," said Confucius, " there is education, there is no distinction of class." In China the most distinguished class has been that of letters. The highest positions in the empire have been the rewards of literary success and have been open to the children of the poorest villager.

The practical measure whereby education has been enabled to guide national development well and wisely was the selection of officials by open competitive examination. This system was established at a date when the rulers in Europe often gained their thrones by brute force or selfish cunning. Even as early as A.D. 600, during the Tung Dynasty, the officials were selected by competitive examination and were qualified for appointments by their university degrees. This system was extended during the Ming Dynasty, with whom the English Tudor sovereigns were contemporary. Monthly, quarterly and annual examinations were instituted at every school, to secure for the public administration the very ablest men in the Empire. Examination is most easily applied to literary subjects,

and this system was attended by the drawback that it helped to restrict the range of education; but it secured for China officials who had the industry, self-control, good judgment in the management of their time and strength, and the nerve and quickness that enable men to use their knowledge to its best advantage in an emergency, which are the real qualities tested by an efficient competitive examination. "On the whole," says Williams,[2] "it may safely be asserted that these examinations have done more to maintain the stability, and explain the continuance of the Chinese government than any other single cause." The most deplorable result of the recent revolution has been the abandonment of the selection of officials by examination. Their appointment by favouritism and family influence, or by the support of robber bands, has led to many evils, and a riot of corruption and inefficiency. As the peace and order of the country depends on the success of its local administration, it is not surprising that there is already a widespread feeling that the old system should be re-established, though reformed to secure a more modern and scientific education.

The long maintained unity of China is probably due in the main to its written language, which is based not upon an alphabet, but upon separate characters for each word. These characters were no doubt based originally on simple outline pictures and diagrams like the Egyptian hieroglyphics; they were in time reduced to symbols of which the pictorial origin is recognizable, as in the Phœnician alphabet, from which

those of modern Europe have been derived. The earliest Chinese characters were hieroglyphic, but they soon developed into ideographs in which each character represents a separate word or idea. Most of them are arbitrary and have to be learnt by an effort of memory. The spoken language varies greatly in different parts of China, but the written language is the same throughout the empire. But for its influence the different provinces of China would probably have acquired distinct languages and then separated as independent nations. The written language has been the link that has held together provinces which are geographically different and welded people of many races into one nation.

This ideographic language has serious drawbacks which have led to repeated efforts for its replacement by an alphabetic system. The fundamental disadvantage is the great length of time required to learn the characters. "To learn the written language," said James Hudson Taylor,[3] the founder of the China Inland Mission, "requires, even in the case of a Chinese, from seven to ten years of incessant study."

In learning the characters, attention is directed to a few at a time; they are repeated aloud until committed to memory. As all the pupils are occupied most of the time bawling the names of the characters, there is no difficulty in a Chinese town in finding the schools. The primary school course consists in learning 400 of the characters; in the second grade the number is increased to 1000. For ordinary purposes

from 4000 to 5000 are required, and a well-educated man is supposed to know about 10,000. The usual Chinese dictionaries give about 50,000, and the total number of established characters is said to be between 70,000 and 80,000, many of which, however, are obsolete or very seldom used. The learning of from 1000 to 4000 characters monopolizes most of the time at school, and therefore renders inevitable a narrow range of education. In Japan discontent with the hindrance of the Chinese characters to general education is largely responsible for various proposals to substitute English for Japanese as the national language. The four or five years, from the ages of six to ten or eleven, spent by Japanese children in lower primary schools are devoted to learning about 700 characters, and simple arithmetic up to weights and measures. Children who leave school at this age have not learnt to write, soon forget to read the characters, and become illiterate. Those children who go to the upper primary schools stay there for another four years, and leave at fourteen or fifteen; and they learn not more than 1200 characters. That limit is fixed by the Japanese Education Department, since, though it is the least that is of real use, the attempt to learn more would prevent any time being given to other subjects.

The practical monopoly of school time in learning the characters has led both in China and Japan to many attempts to introduce a phonetic alphabet. In 1884 the Roma-ji Kai, or Roman Letter Association, was formed

in Tokyo to supplant the Chinese characters by use of twenty-two of the Roman letters. Its advocates claim that a child can learn to read in a tenth of the time formerly required. "The reform," repeats W. E. Griffis,[4] "is making rapid progress; and if

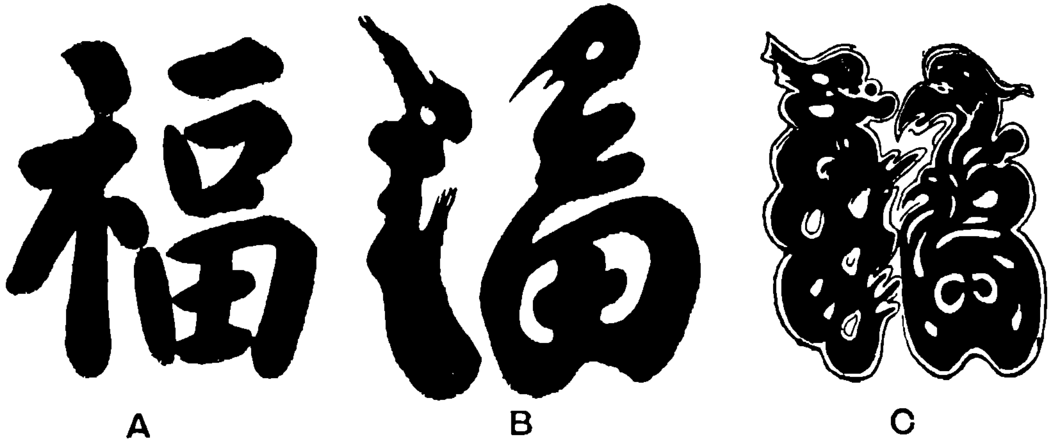


FIG. 3.—DECORATIVE FORMS OF THE CHARACTER "FU."

A character pronounced "fu," which means "welfare," "happiness," etc., is often written on the doors of houses and temples as a sign of welcome. The ordinary character is shown by A. It is often used in grotesque and decorative forms. B was copied from the wall of the Salt Commission Office in Ta-li-fu, and C photographed from a temple at Mu-chu-tai, north of Shih-ku.

The character is not connected with that used in "Ta-li-*fu*."

as seems very probable, the natives universally adopt the system, the gain to mind and body will be like that of adding youth and years to a nation's life."

The Chinese educational reformers are making great efforts to simplify the language and establish it on an alphabetic basis. A "Commission on the Standardization of the Sounds of the National Language" was founded by the Ministry of Education in the year following the revolution of 1911. It adopted thirty-nine symbols for a Chinese phonetic alphabet. Classes

for teaching this system were begun in 1915. Its introduction to the schools and measures for its popularization were authorized in 1918. The system proposed was not final; another character was added in 1920, and it is recognized that more are required for dialects especially rich in sounds, such as Cantonese.

Hitherto all these attempts have failed. The ideographic system has inherent advantages which have enabled it to maintain its position. Like the Arabic numerals in the Western world, their uniform adoption over so wide an area has given them an enduring strength. Our inspection of such Chinese schools as we saw enabled us to appreciate that though the written language maintains the intellectual isolation by precluding the use of foreign text-books and rendering Chinese literature and its new scientific journals inaccessible to Western students, these drawbacks are accompanied by great advantages: the system strengthens the memory, quickens and gives great precision to the powers of observation, and its exercise of the hands by use of the brush in writing has developed the skill in handicrafts and the artistic faculty, which are among the most precious of Chinese characteristics.

The teachers told us that the route to Li-kiang up the valley of the Lo-ma Ho was somewhat shorter than by the main road and that it was now practicable. They themselves only knew the first stage of the journey, and when the Magistrate's view as to its being more dangerous was quoted to them they said that

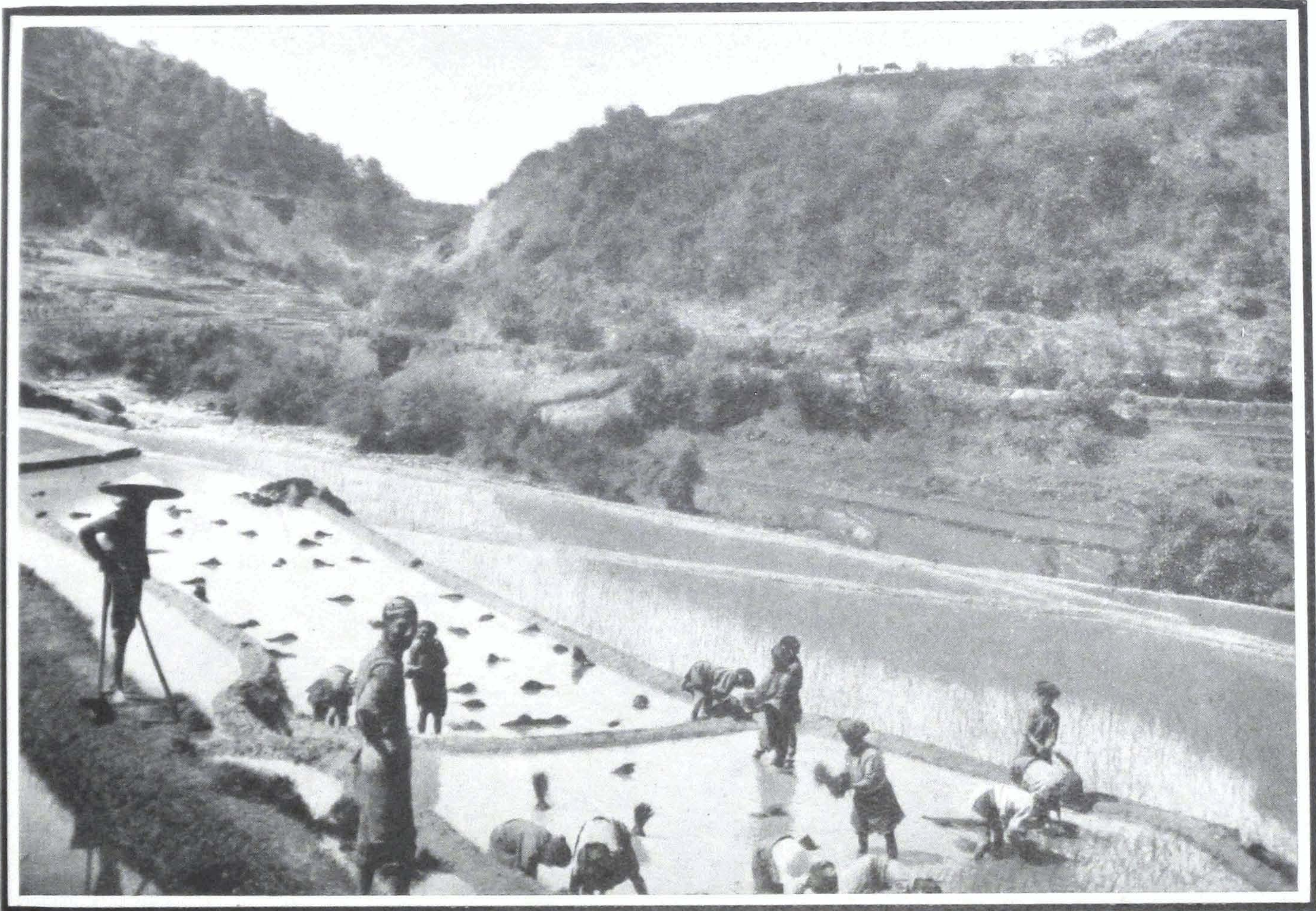


Plate V]

TRANSPLANTING PADDY

The rice plants are grown in nurseries, from which they are taken in bundles, and planted separately in the mud by women and children. A replanted field is seen to the right. On the skyline, two men are driving water-buffaloes.

was so no longer. Up till 1911 the country could not be safely traversed by caravans; but since the revolution the people had become more peaceable and law-abiding. By laying stress to the escort on the shortness of this northern route and on the Magistrate's promise that we should go by the shortest way, the soldiers were persuaded to lead us northward along the Lo-ma Ho into one of the districts represented as a blank on the map by General Davies, which is still the best general map of Yunnan.

The track led through a series of ravines in red sandstone and past some salt springs. Opposite the village of Tung-tien, so named as the residence of an important local family, the Tungs, two groups of extinct hot springs had deposited tufa terraces which looked like basins of carved marble on the green hill-side. In the afternoon we climbed from the main valley into a western tributary which was itself uninhabited; but frames used to dry the crops during the harvest marked the sites of hamlets and homesteads on the plateau above. Zigzag tracks led up the hill-sides like the paths to the hay chalets in the Alps. The hill people were more primitive than those whom we had previously seen, and retained a more living faith in spirits. A market was being held that day at the town to which we were going, and the people had placed burning joss-sticks, incense and flags beside the track in order to propitiate the spirits and to ensure a safe journey. Near the summit of the pass is a mercury mine which, from the account

subsequently given to us by Mr Fergusson, is worked on a very small scale. In the descent to the north for some distance we followed a stream, and two gorgeous kingfishers repeatedly flashed out of the bushes and flew on ahead of us.

We reached Chien-tsow at dusk and found that the mules had not arrived. One of the muleteers came in shortly afterwards to say that the road along the main stream by which the soldiers had led them was impracticable for loaded mules, so they had had to return and were following by our route. The town is built on the bank of the Sze-ting Ho, a tributary of the Lo-ma Ho. The bridge across the stream had been destroyed and was only partially rebuilt. We were asked for money to complete it; we had to reply that ours had gone on to Li-kiang and we had only enough to pay our inn bills and buy food and fodder along the road. It seemed that the few dollars we could have spared would have been quite useless to so large a structure; but a few days later we regretted our refusal to contribute, when we heard that the total cost of the bridge would be only 200 dollars, and that a few dollars would have enabled considerable progress to have been made with it.

On arrival several invalids came for medicines to heal various sores and abscesses; but it was impossible to deal with these cases as our lamps were back with the mules. We did not care to attempt surgery in the dark.

Our march next day was up the well-cultivated,

gently rising valley of the Sze-ting Ho (Plate V.). The fields on the lower slopes are irrigated from the hills and those beside the river by high water-wheels in it driven by the current. Piles of broken earthenware marked the sites of old potteries. The track was at times shared by an aqueduct which, owing to the recent rains, appropriated an unfair share. By the middle of the day we reached Sze-ting-kai, locally famous for its pig market. The muleteers asked us to stop for the night at that village as they had lost two mules and they wanted to continue the search for them. Our interpreter declared that this would be a waste of time as the mules must have been stolen and their recovery was hopeless. As the mules were worth 140 dollars it seemed heartless not to give the muleteers every chance of recovering them. We had just agreed to stop for the night when one of our escort arrived, bringing the two mules, which he had tracked some distance up the valley. Orders were therefore given for an immediate start, and they were by no means popular.

We here left the main valley and struck up a tributary through paths which tunnelled through high, dense growths of barberry and rambler roses. We found two groups of tufa terraces which had been formed by extinct hot springs. We then found also that we were on the wrong track and had a laborious climb into the next valley, where, after tremendous shouting, a native appeared and told us that we were on the right path and that the mules were coming along it. We soon

began an ascent which disproved the statement that no slope up which a man can go is too steep for a Yunnanese mule. The track by which we climbed the spur was too much for the mules and they had to zigzag through the forest. From the summit of the pass we looked down toward the hamlet of Peh-yun-chang. From its name, "the place of sheep," we expected that we were approaching the edge of a tract of turf-clad downs, especially as to reach Kien-chwan-chow in the time estimated by the teachers at Shih-men-ching the remaining marches should prove quick and easy. From the pass we saw no sign of the open moorlands, but looked eastward over undulating forest-land with innumerable deep ravines and no promise of quick progress. On the floor of the nearest valley we saw beside Peh-yun-chang, instead of sheep-folds, the ruins of furnaces and mining plant and dumps of slag. On our way down to the village we found heaps of copper ore. We were accommodated in the house of the headman of the village, who told us that no European had ever visited it before. We found afterwards at Ta-li-fu that Mr W. N. Fergusson of the Salt Commission had passed through this country a few weeks before us, but he had apparently not stopped in this village, though he had seen the mine.

In answer to our inquiry whose were the sheep that gave the place its name the village headman told us the story of how the mine had been discovered. A native, who had been very kind to his blind mother,

thought he had seen there a flock of sheep. He returned to collect them with some fellow-villagers, but none could be found. In lucky ignorance of the ways of sheep, they dug in the earth to find them, and the dutiful son was rewarded by discovering masses of silver ore. This incident happened centuries ago. The mine had been abandoned for a long time until, ten years before our visit, a Chinese company spent 2000 dollars in the vain attempt to find the silver lode. They only discovered copper ores, which were of no use to them.

Next day the first part of our march was through a series of beautiful dales in red sandstones. At one quarry a pink freestone, like that of parts of Cheshire and of St Bees Head, was being wrought into flagstones and curved arches for graves. At this level, 8000 to 9000 feet, we had caught up with the summer, for the wheat was still green, and sheets of primula and yellow iris were in full flower.

After a pass at the level of 8500 feet we descended a steep forest track into a valley, which we followed to the south-east till in the afternoon we rejoined the Lo-ma Ho. The track going north along this valley is like an English river-side footpath. During the afternoon we passed through a village where we saw the first Tibetan architecture, for the lower storey was built of massive stone. The road entered through a strong gate and made a series of right-angled turns in the village, so that to force a passage would be difficult and dangerous.

That in this district the peace due to the Chinese administration has been established only in modern times was shown by the villages being placed where they have a good outlook and are easy of defence. They are often situated on the ends of spurs at commanding viewpoints, with a difficult approach. The people in this valley, the Minchia, have adopted many Chinese customs, but have retained some of their old beliefs and customs. Their cemeteries are adorned with stone pillars, each with a tabular block about halfway up. These monuments, whatever their original purpose, are no doubt a relic of spirit-worship. Most of the hard manual work is done by the women, in which respect also the Chinese influence has not yet had its full effect.

We crossed the Lo-ma Ho by a covered wooden bridge where the river is flowing on a course from west to east. A steep ascent within a right-angled bend of the river led to a massive gateway, and passing through it we found ourselves suddenly within the town of Shuan-tan-chang. It lies in a gully between two spurs, each of which is surmounted by a fortified wall. The town is on a steep slope and was overhung by a pall of blue smoke, through which the houses, with their yellow brick walls, white frescoed gables and graceful timber roofs, rose in tiers to the city temple, where we spent the night. Outside the gate stood a tall pole bearing a Chinese lantern, of which the glimmer, in competition with the bright moon, was as useless as that of Diogenes. This light had been

endowed for three years by a man in gratitude for benefits received from his worship at the temple. It was therefore lit whether wanted or not, a case of that lack of intelligence in the application of charitable endowments which is not confined to China.

Above the town the river flows from the north through a long straight gorge. The track is high on its eastern bank and after we had reached the level part we made good progress to the north. The track at length fell to the river level at a tributary, near a native bridge made of twined creepers. Farther north the river is crossed by a covered cantilever timber bridge of Chinese construction. Above this bridge the valley widens into a large basin, and we made our midday halt at the village of Shih-ten-chuan amid wide fields of beans, peas, wheat, barley, oats and rice. We noticed with pleasure the continued absence of poppy cultivation, of which the last we had seen was at Shih-men-ching. This basin had obviously been occupied by a lake before the formation of the gorge between it and Shuan-tan-chang. While that lake was in existence large deltas of sand and gravel had been built out into it by rivers from the adjacent hills, and the floor of the basin had been covered with sheets of sand and silt. Across this basin we had an easy march of thirty li to the town of Lan-ping-hsien, the residence of the Chinese Magistrate in charge of this district.

We called upon this official and found that he had once been clerk to the Magistrate at Teng-yueh and

ardently wished himself back there. He was very courteous, but depressed in mind. The people of this district he described as wild and unintelligent, and he deplored their preference for earning their livelihood as porters carrying salt from the mines rather than by the noble profession of growing paddy. The nearest salt mine to the town is one day's journey to the south-west. He gave us much information as to the routes through the district; one continues north to Wei-si, but it is so rough and the accommodation along it so poor that he did not wish us to go that way. We, however, collected information as to times and distances along it for possible use on our return journey. He said that the district at the time was very unhealthy; many people were ill, while the water-buffaloes were weak from a disease from which many of them had died. He expected the main rainy season in about twenty days; the climate would then become healthier, but the road by which we had to cross the mountains to Kien-chwan would then be impassable. The Magistrate promised us a fresh escort, but on asking about mules he said that owing to the cattle disease there was very little transport available.

On our return to our inn we found that the Magistrate was not the only person who felt home-sick for Teng-yueh; for the head muleteer begged to be released from his engagement so that he might return at once. We agreed to let him off if he could obtain fresh mules by eight o'clock in the morning. By midday, as his efforts to find a substitute either in the

town or adjacent villages had proved fruitless, we insisted on starting for a half-march, as otherwise the next day's journey would have been very severe. A fresh complication then arose owing to the chair coolies' refusal to go on to the projected sleeping-place, on the ground that they could get no accommodation there. We had to threaten an appeal to the Magistrate before this difficulty was overcome. One of the coolies, who was a native of Sze-chuan, and who ultimately proved the most forceful, and at the same time one of the most loyal members of the caravan, exerted his influence with the other coolies and the prospect of trouble with our men was averted.

NOTES

[1] Biot, *Histoire de l'Instruction Publique en Chine*, 1845, p. 108.
[2] *Middle Kingdom*, 1883, vol. ii., pp. 565-566.
[3] *China : Its Spiritual Needs*, London, 1865, p. 46.
[4] *The Mikado's Empire*, 10th ed., 1903, p. 605.

CHAPTER VI

BY THE WAY OF THE SUN TO LI-KIANG

O rugged, rugged are the rocks,
    With lofty crest.
Far, far o'er hill and stream we go,
    And sore are pressed.
A soldier marching Eastward, ne'er
    A morn may rest.

O rugged, rugged are the rocks,
    With towering top.
Far, far o'er hill and stream we go;
    When, when to stop?
Troops, marching East, from out the ranks
    May never drop.

"*Ode on the Expedition of the Duke of Chou.*" *Written in the twelfth century* B.C. *Tr. by* WM. JENNINGS.

AFTER crossing the Lo-ma Ho we turned eastward to traverse the parallel ranges between that river and the basin of Kien-chwan. The first pass was to the south of Yelu Shan. This mountain is about 13,000 feet high, and is composed of limestones which trend from east to west across the general grain of this part of Yunnan. Mountain-forming movements of a comparatively modern date have crumpled the country at right angles to the trend of the older mountains. These limestones form the northern rim of the basin containing the red sandstone and the salt mines. As we climbed the

limestone hills we entered down country with flocks of sheep following their Lisu shepherds, who led them by the cry "Woof, woof, woof!" It sounded at first like "wolf," but it was doubtless based on an imitation of the short bark of a dog.

The last place at which we could get shelter for the night was a farm-house known as Sin-chang—that is, "the new place"; but, with the usual plethora of Chinese place-names, it appeared to be known also as Chung-weh-tun or Tang-wei-tang, and the relations of these names we could not discover. Space was found for us in a barn among sheaves of six-rayed barley. The men slept in the courtyard, in which a large fire supplied them with light and heat and us with smoke. The Tibetan indifference to fumes that would suffocate most people reminded us of the Jesuit missionary to the North American Indians who regretted that, in preparation for eternity in flames, they spent this life in smoke.

The track along which we were going had clearly once been an important highroad from the Mekong ferry, for relics of old pavement have been left standing three feet above the present surface. The track has in places been cut six feet deep by generations of traffic.

This road has a bad reputation, due more to the fear of bad-tempered spirits and of robbers than to its disrepair. Among these mountains the Chinese power has not been sufficiently long established to dispossess the native demons or suppress the Lisu brigands. The local faith in spirits is still very strong. To the

west of Lan-ping are ninety-nine hills, and each summit is guarded by a special spirit. Along the track we were following the spirits must be treated with great respect, as if annoyed they are very spiteful. They particularly dislike grumbling. Any passenger who complains of the cold is promptly frozen to death. Anyone who utters the word hunger is punished by excruciating internal pangs. The development of Chinese influence may not lay these spirits, but may be expected to restrict their interference and prevent their continued terrorism over the superstitious villagers. The Chinese probably believe in as many spirits as the Minchia, but in practice their faith is less unreserved ; just as the average European is not prepared to act on his faith in immortality to the extent of the Maori chief, whose young wife having committed suicide with her lover, promptly killed himself so as to pursue them into the spirit world. As Chinese culture spreads over these hills the spirits will probably gradually lose their material powers and the tribesmen find that brigandage is out of date.

The warnings given to us dealt less with the danger from spirits than from Lisu robbers. At the foot of the main ascent we passed a hut with a Chinese garrison, who told us that, three months before, five soldiers had been killed at it by a band of robbers; they enjoined on us the need for the utmost caution. That the warning of the soldiers was not without foundation we realized in the evening when we heard that a band of twenty Lisu had attacked a salt caravan

that was following two hours behind us, had stolen some of their mules and salt, and had left three of the muleteers insensible on the track. On this pass—the road of the Sun—we saw for the first time in our journey rhododendrons in flower, some mountain lilies and the blue poppy. From a Lisu beside the hut we bought a marmot, to add its skin and skull to the collection.

From the steep hill tracks it was a pleasure in the afternoon to descend to a plain irrigated by water from a tributary of the Yang-pi River. In this plain clumps of large shady trees stand beside the villages; the palm *Trachycarpus*, from the fibre of which the people weave their waterproof fabrics, grows in groups in the village gardens; willows border the streams and a couple of hillocks are each crowned with a small pagoda. The gables of the houses are adorned with frescoes of flowers and birds, mostly patterns of roses and cranes; they were doubtless painted by the village house decorator and showed the artistic taste which is so widespread among Chinese craftsmen. We crossed the plain to the hamlet of Kho-li-tsun, where we had a house-to-house search before the interpreter finally arranged accommodation for us in an untidy inn. The river that drains this basin flows along its eastern edge and, instead of using the broad outlet at its southern end, strikes into the hills through a gorge which must have been cut out by an overflow channel when the whole basin was occupied by a lake. The gorge is crossed by a three-arched bridge of which the central span stands on an island; the large apertures

on both its piers to relieve the pressure in times of flood suggest that this outlet has sometimes to discharge more water than it can conveniently accommodate. We followed a sinuous valley into the hills to an iron-mining village. The blast furnaces were not at the time in action. The iron-workers were then engaged at three forges, where they were hammering the rough bars of porous iron from the furnaces into ingots of wrought iron.

We reached the divide at midday, and in the afternoon descended through forests into the valley, where the first sign of habitation was a hamlet where the grain was being broken into flour by a crusher of an unusual type. One common form of rice-crusher is worked by a stream of water flowing into a hollow trough at one end of a log of wood which works upon a pivot. The water in the trough weighs down that end of the beam; the water is discharged and the other end, with its heavy pestle, falls back upon the grain. By this simple contrivance the corn is crushed automatically. At this village the water drives a wheel, the arms of which press down one end of the log, and, when the arm has passed, the pestle end falls into the pot containing the grain; the action is quicker than that of the deliberate water-weighted lever.

We followed this stream till the ravine widened out into a broad valley near Yang-tsen, a large well-built town with Tibetan architecture. The lower parts of the houses are built of massive stone and the upper storey of mud brick. The streets, moreover, are

narrow, the windows are few and the shop-fronts small, no doubt all devices for security. The general effect was more that of an Arab than of a Chinese town.

On coming up to the men we found that they had not yet obtained accommodation, as house after house had refused to take us in. The excuse given was that if any of our goods were stolen the town would be held responsible for their loss. The fear of thieves was apparently justifiable, as this was the only place at which anything was stolen from us during the night. Our interpreter tried to gain admission to a temple, but it was locked and he could not get it opened. As it was then dusk, he forced his way into a large courtyard. The owner protested that the house was already too full with his own family, but Tien was firm and insisted that they must receive us. The owner finding that our stay was inevitable swept his family and all their belongings out of his best room and had it cleaned for us. This was the only town in which we experienced such inhospitality, but we parted from our unwilling host next morning on the best of terms.

According to General Davies' map of Yunnan, which for this neighbourhood is based on the work of a former consul, G. Litton, the river at Yang-tsen flows northward to reach the Yangtze at its great bend at Shih-ku. Views of the country at midday had thrown doubt on the possibility of this course, for we found that it drains southward; it probably joins the Yang-pi and thus ultimately reaches the Mekong. Next morning after following down the river for some

distance we climbed over the ridge on its left bank and descended to the broad basin which contains the important walled city of Kien-chwan-chow (pronounced Jen-juan-jo; often spelt Chien-chuan-chou).

This basin presented a pleasant contrast with the narrow river-cut gorges in the western hills. It is some four miles broad, and though both sides are high and steep, it is wide and open. Its banks have been worn back by many gullies and by large tributary valleys, so that it presents the aspect of a valley much older than those in the hills. Huge mounds and banks of sand and gravel lie upon its floor, and at the deepest part of the depression is a lake. To the north the basin subdivides into two valleys and according to the maps the streams from them flow through this valley and join the Yang-pi; the valley is continuous to the south, but we did not see any river discharging from the lake, but it may escape through a narrow gorge, like that south of Kho-li-tsun.[1] Near the mouth of the valley through which we had entered this basin we passed a poppy-field, the first we had seen since leaving Shih-men-ching. The poppies were ripe and our men raided the field, each collecting a few heads, which they either chewed or smoked to their great satisfaction, and without any apparent detriment. We met a large caravan of which all the mules were muzzled to prevent their eating the poisonous herbs that are one of the dangers to mule transport, especially upon routes unfamiliar to the muleteers. We marched northward through this basin, at first over undulating barren

ground and across valleys which are used as reservoirs to store water for the villages on the lower part of the basin. We hastened north, watching the clouds blacken to the west, their forms becoming more and more menacing; the thunder became almost continuous and the storm broke while we were still on the open plain. After passing a temple situated on some mounds of a terraced limestone that has been deposited by springs we descended to the irrigated alluvial plain, and after an hour's march over it we reached the walled city of Kien-chwan-chow. As we had to make another half-march that day we halted outside the city gate, sent cards to the Magistrate with the request for a change of escort, and used the spare time to collect rocks up a stream from the west. Our cook visited the market and purchased supplies of the luscious vegetables grown in the well-kept market-gardens round the town.

After our midday rest and arrival of the new escort we continued northward along a well-kept road and over the best stone bridges that we had seen since Teng-yueh. The bridges were broader than the present track, which was obviously less well cared for than when it and its bridges had been constructed. The people in the villages are mainly Minchia and beside the graves stand pillars of the same design as those along the Lo-ma Ho. The women were threshing the corn by flails in circular patches of smooth earth beside the road. A heavy storm of rain delayed us and towards dusk we crossed a confused series of

volcanic hills beyond which we rested for the night at an inn in the village of Chiu-ho.

A deluge of rain which lasted all night delayed our start. The valley had now contracted to the width of about two miles, but had the same characters as the Kien-chwan-chow basin, though on a smaller scale, and with the walls steeper and more regular. We continued along this valley to Kuan-sia.

A soldier joined us during the night, as leader of our escort; his rifle was a primitive breech-loader; his uniform was a dull grey trimmed with black; but as he was fond of bright colours he had covered his wide-brimmed straw hat with many ribbons and two long tails all of light Cambridge blue, and his rifle strap was of the hideous magenta perpetrated by some early aniline dyes. The colour discord would in some of the eastern Chinese cities have been regarded as justification for his immediate murder. As if to rival our escort, the decomposed volcanic rocks over which we were walking were of particularly brilliant tints while still wet after the heavy rain.

Kuan-sia had once been an important station and the seat of a commissioner, where the route to Li-kiang branches off from the main north road from Ta-li-fu to Tibet. It now consists only of a nearly derelict inn. It is situated in a "wind-gap" between the head of the Chiu River and of a tributary to the Yangtze. A local legend states that the Yangtze formerly flowed through this gap towards Ta-li, and the geological evidence is in favour of that view. The date must,

however, have been too remote for any actual knowledge of it to have survived, and the tradition was probably a correct inference from the nature of the existing valley by some forgotten tribal geographer. There we left the Chiu Ho valley by a two hours' climb up its eastern wall. We made the ascent leisurely, for the scenery was attractive and we often stayed to search for fossils in the limestones. Southward we looked down the widening valley and over the volcanic hills beyond Chiu-ho toward the distant basin of Kien-chwan-chow. Below us lay a lake of green water, on the very summit of the pass. To the north the valley descends steeply to the Yangtze, beyond which rise tangled series of ranges, with the rugged aspect of true mountains and not of the tiresomely big hills that we had hitherto encountered. This northern view was at first appalling, owing to the intricacy of its topography and the amount of time its traverse would consume; but it made a strong appeal to the mountaineering instinct by the majesty of its snow-capped ranges and cloud-piercing peaks. Just after four o'clock we reached the edge of the Chiu Ho trench and entered abruptly a wide expanse of gently rolling downland, with patches of bracken and scrub in the hollows and dark pine-woods on the ridges. The depressions widened northward into fertile valleys whose floors and lower slopes were a mosaic of brown and yellow, where the fallow-land awaiting the monsoon rains alternated with ripe corn crops. A heavy thunderstorm passed, mostly ahead of us, and it made

the track so slippery that it was impossible to walk down the steeper slopes without a stick. Over the level ground we hurried forward, for it was obvious that our interpreter, with his usual optimism, had underrated the distance to our next halting-place. We had no confidence in our guide, who was the least competent soldier we had. During the ascent from Kuan-sia he lost us some minutes by rejecting a most obvious short cut. We had our revenge on him later by taking another, in which he followed with continual protests that we were losing our way. We therefore had no confidence in his power to find the track in the dark. The downs descended gently to the north between a pine-clad ridge overhanging the Chiu valley and a higher rocky ridge to the east above which the volcanic hill Ma-an Shan, the "Horse-saddle Mountain," to the west of Li-kiang-fu, stood like a black silhouette against the leaden sky. Farther south on the same ridge rose the still higher peak of An-tan-ndii, then capped by a thick cloud which was glowing white in the last of the twilight. To the north lay the lake of La-shi-pa, visible owing to the faint white ripple on its brown water; beyond it we could discern, beneath dark clouds, the base of the hills along the eastern side of the Yangtze, and of the snow-capped range of Li-kiang. So long as we were on the open moorland it was fairly easy to find our way, but when we plunged into the pine-woods we lost the track and stumbled along in utter darkness. At length to our relief we saw a light ahead. It proved to be carried

by one of the soldiers, who had been sent back with a strip of pine-wood, which is so full of pitch that it burns like a torch. This supply burnt out before we reached the village, and we were in difficulties again until shortly afterwards one of the muleteers came to meet us with an acetylene lamp. By its bright guidance we soon reached our commodious and comfortable quarters for the night, in a large farm-house that also serves as the village inn.

Next day by an easy half-march over the plain of Lake La-shi-pa and over the volcanic ridge between it and the Li-kiang basin, and finally along a broad paved road with well-built stone bridges, we reached the Chinese headquarters near the borders of Chinese Tibet. The land in the plains around this city is fully cultivated and irrigated by a network of water-courses. The people belong to the tribe of the Moso, to use their Chinese name, or Nahsi as they call themselves. They were once an independent kingdom and the ancient city of Li-kiang was their capital. The loss of their independence has not destroyed their enjoyment of life; the women were singing in chorus as they worked in line replanting the young rice, and they shouted with laughter when the three chair coolies imitated one of their songs. They were the lightest-hearted Mongolians we had seen. We were still feeling their contagious cheeriness as we crossed the western ridge of the city and through a long street lined on each side by shops reached the crowded market-place. Tien had told us often of the magnificence of the

Li-kiang inn; he had visited it before when two Germans were staying there, and from his account we looked forward to a few days in comparative luxury at the Savoy of western China.

On arrival at the inn we found it fully occupied by troops who were recalled from Chinese Tibet as part of the concentration of the Yunnanese army at Yunnan-fu. They were held up at Li-kiang by lack of transport, and they looked covetously at our mules. We had to find accommodation elsewhere. A retired official, Yang Tsao Chuin, invited us to his beautifully furnished house, where our baggage was stacked in a marble-paved courtyard and charming garden. His graceful courtesy was not imitated by his two yelping Pekinese poodles, whose protests at our presence continued throughout our stay. They were, however, still more annoyed at the visit of a party of Tibetan women who came, shortly after our arrival, to play, sing and dance. The barking of the dogs spoiled the music, and their dashes at the legs of the dancers introduced amusing variations in the performance. We expected the over-excited, over-fed dogs to die of apoplexy, but they recovered from their exhausting efforts and continued by their noisy objections to us to distress our chivalrous host.

NOTE

[1] According to Gill there is an outlet from this lake south-westward to the Yang-pi; but no such outlet is shown on the map by Genschow (1905).

CHAPTER VII

AT LI-KIANG-FU

O Soul, go not to the North,
To the Lame Dragon's frozen peaks;
Where trees and grasses dare not grow;
Where the river runs too wide to cross
And too deep to plumb,
And the sky is white with snow
And the cold cuts and kills.
O Soul, seek not to fill
The treacherous voids of the North.

O Soul, come back to idleness and peace.
In quietude enjoy
The lands of Ching and Ch'u
There work your will and follow your desire.

Poem, "The Great Summons," by CHU YUAN,
fourth century B.C. *Tr. by* ARTHUR WALEY.

LI-KIANG-FU is an ancient city on a hill near the centre of a fertile four-armed plain shaped like the letter H. It was once the capital of the kingdom of the Nahsi or Moso which was overthrown by the Chinese centuries ago. The Chinese left the king in possession of his personal property and his descendants are still the chief land-owners and local potentates. This policy was probably wise, as these magnates have realized that their estates were hostage for their good behaviour and they have given steady support to Chinese rule.

Li-kiang-fu has long been an important meeting-

place of Tibetans with Chinese traders. It is an unwalled city and the only one of its size and importance which we met so undefended. Its builders have acted on the Chinese proverb: "Men not walls make a city." It has probably been regarded as neutral territory by the Tibetan border tribes, as they frequent it in large numbers in the summer, and while trading there make a long stay camped in the neighbourhood. The town is built beside a series of streams which flow in so many channels that we were tempted to regard it as a Chinese Venice without the gondolas. The western part of the town has extended as a double line of shops along the main road to the Yangtze and Tibet.

At Li-kiang we suffered a series of disappointments and alarms. While still searching for accommodation we sent to the post office for letters and heard with incredulous disappointment that there was nothing for us. As soon as we had settled in our quarters we went to the Mission Station to inquire whether our money had been received by the draft that had been arranged at Teng-yueh. The authorities at that city had objected to our carrying our money through the by-paths by which we came as the heavy boxes of silver could not be concealed and would be an open invitation to all the brigands in the country. So the authorities insisted that we should only take enough money for expenses on the way. It was arranged that the rest of our money was to be sent to the Mission at Li-kiang, and should have been there before our arrival. Mr Klaver, the head of the Mission, had not received it or

any news of it. He consoled us, however, for this disappointment by giving us our mail; as no one at the Chinese post office can read English characters, all letters thus addressed are sent to the Mission, which acts as the European post office for the district. Our muleteers were anxious to be paid at once, so that they might leave the city before being requisitioned by the military authorities to carry stores to Yunnan-fu. For this work they would receive little pay, and they feared that both they and their mules would be ill-treated. So long as they were in the service of a European the Chinese authorities would not interfere with them, but after we had paid them off they would lose this protection. They were anxious to get their money and slip away before the soldiers could commandeer them. We had just enough money to pay them, and make the necessary advances for food to our coolies and servants, and after these payments we were left cashless. We made indignant protest against the delay with our draft and inquired of the merchants the condition of the country to the north.

Early next day we paid a visit to the Magistrate to arrange for our further journey. He was reported to be very hostile to foreigners and likely to hinder us. We had, however, a most courteous reception, promises of an escort to the north, and help in securing mules, of which there were few available. This conference we had anticipated with some anxiety, for the permission obtained at Teng-yueh did not entitle us to go farther north than Li-kiang, and we

feared that the authorities might object to our going on. Several merchants in the town had given us satisfactory assurances as to the conditions of the country. Except for the usual risk of robbery by brigands the road to Wei-si in the Mekong basin was understood to be safe. This information seemed confirmed by the first interview with the Magistrate, which appeared to remove the last obstacle between us and the Alps of Chinese Tibet.

A little later the Magistrate sent round to say that he would make his return call in the afternoon, and as it was advisable that Mr Klaver should be present at the interview it was arranged that the visit should be made at the Mission. The Magistrate arrived with an English teacher from the high school to act as his interpreter, and after more of the courteous expressions of the morning he dropped the bomb-shell that the country to the north was so disturbed that he could not agree to our entering it, and must ask us to confine our journeys to the district south of Li-kiang. He offered us every facility for work in that region. In the discussion with the Magistrate we pressed him as to whether he had news of any sudden change in the political conditions of Chinese Tibet. He could not deny that the track between Li-kiang and Wei-si was open, and we gradually extracted from him the fact that he was acting under peremptory orders from the Governor-General of the province at Yunnan-fu, and from the Magistrate at Teng-yueh, to prevent our proceeding northward by all the means in his power. He showed us the letter in which these orders were given.

In dealing with this check it was undesirable to trouble our Consul-General at Yunnan-fu, especially as the Magistrate had control of the telegraph line and could have countered any protest from us by unfavourable reports as to the state of the country. The only practicable course was to secure the good-will of the Magistrate, by assuring him that such inappropriate orders could only have been issued by people who had no conception of the great improvement effected in the country during his administration, owing to which the roads were now much safer than those in the neighbourhood of the capital itself.

As these arguments seemed to be influencing the Magistrate favourably, we welcomed an opportunity to drink our cup of tea and thus close the interview, so that we might strengthen our position by obtaining further assurances of the safe condition of the country; moreover, it seemed better to leave the question open until we had obtained the funds necessary for our journey, so that when any satisfactory agreement with the Magistrate was reached we might act upon it at once.

After the departure of the Magistrate we turned as a relief from these anxieties to a geological problem which the first walk through Li-kiang had suggested this locality might solve. One of the most attractive features of that untidy town is its beautiful marble paving-stones, which are composed of pebbles of various limestones cemented into a firm rock by a red limestone base. From Pu-piao onward we had frequently seen a black limestone which had been subjected to

such rough treatment since its formation that it has been traversed by a network of cracks which now exist as white veins. As to the age of this limestone there was so far no definite evidence, but fragments of it occur in the Li-kiang marble, so it is clearly the older rock. The marble also contains pieces of a cream-coloured dolomite, most of which are free from veins. The dolomite appeared therefore to be intermediate in age between the black-veined limestone and the Li-kiang marble. Mr Klaver kindly promised to take us to a hill composed of the cream-coloured rock, and led us round the southern end of a range that rises immediately north of the town. We followed a stream that flows along the western foot of this range to an artificial lake formed to work some rice-mills. The lake, as is usual in a Chinese suburb, has been beautified by shrubs on its banks and a picturesque summer-house on a small island. We also passed the Taoist Temple of the Black Dragon—the Long Wang Miao. A short distance farther north the hill is composed of a cream-coloured dolomite similar to the famous dolomite of the Eastern Alps. In this rock we discovered with joy large blocks of coral in growths sometimes six feet in diameter, which show that this limestone was formed as a coral reef.

The rocks in this Black Dragon Hill have been steeply uptilted, and the coral indicated that this disturbance was later than the formation of the Indo-Malayan Mountains, and was due to the earth-movements which had upheaved the Himalaya. We

returned to the city past the marble quarries and searched them for fossils which would settle the date at which this marble was formed; but though it contained plenty of the black-veined limestone and of the dolomite, it yielded no direct evidence of its own age.

On the way out Mr Klaver took us to the main temple of Li-kiang, a long oblong enclosure rising up the hill-side. Its most striking feature is a quadrangle devoted to models illustrating the tortures that await the wicked in the next world. The utmost ingenuity has been devoted to the invention of horrors worse than those of the European Inquisition. Men were shown being sawn to pieces between two planks, being pounded to death by rice-crushers, torn to pieces by bullocks and by racks, crucified, burnt, and done to death with all sorts of ingenious horrors. Many of the visitors to the temple were inspecting these models with enjoyment and amusement, exhibiting that callousness to suffering which is the most perplexing trait in the Chinese character. On the opposite side of the town is a Confucian temple; its quadrangles contain fish-ponds, flower-beds, and noble bronze incense bowls, and are of a dignified beauty consistent with the high principles of Confucianism. This to us attractive temple was almost derelict; its caretaker seemed surprised and gratified at our visit; it was empty of worshippers, who throng to the Taoist temple and its hideous " chamber of horrors."

Li-kiang was the first Chinese town in Yunnan at

which we had the opportunity to observe the work of a Protestant mission. The station there belongs to the "Pentecostal Mission of Great Britain and Ireland," which was established by Mr Cecil Polhill. At the time of our visit the Mission consisted of Mr and Mrs Klaver, Miss Scharten, Miss Rose, Miss Bekker and Mr Andrews, who, except Mrs Klaver and Mr Andrews, are Dutch. The Mission occupies a beautifully kept compound on the ourskirts of the town.

The number of converts made is small, but the statistical test of mission success is futile. The main value of its work is its influence in undermining Chinese exclusiveness and in laying the foundation for better systems of morals and public health.

Many supporters of missionary enterprise half-a-generation ago would have objected that success in any secular sphere is immaterial compared with the rescue of Chinese souls from heathendom in this world and hell in the next. While that view was dominant in mission work in China its progress was slow, and its enemies included many men who would otherwise have been sympathetic. Mission work in China was opposed by men who warmly supported it in Africa and the South Sea Islands. These critics felt that some of the men who entered the mission field were useless, or even mischievous, when sent to a people with such a well-established culture, widespread national education, and such a high standard of individual honesty, industry and handicrafts. This feeling led to such censures as those by Dr George W. Morrison,

the famous *Times* correspondent, in *An Australian in China* (1884). One of us learnt in conversation with him in Peking in 1914 that he considered that his criticisms had by then passed out of date owing to the change in missionary work.

The Protestant missions in China have been handicapped by three burdens—their entry at an unpropitious time, their numerous sects, and the quality of some of their agents. They were very late to enter the field. The Jesuits began their work in China in 1552 when St Francis Xavier landed at Maçao, near Hong-Kong; he died the same year on Sancia Island, in the river leading to Canton, while endeavouring to reach that city. Four years later the Dominicans joined in the work with the arrival of Gaspard de la Croix.

The Jesuit missionaries were men of the highest education that Europe could then provide. They were appointed the official mathematicians and astronomers of the Chinese Empire. They surveyed parts of the country, delimited its western boundaries, and established the famous observatory of Peking. Their map, completed in 1708, is probably the most important single contribution ever made to Chinese geography. Their secular achievements were so useful that they were protected by the government during occasional bursts of anti-foreign feeling.

The Protestant missions entered the field two and a half centuries later, when the Chinese had become seriously alarmed by European annexations in Asia; and as those "contemptible sea-going imps," the British,

were regarded as the most dangerous, the hostility to them was the most intense. The first Protestant missionary, George Morrison, landed in 1807, when no foreigners were allowed outside the factories of the British traders, and the crime of teaching the Chinese language to a foreigner was punished by death.

Under such conditions it is not surprising that the Protestant missionaries found progress difficult. The efforts to exclude foreigners and foreign influence were broken only by war. The admission of Europeans and missionaries was secured by the Treaty of Tientsin in 1858; and missions were granted the right to buy land and erect buildings by the Treaty of Peking in 1861. Under such circumstances the Protestant missionaries were naturally regarded at first with suspicion as political agents.

China having been thus opened to missionary enterprise, many Protestant missions entered the country, but their work was hampered by the number of conflicting sects. The variety of Protestant missions in China is bewildering, except to theological specialists. The list of those at work in 1902, given in Richards' *Comprehensive Geography of the Chinese Empire* (1908, pp. 360-361) numbers sixty-nine. The sects engaged include the Advent Mission, Seventh-day Adventists, Seventh-day Baptists, Methodist New Connexion, Methodist Episcopalians, Methodists who are not Episcopalians, Episcopalians who are not Methodists, Southern Baptist Convention, Hauges Synodists, the Pentecostal Mission, and the Mennonites. The greatest

of the Chinese Protestant missions, the China Inland Mission, which has the largest number of agents in China, tried to overcome this difficulty by being undenominational; but some of its principles, though eminently praiseworthy, are attended with practical difficulties in the development of the educational side of mission work.

The third handicap on Protestant mission work was the fanaticism and ignorant intolerance of some of the early missionaries. No one has much chance of converting the Chinese without sufficient sympathy with their point of view to understand it. Many of the pioneer missionaries failed to appreciate the real merits of Chinese philosophy and often offended the deepest religious conviction of the Chinese—veneration for their ancestors. The early hostility to the missionaries was constantly renewed by what the Chinese regarded as gratuitous insult to former generations. Confucianism, the great indigenous religion of China, is a consistent ethical doctrine, based on a series of noble principles which are rendered effective by practical rules of life and conduct.

The fundamental beliefs of Confucianism are that the world is controlled by an internal order which is essentially moral; that man as the highest product of the world is naturally moral, but that to keep him on the paths of righteousness he must be educated. This view is stated in the poem quoted on page 81. Man falls from grace from his own ignorance or from the bad example of his leaders. Education is the only safeguard against both dangers. Confucius strengthened national education, which had been established

in China long before his time, by an ethical basis. Education, according to Confucianism, should supply moral control, mental discipline and useful material knowledge. Personal mental discipline should ensure continued self-watchfulness, which is especially necessary when man is in solitude and free from the control of public opinion. This ever alert conscience should develop in all men the five fundamental virtues—kindly sympathy for one's fellow-men; justice and the stern repression of selfishness; obedience to honourable rules of life and respect for theceremonies by which a man is constantly reminded of them; intelligence and strict fidelity to one's word and bond. These precepts have helped to make the Chinaman what he is and to render the Chinese civilization the stablest that the world has ever known.

It is grotesque to describe such a religion as Confucianism as a jumble of degraded and barbarous superstitions. Laotze, the founder of Taoism, that strange mixture of Buddhism and superstition, which is the most popular religion in China, said: "A good man is a bad man's teacher; the bad man is the material from which the good man works, but if the worker does not love the material despite his sagacity he and his pupils will go far astray." "This," added Laotze, "is a mystery of great import." That saying expresses the fact that success in educational work depends upon affection between the teacher and the taught; and between a missionary and those whom he is trying to benefit any real affection must be based upon sympathetic appreciation of what is good in the people and ennobling in their convictions.

Yet many of the early Protestant missionaries failed to appreciate the great merits of Chinese religious and social systems and thus led to the growth of a strong anti-foreign feeling, which culminated in the Boxer movement of 1899-1900. The Boxer uprising, although the saddest tragedy in the recent history of China, led to remarkably good results. The suppression of the movement and punishment of the Chinese who were responsible for the excesses led to the occupation of Peking by the allied forces, to severe punishment of highly placed officials, and to the imposition of a heavy indemnity. These penalties and the easy victory of the allied forces made the Chinese realize the need for improvements in their educational and administrative systems, and for a better knowledge of the ways of the Western world. The missionaries also learnt the need for a thorough reform in method. The change in attitude on both sides has led to missionary successes far greater than seemed possible twenty years ago. The missions have given most important help in higher education. Many new schools have been founded, schools have been raised into colleges, and some colleges developed into universities. The University of Peking (which is quite a distinct institution from "the Government University of Peking") is founded on a college of the American Methodist Episcopal Mission; the University of Nankin is based on the union of colleges founded by the American Presbyterian Mission, the Methodist Episcopal Mission, and the Foreign Christian Mission. Medical

schools and mission hospitals have been developed owing to the munificent endowment of the Rockefeller foundation. There are eleven universities in China instituted by foreign organizations, in addition to nine Chinese universities at Peking, Tientsin, Tai-yuan, An-king, Sian-fu, Cheng-tu, Nankin, Wu-chang and Canton. This increased attention to the so-called secular side of mission work has led to great success in its religious propagandism. By 1911 the number of the Christian community in China had increased to half-a-million. By 1920 the number had been raised to nearly two million Catholics and 618,000 Protestants.[1]

The increase is being quickened by the development of the National Church of China, which is a Chinese organization based on the belief that only Christianity can save the country from disruption and foreign domination. One of the leaders of this National Church, General Fung, who in 1922 was governor of the two provinces of Shansi and Honan, is a Christian, and an active preacher; he encourages the officers of his staff to conduct Bible classes for their soldiers. He is at the present time the most powerful Christian propagandist in China. Wu Pei Fu, who after his defeat of Chang So Lin in 1922 was for a time practically the dictator of China, though not himself a Christian, attaches great weight to the opinions of General Fung, and realizing the material benefits which are likely to come from the educational work of the missions, is prepared to give them his powerful support.

In western Yunnan the Protestant missions are

few and comparatively young. The small number of Chinese converts has disappointed some of the workers; they find the non-Chinese tribes in the hills, whose religion is the primitive spirit-worship, more ready to accept Christianity than the educated Chinese of the cities. But upon the city Chinese the influence of the missions is also most useful. Relations of personal friendliness are being established with Chinese officials and leading citizens, who learn to realize that the Europeans are not "foreign devils," but friendly men, and that the missionaries are there solely in the interests of Chinese welfare. In our walks with Mr Klaver at Li-kiang and with Mr Lewer at Wei-si the frequent friendly greetings from men who would not enter a mission church, and probably scorn Christianity as a low modern creed, showed that the missionaries are slowly breaking down that objection to foreigners and to foreign influences which during last century was the greatest obstacle to Chinese progress.

As nothing could be done until we had replies about our money, and as a powerful caravan which might be bringing it was expected in three days' time, we resolved to spend the interval in a visit to Mr George Forrest, who was living at a village on the slopes of the Li-kiang snow mountain, forty li across the plain. Mr Forrest is the best British authority on western Yunnan, for he has been engaged there since 1905 investigating its botany and collecting seeds for the acclimatization of its plants in Europe. His devoted

work has revealed to science the extraordinary wealth of the flora of Yunnan, especially in rhododendrons and primulas, and he has adorned Western gardens by the introduction of many most attractive flowers. Some of these, such as *Cynoglossum Forresti*, are named after him, and have rendered his name a household word in Western horticulture. He has also made important zoological collections. His terrible experiences during the Tibetan revolt in 1905 are referred to in a later chapter.

We left Li-kiang next morning on this visit and crossed the irrigated plain to the north, enjoying occasional glimpses through breaks in the clouds of the higher peaks of the Li-kiang range. After lunch Mr Forrest took us for a walk to the foot of the range, where we found a number of fossils. Our glimpses of the mountain had revealed features which appeared due to the action of glaciers at a much lower level than they now reach upon this range. Upon asking Mr Forrest, he told us of a ridge, a few miles to the north of his house, formed by glacial action at the level of about 11,000 feet and 2000 or 3000 feet below the level of the lowest existing glacier on the mountain.

The height of the main peak is uncertain. General Davies marks it as 19,000 feet, but Mr Forrest, who has climbed the mountain to the height of 17,500 feet, is certain that it is over 20,000 feet. Dr Handel-Mazetti, the Austrian botanist who has made the most careful survey of the range, assigns to it the height of 19,000 feet. During both our visits to the district its snow-fields, glaciers and higher peaks were

visible only through occasional rifts in the clouds. We therefore had no opportunity for an independent determination of its height.

The pleasure of our visit was increased by meeting Mr Joseph F. Rock of the botanical staff of the United States Department of Agriculture, who was making a collection of the plants of Yunnan. He had travelled north from Siam, whence he had dispatched a large consignment of young chestnut-trees in the hope that they would be immune to a disease which has ruined many of the chestnut groves of the United States. Mr Rock is an expert on palms and we had read, just before leaving Scotland, one of his papers dealing with an enigma presented by palm distribution — the occurrence of a species of the palm *Pritchardia* in Cuba, its only known locality outside of Polynesia. After dinner at his villa we spent most of the evening discussing the bearing of plant distribution on the problems of the Pacific.

Mr Rock offered to guide us to the glacial moraine discovered by Mr Forrest and to a locality where the limestones of the mountain had been bent into the overfolds characteristic of Alpine mountains. We kept along the foot of the range to the mouth of the main valley in the north-eastern part of the mountain; there we saw a magnificently developed moraine and found further evidence that a glacier once extended down this valley to the level of about 10,500 feet above the sea. In the moraine we found a block of black limestone containing a coral (Idiostroma) which also

occurs in the limestones of South Devon and the Rhine valley. It showed us that the lower series of the Li-kiang limestones are of the age known to geologists as the Devonian.

On our return to Li-kiang we found that the caravan which was expected to bring our money had arrived without it, and further inquiries showed that it had been diverted to other purposes and would not be released for some time. Mr Klaver had kindly obtained an offer from one of the merchants concerned in this irregular proceeding to advance half of the money, provided we did not ask for the payment of the balance for a month's time. We felt bound to accept this offer, though it involved travelling with fewer mules than we desired, leaving part of our goods at Li-kiang, and returning there in order to obtain them and pay off our muleteers. The money available at once would, however, enable us to start for the north as soon as we could secure a permit from the Magistrate. He saw us again the next morning, Mr Klaver kindly acting as interpreter. After an anxious but courteous conference the Magistrate agreed to our proceeding to Wei-si, provided he received no further orders to the contrary, if he were given a letter stating that we were going on in spite of his warnings and at our own risk. We agreed to this condition on the understanding that he would give us an escort and would not publish this agreement widely, lest the brigands along the route should think that they could rob us with impunity. He promised that if we went on after relieving

him of personal responsibility for our safety he would do his best to help us. He most honourably fulfilled that pledge. The evangelist at the Mission kindly translated the letter and wrote for us a literal translation of this document before it was signed. Owing to the fundamental difference in construction between the English and Chinese languages it is very difficult to express in Chinese the exact terms of an English statement. We insisted that the letter should include thanks to the Magistrate for the escort which he had promised, in order to show that though we were proceeding against his advice, yet we were going under the protection of an official escort for the size and quality of which the Magistrate was responsible. The following copies of the draft letter and its literal retranslation show the difficulty in interpreting British documents into Chinese:—

LI-KIANG-FU,
17*th June* 1922.

The MAGISTRATE *of* LI-KIANG-FU.

DEAR SIR,—I am much obliged for the kind consideration which has led to your warning against our proceeding to Wei-si; but my son and I are so desirous of visiting that district that I have arranged to proceed to Wei-si to-morrow morning and agree to the conditions that the visit of my son and myself is on our own responsibility.

Thanking you for your great courtesy during our visit, and for your kindness in providing an escort,

and hoping to see you on our return in a few weeks' time. Yours faithfully.

Literal translation of the letter as given to the Magistrate:

Write please! Li-kiang official please see to-day afternoon 3 o'clock come to my house, exhort me do not go Wei-si, because road dangerous. Many thanks, but I already, with my son have decided 5th moon, 23rd day to travel from Li-kiang to proceed to Wei-si. I very much want to see the district above Wei-si. For this reason I came to China, therefore I must proceed. If I should meet danger I myself am responsible. Please you will have no business. Now you Sir, we go to Wei-si, 7 days journey, so thank you us the escort. This is because we are friends, one country with another. Afterwards we will see each other. Please greetings.

After signature of this letter we were at liberty to resume our journey. Thanks to Mr Klaver, nine mules were engaged at the normal price; he kindly stored the baggage we had to leave behind us. After cordial farewells from the Mission and our courteous host, and promising to pay careful attention to the many warnings as to the danger of the Li-ti-ping Pass, we started west across the Li-kiang plain for the Yangtze Kiang and Chinese Tibet.

NOTE

[1] *China Year-Book*, 1920, pp. 817, 819.

CHAPTER VIII

A *VOLTE-FACE* OF THE YANGTZE

Far to the Northland there lies a land,
  A wonderful land that the winds blow over,
And none may fathom nor understand
  The charm it holds for the restless rover.
                A. B. PATERSON.

ON 18th June we set out for the north. We retraced our footsteps across the Li-kiang plain, over the line of hills on its western side, and across the plain of La-shi-pa south of the lake. A break in the clouds gave us for a few seconds a view of Li-kiang Peak. We now left our former route, and reached the down country, which separates the basin from the Yangtze Kiang (or Yangtze Chiang, in the Yunnanese dialect), north of where we had crossed it eight days before. The track ran up a ravine whence we suddenly emerged on to open gently undulating country, with such graceful curves and rounded hill forms that it looked almost like parts of Surrey. Firs were sparsely scattered over the wide expanse of grassland, generally gathered into little clumps or woods. The most striking feature was the absence of streams or of any drainage system. The explanation was simple. We passed many deep pits, conical in shape, often lined with shrubs, and with such steep sides that

one had to reach the very brink before being able to see down them. Through such swallow-holes and multitudes of smaller channels the surface waters flowed underground. According to tradition, the pits were dug by the Tibetans to bury their treasure when the Chinese first came into the district.

The porous limestone was covered by twenty feet or more of red clay, on which hill crops were grown, with rough grass elsewhere. In dry weather the walking was excellent, but a little rain made the clay extraordinarily slippery, and at places it was an achievement to keep one's feet. In addition, the heavy mud clung to one's boots as in a ploughed field. The road consisted of a great number of parallel narrow footpaths, made by people's efforts to leave the slippery older tracks and keep to the cleaner ground at the side.

The descent on the western side of the plateau was long and steep, but half-way down was an undulating strip of the same sort of country as we had just left. During the descent we had our first view of the Yangtze—a little orange-coloured ribbon which wound its way along the bottom of its deep valley. A few miles away the valley made a slight bend which hid the river from sight just before it entered its tremendous gorges at A-hsi.

The Yangtze is one of the most remarkable rivers in the world. It is the fifth in order of length, being exceeded only by the Mississippi, Nile, Amazon and Yenesei. The area of its basin is relatively small, being less than those of many shorter rivers, such as

the Congo and the Zambesi, but in the quantity of water discharged the Yangtze is second only to the Amazon. It is more than four times as large as the Mississippi and a hundred times as large as the Nile. Although the Yangtze is here 2400 miles from its mouth on the other side of China, it is also over 1000 miles from its source in Inner Tibet, and it is no mean river. It was 600 yards wide and flowing swiftly. A few miles farther up we estimated its speed as six miles per hour, but here it must have been less. The surface was unbroken, though it was disturbed by eddies and ripples and backwash. The water was so laden with mud that it was quite opaque and bright browny-yellow in colour.

Next day we reached the river and turned south-west to follow up it, for we were here on the north-going limb of its great loop. A couple of miles away we could see the town of Shih-ku, built on rising ground just south of the bend, with a background of hills. As we neared Shih-ku the bend came in view. It was an extraordinary sight. A river of the size just described was actually carrying out a wheel of one and a half right angles. The method by which it executed this manœuvre seemed to be to form a lake at the bend, pour into it from the north, and leave it at another corner towards the north-east. Certainly the river became very wide here, with a great backwater on the south side of the main stream. Both parts of the valley, above and below the bend, were continued by smaller valleys to the west and south, and the latter

would have led us into the Kien-chwan valley. A plan of the country thus resembled an X, with Shih-ku in the centre, and as the reason for the bend was an unknown quantity, the selection of this letter seemed fortunate.

The name *Shih-ku* means "the place of the stone drum." The drum, which stands near the main road below the town, is a cylinder of stone some six feet in diameter and rather less in height. Tien said that it came from Tibet long, long ago, and that it was five hundred years old. He also said that it was covered with Chinese characters, which would doubtless throw further light on its history—unless it be merely that evilly disposed people have amused themselves by carving their names—but we had not time to give the monument more than a passing glance.

The road swung round, and we were soon back on our rightful course northwards. Shortly after three o'clock a hot wind sprang up from the south, gained considerable force, and dropped again, the whole episode not occupying a quarter of an hour. For the rest of the day there were only light airs, mostly southerly. The occurrence is referred to because it recurred several times between Shih-ku and A-tun-tze, always about the same time of day and always in the same manner. The climate was muggy and relaxing and the temperature ranged from 73° to 78° F. Several low islands lay in the river, especially near the bend. A ferry generally plies across the stream hereabouts, but the current was too swift for anyone to care about

crossing and the boat was lying on the bank above high-water level. Farther up-stream we saw two log rafts and a coracle among the islands, and a boat in use in a quiet stretch of the river.

At a place where the ground fell sharply away from the road for a height of some twenty feet, a black pit lay on the outer edge of the path, which was here wider than the usual few feet. It seemed a curious position for a shaft furnace, but it would have been conveniently placed for charging from the road. What travellers thought of having to pass through the smoke presumably had not mattered, but the furnace did not annoy us for it was in disuse. Had we been benighted our attention might have been called to it somewhat violently.

Although the main valley continued to be of the same width, the foothills which were formed by the ends of the spurs here drew close together, and we soon entered a ravine in which the river occupied the whole of the floor. The only way by which loaded mules could pass was a ledge in places only just above the level of the water. A vertical cliff rose on the other side of the path, so that if the water had been a little higher passage through the ravine would have been impossible.

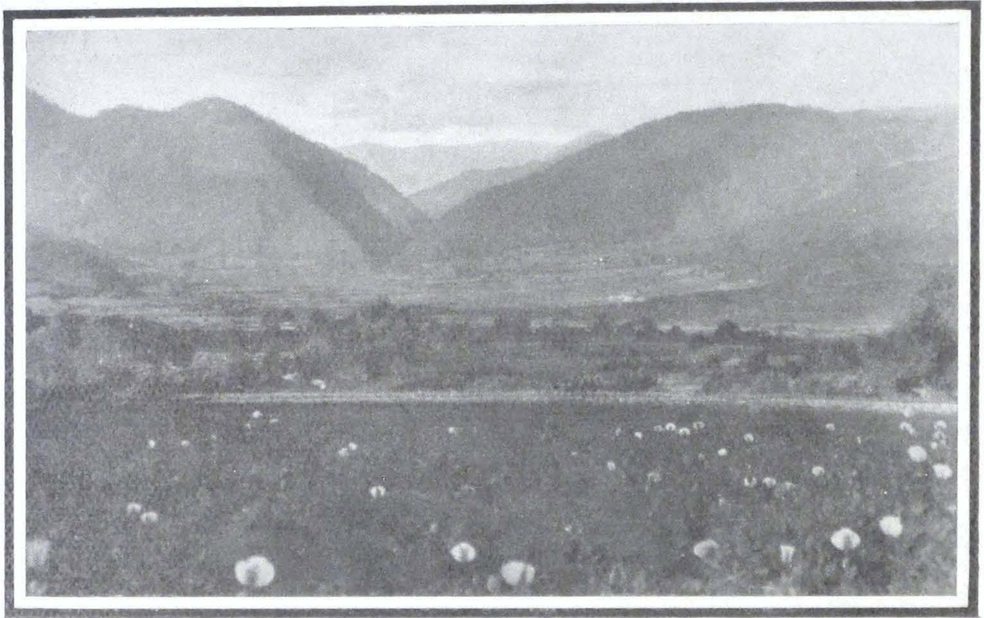
At a judicious time for afternoon tea we reached a hamlet which we felt sure would furnish refreshment, but the ten cash were tendered in vain. Not twenty cash would purchase a cup of tea. The next tea-shop we entered was in La-shi-pa, close to Li-kiang. The house here contained strange vats and churns and

filters in its dark recesses, but nothing which was of any use to us.

All the next day and half of the following one we continued to march up the right bank of the Yangtze. The main walls varied somewhat in their distance apart and the amount of cultivated land altered. In places the hills came right down to the water, while in others the slopes flattened out sufficiently to allow terraced rice-fields to be made. Hill crops were being grown, but the dry fields were now bare and we did not find what had been planted until our return. The hills were wooded, not densely, with deciduous trees and shrubs, and many great walnut-trees. The river remained wide, sometimes with a long low island in mid-stream, and though it flowed quickly, often with ripples, it never formed rapids.

Two and a half days after first reaching the Yangtze, and just south of the town of Chi-tien, we turned westward to cross the hills to the Mekong. At Chi-tien the river emerged from a mass of hills, and it was hard to tell what course it had followed or down which valley it had come. The view to the south was of a very different nature. The valley ran straight for miles, and spur after spur could be seen descending from the hills on either side in orderly succession. The river became very wide at Chi-tien, and a still backwater over which the distant vista was seen increased the remarkable resemblance to fiord scenery.

Tibetan influence was becoming noticeable in the affairs of men. The architecture was less ornamental,



Li-tien Basin

The entire drainage flows through the gorge in the centre, on its way to the Yangtze. The white flowers in the foreground are opium poppies.

Plate VI]

Threshing

The long flail, which is on the back stroke, is swung round behind the body with a conical motion.

and the houses though comfortable were rougher than the ordinary Chinese buildings. The bridges were now generally made of logs, and until our return to near Chi-tien we crossed very few of the elaborate structures which up till now had been frequent. A common type of log bridge for short spans was built of a simple cantilever projecting from each side, with the gap in the centre filled in by logs which rested at each end on the tip of a cantilever. In this way much longer distances could be spanned than by the simplest kind—namely, a number of logs close together with an end on each bank. Instead of wayside temples, Tibetan inscriptions were cut on rocks, or carved on stones, or written on little pieces of cloth which were flown as flags. A tall pole, also used for religious purposes, carried our thoughts back to the Bell Pagoda at Bhamo, close to which stands such a praying-mast.

We walked for thirteen miles along a deep valley, climbing steadily, and after a final length through a particularly narrow cleft to our surprise we emerged into an open basin. The main divide bounded it in front, while on either side a line of hills swept down from the range and joined behind us. The cleft through which we had come appeared almost inconspicuous, and it was hard to realize that the sole drainage outlet from the area was this breach. From Li-tien, the village on the farther side of the basin, we had only a tiny vista (Plate VI.A) down the narrow gorge by which we had reached this smiling and unexpected land, 2500 feet above the level of the Yangtze.

None of the ground was under rice, and the large, dry, slightly sloping fields, many of them gay with flowers, were reposeful after the interminable terraces of wet mud in the Chinese valleys. In the yard of a house a Nahsi was flailing his corn (Plate VI.B). He was a small man and his flail was actually longer than himself, yet he kept the rod swinging steadily and easily, raising the dust at each thump, apparently without exertion or fatigue. The handle was considerably shorter than the flail, and he had to raise it nearly vertical so as to allow the flail to clear the ground as it swung back, and then drop the point almost to touch the threshing-floor as the flail delivered its stroke. The operation appeared fearfully dangerous, but the man was able to look about him, shift his ground and see what was going on.

Next day we had only to climb on to the Li-ti-ping Pass, which it will be remembered had an unsavoury reputation, and descend the other side to Wei-si. The morning was wretched and all the hills were blanketed in mist down to a level only just above us. Before we started a detachment of the local militia presented themselves, and said that they had been turned out by order of the Magistrate of Li-kiang to afford us protection in addition to our three soldiers.

We found the parade standing easy, very easy, outside the inn door, apparently oblivious of the rain, and if we had been flattered by their coming, we were charmed by their equipment. The most striking weapon was a three-pronged spear, a relic of the Chinese

army of a few decades ago, which would have been the very thing for a warrior who was short-sighted and could not see his adversary clearly, but the length of the handle and the thinness of the head at the point where the side blades came in gave it a jerry-built appearance. The two outer points separated to a foot and a half apart, while the straight central point was a foot long and projected a little in advance of the side prongs. Two men were each armed with a plain and business-like hunting-spear, which could no doubt have done good work against similar weapons; but the main strength of the party was its long-range artillery. The three men who were the remainder of the rank and file each carried a cross-bow, a really effective weapon, for the missiles fired were darts tipped with the poison aconite. The bow was two and a half feet long, and the handle of the same length. The string was pulled back up the handle until it slipped into a notch cut in an inlaid piece of bone. The machinery of destruction was set in motion by a tiny trigger also made out of bone, which pushed the string off the edge of the notch and allowed it to hurl the dart "at the two-mile-distant buck." The authorities seemed to have become aware, however, that excellent though all these weapons were in their own way they were becoming a trifle out-of-date, and to keep up with the times an antiquated breech-loading gun had been issued to each of the two leaders.

The uniform was as striking as the arms. Each of the eight wore a short cloak, varying from grey to

black and made of coarse thick woollen fabric, roughly pleated round the shoulders to form it into shape. Their trousers were short, and those of some of the men were rolled up above the knee. Their headgear was assorted, some wearing the Chinese cap, some a small turban, and some mounting a wide straw hat on top of either, while others wore a hat pressed out of a single sheet of fabric.

It is not to be imagined that the regular escorts were of this nature. Some of them certainly looked harmless and free from thoughts of strife, but many of them seemed alert and eager to use their rifles. At times they would slip in a cartridge, and one man used suddenly to drop behind the nearest cover and draw a bead on some imaginary foe. The men whose ammunition was not in buttoned pouches used frequently to count the rounds in their cartridge-belts, and it was clear from the anxiety on their faces while doing so and their pleasure on finding the number correct that they had to account for every round.

The ascent from Li-tien was steep, up a path littered with rocks and made slippery by the wet. It zigzagged through dense woods and it was seldom possible to see far ahead. It is always difficult to keep a sharp look-out when climbing steeply, and to add to the difficulties of observation we soon entered the mist. The robbers who take advantage of the natural facilities of the place for professional purposes are Lisu from the other side of the Mekong. After springing their ambush, they flee by tracks through the forest, across

the Mekong, and up the other side into their mountain fastnesses, where the Chinese are quite unable to catch them. We saw no bandits, however, and probably they prefer to work when the ground is harder and following their tracks more difficult. Besides it would be bad policy to attract too much attention to themselves by an attack on Europeans, and many robbers in Yunnan show a wise degree of moderation in their crimes.

Half-way up a muleteer produced some firm lumps of brown sugar, handed one to each of his comrades who was near enough, and dosed one or two of the mules in the same way. One of us was near by at the time, and the muleteer generously offered a chunk, an offer which was not refused. The sugar was most refreshing and warming.

The path came suddenly to the highest point on the divide and the nature of the country changed at once. A short descent brought us into a wide flat grassland from which rose fir-clad knolls, arranged haphazard. The grass between them was soaking wet, and in places under water. We halted for lunch at what had once been a log hut, but only a corner of the roof was left and our clothes had no chance to dry. The auxiliary escort was not to come any farther and they left us here. They had kept cheerful in spite of the weather, partly perhaps in anticipation of the "cumshaw," the Chinese equivalent for "backsheesh," which it is customary to accord to escorts. Although their mediæval equipment had afforded us amusement they might have done excellent work as scouts if their

services had been required. In addition, their coming was reassuring as to the good-will of the Magistrate at Li-kiang.

The grassland ended as suddenly as it had began. The descent ran along the top of a spur and then down its steep end by a newly repaired road. The ground was slippery, but progress was made easier by the continuous short zigzags, and firm foothold was afforded by pieces of wood which were fastened across the path at short intervals to keep the earth from being washed away. In places the wooden cross-bars were so close together as to form a staircase. From the foot of the spur we followed a flatter course until we reached the Wei-si River, and after a short climb on the other side we entered the town of Wei-si itself.

CHAPTER IX

BY PRECIPICE & RAPID

An huge great Dragon, horrible in sight,
Bred in the loathly lakes of Tartary,
With murdrous ravine, and devouring might.
SPENSER.

WEI-SI-TING stands above a large river which flows north until it makes a sharp turn to the left and joins the Mekong. The eastern side of the valley is formed by a complicated system of long spurs, but the western side is a simpler slope and the town is a little way up it. *Wei-si* means "Western Fort," for it is the western outpost of the Chinese administration. It is badly kept, and the western wall particularly is ruinous, but the steep slope on which it is built gives it one natural advantage, a good drainage system. The main sewer, which runs down the side of the chief street, is loosely covered with boards or flat stones, and it was at first surprising to hear the pavement ring hollow or feel it give when stepping on the covering.

The Pentecostal Mission has a branch here under the charge of Mr A. G. Lewer. We called on him as soon as possible, and he gave us a hearty welcome as well as the local news. The most important item was that the southern gate had been shut for weeks. As

every walled Chinese town has four gates the loss of one would not seem serious, but the trouble was deeper than appeared at first. It is a fact well known to the Chinese, whatever meteorologists may say to the contrary, that the spirits which bring the rain and floods come from the north, while those sultry devils which are responsible for droughts come from the south. This being so, it is obvious that if the weather is upset it can be righted by eliminating one or other of the sets of deities, and what could be simpler than to shut the city gate by which the over-energetic spirits must enter? How the ground outside the wall can be affected is not clear, and the spirits seem to be easily discouraged, for a small opening is often left in the gate through which merchandise can be passed. Perhaps in this case too large an opening had been left, for although the weather was "soft," nothing like enough rain had fallen, and the people were in distress about their crops, which had twice been eaten by worms. If the third planting failed, the peasants would be badly off. We were told that we should have difficulty in buying any food and that it would be expensive.

The Magistrate was a charming and cultured man who made no difficulty about our proceeding to A-tun-tze. Mr Lewer kindly asked him and us to tea together, and the conversation ranged from jade to the war in eastern China. The official had just completed the improvement of the road by which we had come, and he was justly proud of it. He was apprehensive of what we should think of the road to the north,

and he apologized for its not being in better condition, but so far he had only collected materials for construction later in the year when the weather would be more suitable. He had also inaugurated a scheme of afforestation on the hill behind the town. Every family had to plant one tree every year. It must have been difficult to enforce the rule, but a thriving young plantation was already the result.

On making inquiries in the town about mules, we learnt that none were to be had, for no one was travelling at this season. Why did we not travel in winter like other people? The facts that in winter the high passes are closed, the rocks are often under snow, and the flowers are gone were not accepted as adequate excuse. Apart from the difficulty of persuading any muleteers to be so foolish as to carry our loads at this season, we should find the road not only dangerous but impassable. Landslips rushing down the hillside cut the road and entail a wait of days until a temporary repair can be effected. Even if no one is on the land when it slips, the break may occur between the traveller and his mules and cut him off for a considerable period.

When we paid off our muleteers we asked them what they intended to do next. They said they would take their animals to the hill pasturages to feed for a few days, and then return to Li-kiang to work the roads thereabouts. As they seemed quite good fellows, obliging, and now fallen in with our ways, we offered to take them on to A-tun-tze, but they refused. For

one thing, the two days we were staying in Wei-si were quite inadequate to fatten up their beasts. When it was pointed out that they would have to return to Li-kiang without a cargo, they replied that they did not mind, but they had no wish to go to A-tun-tze, and Wei-si was as far as they cared for. Finally the head muleteer, quite a young chap, said he would talk it over with his father, who lived here.

Meanwhile we made efforts to secure other mules, but as we failed we were glad when our men returned to hear that they would come. The sum they asked, however, was absolutely extortionate, and they would not consent to go for less. Now the Magistrate had offered to supply us with mules, and the rates we should have had to pay for his animals would have been low. If we had accepted his proffer, the only mules he could have requisitioned for us were the ones we had come with, and the muleteers knew this as well as we did. Accordingly we broke off negotiations and said we should ask the Magistrate to provide us with transport. In a short time our friends returned offering lower terms, and after a considerable amount of shouting a comparatively reasonable rate was struck. As usual, no written agreement was drawn up, and as usual the men accepted their due pay at the end of the contract. Occasional misunderstandings occurred, due to Chinese arithmetic, but it was very rare for a man to ask for more than his due.

On our second day at Wei-si Mr Lewer had to leave us, for a Lisu village at some little distance had

burnt its idols, and sent to ask him to go over and preach the Christian faith. He had to strike while the iron was hot, before the Lisu had time to change their minds and make new images.

On 26th June the loads were again made up, an escort of four soldiers reported for duty, and after numerous delays incidental to the starting of a new stage we set out in the rain. No official opposition could be encountered before reaching A-tun-tze, and, unless the road proved as bad as it was reported, we felt sure of reaching the high mountains.

Owing to the state of the weather, the muleteers decided to make a fairly short stage, with no halt for lunch. As they were responsible for reaching A-tun-tze in ten marches, and it was to their interest to do it in less, we did not much mind how they divided the distance, but we did object to their not warning us of their plans. As usual, we fell behind the caravan while collecting, so we had no way of stopping them, and we ate our midday meal at four-thirty.

Some mercury mines lay half-a-day's march to the west, but although mercury is an ore of great interest in connection with the building of mountains we could not spare time to visit the deposit. In addition, the Chinese could not believe that the reason for our journey was solely academic, and it would not have been wise to appear too interested in the economic side of geology.

Henceforward we stayed not at inns but at private houses. The chief difference was that the accommoda-

tion was much worse. Large dogs were becoming numerous, and on the first night of the stage it was perilous to attempt to cross the yard in the dark. Dogs lay under the loads, in dark places on the ground, and in doorways. They would suddenly awake and spring at a passer-by, and in his effort to get beyond the end of their chains he was likely to tread on another.

Next day we continued down the Wei-si River. In the afternoon the river suddenly turned to the west and cut its way through a rock gorge to join the Mekong, while the path ran along a ledge on the cliff. It was pleasant to meet an old friend again. Though the Mekong was smaller than the Yangtze it was much swifter, and while the water of the Yangtze was equally muddy, that of the Mekong was redder in hue and of a startling orange-brown.

At evening we sat down in a village to await the caravan to find out where they wished to stay for the night, and an elderly man who hoped to have the pleasure of giving us hospitality cheerfully started a conversation. He could not be made to understand that we "could not speak," and our remarks to him in English appeared to afford him such pleasure and information that he pressed for more. In desperation we entertained him in turn to discussions on the weather and British politics, and finally he came to see that we were not speaking Chinese. He asked no more, or fewer, questions, and left us peace in which to write up a page of journal. The muleteers when

they arrived preferred a village a little farther on, and there our host was not garrulous.

Next morning we passed through Hsiao-wei-si, formerly one of the posts of the French mission, but it has been unoccupied since the death of Père Vellsich. Here we had a good example of the contradictory statements which were made with regard to distances. We were told that we had not yet reached half-way to a place where it would be suitable to lunch, but that we should arrive in an hour more. Now as we had already been walking for three hours, the first bit of information meant that we had to go on for at least three more. The truth proved to be the mean, for we took a little over two hours.

We had lunch on the following day in a house where a young man allowed his curiosity to overcome his manners. The assistant had laid aside his hat, hammer, aneroid and jacket, and he was working at some insects in a litter of tin cases, glass tubes, notebooks and envelopes. The intruder found plenty to interest him, until it was pointed out that his presence was not essential and he withdrew. After lunch we were told that a couple of genuine Lisu girls had come from the other side of the Mekong and we seized the opportunity of photographing them.

The valley of the Mekong had been narrow all the way, but in the afternoon we entered a long gorge where the hills fell straight into the water. The river became more and more turbulent, until we were passing a great rapid. The water was thrown into waves, and

in places it leapt into the air, forming showers of spray in which one could see a fanciful resemblance to foliage, while close to the bank it merely boiled fiercely. The roar of the water ever varied its undertones, with an occasional thud, which was as much felt as heard, when an extra large mass of water met with an obstacle. The path kept low down, and in the waning light the thunder and solitude were awe-inspiring. We saw many other rapids but they were generally short. This one was the most impressive and its fierce part continued for a mile.

After emerging from the gorge we reached Yei-chih as dusk was falling. The village is a little settlement of Shans, and the chief of the community gave us hospitality in the temple of his house. As he was having repairs done, the place was not at its best, but even so it was impressive with its succession of paved courtyards, and smaller side-courts reached surprisingly by inconspicuous doors or dark passages. Soon after arrival we were presented with a dozen eggs, a joint of pork and some meal. In return, as well as to pay for our lodging, which we could not do by the usual gift of money, we sent a few knick-knacks which had been intended for less civilized people or for children, but it is to be hoped that they afforded him interest if not pleasure.

As we were preparing for the start next morning we received sad news, of a kind from which we had been free for some while. Three of the mules were missing. They had run back down the road, and unless someone stole them there seemed no reason why they should

stop. Two of the muleteers went to search for them, while the third muleteer stayed behind to keep any more from running away, and the Shan chief sent six men to aid in the search, without even receiving any hint from us. As time wore on and the truants did not return, we settled down to a quiet day's writing and collecting. The weather had been mostly overcast for several days, but it now cleared up and became sultry, with a hot sun.

We received a couple of callers, both in the way of business. The first wished to sell a collection of butterflies which he had made and placed in a brown-paper album. Some of the specimens were good, but they were lacking in variety and too often damaged. His knowledge came from one of the French missionaries, who had instructed him while making a collection to send home. The second visitor was the schoolmaster, whose eyesight was failing, and he asked for no less a thing than a pair of spectacles. Diagnosis of his trouble was difficult, and the language did not make it any easier, but we did what we could and duly dispatched a couple of pairs from Rangoon, in the hope that one might prove suitable and render his studies more pleasant.

Some lamas were maintained in the household as the family priests, and one of them was relegated every morning to conduct matins. The only part of the service which was audible was the monotonous beating of a drum, sometimes accompanied by sing-song chanting, which continued for the whole morning.

Towards evening the men returned with the strayed mules, and in the morning the preparations for the start went forward as usual. We left just ahead of the caravan, but it did not catch us up for a couple of hours. When it did, Tien told us that during the loading-up a mule which had been maltreated had kicked, and knocked out the head muleteer. He had lain unconscious for half-an-hour and would probably die. He could not possibly come on with us, but if he lived he would totter back to Wei-si to recuperate. There was no use in our returning to Yei-chih, for we could have done nothing for the man and he was not bleeding. With the nearest doctor at Ba-tang we could only hope for the best. Tien gave a vivid description of the incident, which he regarded as merely humorous. A couple of weeks later we were delighted to see the patient once more walking behind his mules and apparently in good health again. The idea of not finishing the contract was never suggested, but the other men proved less energetic and some pressure was required to complete the journey in the stipulated time. To replace the casualty an extra hand was engaged at Yei-chih; he looked like a boy of fourteen, but he was strong and up to his work and must have been older. He continued with us all the way to Li-kiang (Plate VII.A).

Although the valley of the Mekong is so straight in plan, it is saved from being trough-like by two features. Firstly, enough sinuosity occurs to block long views up the valley and present only a series of overlapping spurs descending from either side of the

Shoeing

Muleteers carry the shoes ready made, and nail them on cold. The head muleteer is standing in the centre; the boy from Yei-chih is at the mule's head.

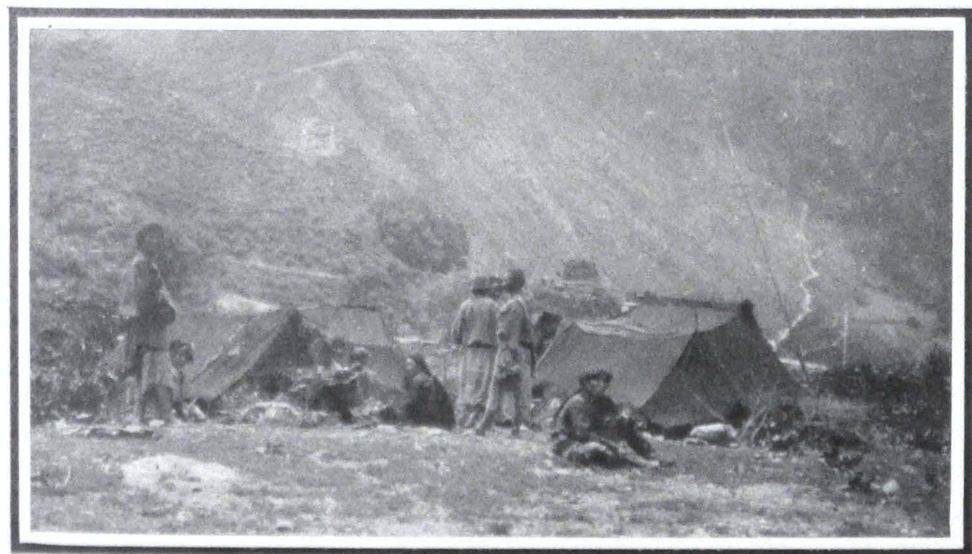


Plate VIII]

A Camp of Nomads

The pole on the right is a small praying-mast. Our road is seen on the right on the further side of the valley.

valley in turn, each cutting a piece off the vista until nothing is left. Secondly, the floor of the valley has been buried by alluvial drift in which the river has cut a trench in places hundreds of feet deep, and it has often been able to introduce meanders while doing so. In such cases it flows at right angles to its normal course for a few hundred yards, until thrown back again by meeting the rock wall of the old valley. When following such sinuosities it is hard to realize that the river appears on the map of Asia as a straight line, where the irregularities are too small to be shown.

We spent the night after Yei-chih at Pu-ti, where there is a remarkable fourfold bend of the Mekong. The river is deflected by a bar of rock overlain by loose material, and turns through more than a right angle to the left, then at short distances apart to the right, to the right again, and to the left. It thus regains its first course after flowing round three sides of a square.

The remnants on the hill-sides of the floors of successive old valleys with steeper slopes between them render the hill forms less graceful than in simpler valleys. At the wider places, where room can be found to grow a little rice, the lack of harmony between the different curves is especially noticeable, but where the valley is so narrow that the alluvium has been swept away, as in the gorges, no such discord exists to impair the grandeur. We entered such a gorge on the following afternoon just north of the hamlet of Lo-ta, and the river formed a rapid which though fierce was not so

magnificent as the one south of Yei-chih. At one place an obstacle seemed to lie in mid-stream just beneath the surface, and the water roared about it, continuously flinging up spray. The sun had just gone in, and one of us waited for three-quarters of an hour with camera trained on the mass of broken water, praying in vain for another gleam of sunshine.

Reference has often been made to cliff paths, but no adequate idea has been given of the precariousness of parts of this trade route. The most daring feat of the road was to run on scaffolding projecting from the side of a vertical cliff only a few feet above boiling water. The supports were of wood with a picturesquely rustic effect, but the platforms felt quite firm. We had been told that some mules fell over, or through, every year, but we never saw it happen. At other places a landslip had swept away a length of the path, and the unstable mass of stones and earth was crossed by a track a foot wide. At such places one of the muleteers who kept ahead of the animals laid aside any large flat slabs on which the mules' feet might slip, and made the way as easy as time would allow.

Some of the corners were so sharp and the cliff so steep that mules loaded after the Chinese fashion with the packages at the side were unable to pass, and in such cases the burdens had to be lifted off and carried round by hand, while the mules were brought after and reloaded on the other side. The process was slow, but none of the loads had actually to be untied, for they are lashed not directly on to the saddle but on

to a wooden framework which fits on to the pack-saddle. Only a few boxes or bundles were untied every night, and many of them were not unlashed till the end of the contract. The tying on took much time and energy, entailing the use of yards of leather thongs and a good deal of strength in pulling them so tight as to cut deep into any yielding loads. One large or two small articles were secured to each side of the frame, sometimes with a smaller object on top, if the total weight was not over 120 lb. The whole was protected from rain by either a coir mat or a rough blanket. When preparing for the morning start the loads stood in order, and each mule as it came in was bridled and secured to its load. They were then all saddled, and only when the actual start was to be made were the loads lifted on. Two men raised each burden, the mule walked under it, and as it did so the men fitted the wooden frame on to the saddle. The mule continued to walk on and the next one was loaded. The process was done so quickly that the intervals between the animals at the start were no more than the normal distances kept on the march.

The Tibetans, on the other hand, tie on each article separately, though they are said to take no longer in starting each day. They contrive to keep the articles more on top, and by so reducing the width of the loaded mule they can negotiate the sharp corners and narrow places. Should the animal fall, it will share the same fate as its burden, while with the Chinese system the loads are sure to come off; but it is

uncertain which way gives more hope of the luggage being saved.

On the narrow paths it is unpleasant to meet a caravan travelling in the opposite direction, for one or other must return to some wider part and the question of priority is apt to be delicate. As a rule either a man was sent ahead to warn any other travellers or a gong was sounded. A mule-train with any pretensions to style has a regular orchestra. The leading mule wears a collar bearing two or more heavy bells, the second mule has a similar collar with a large number of smaller ones, and in addition a gong is sometimes sounded, especially when encouragement is required. The noise is nearly deafening when very close, but at a distance it is pleasant and distinctive and gives warning of approach. We had experience later of mules which had no bells, and we were apt to be disconcerted by finding the train upon us before we were aware of their presence. The gong generally gives a pure mellow note about middle C. It carries a long way, and nothing was more reassuring than to hear it when the caravan was far out of sight, either behind or in front, and the shades of evening were falling. As the distance decreased the notes of the two sets of mule-bells could be picked up.

The mules always kept the same order on the march. The leading mule was chosen for his sagacity in picking the easiest course and setting a steady pace. He was followed and supported by a second very intelligent mule, and both wore ornaments on their harness, such

as a tuft of red hair or a crimson tassel six inches in diameter on their foreheads. Each muleteer followed the four or more animals for which he was responsible, and directed them by word of mouth. Not even the riding-mules had bits in their bridles, and they followed their instructions as implicitly as pit ponies in a colliery. A slight knowledge of their language was useful, though some of the commands consisted of quite unreproducible noises.

We spent the night of the 2nd July at the Tibetan house of Tseh-im-po. The other side of the valley rose sheer to a line of whitish pinnacles. Dotted high up the hills were some steeply sloping Alpine fields, while, below, the river sang as it raced along. Whatever the next couple of months might hold in store, we had at least penetrated far into Chinese Tibet.

CHAPTER X

A THRUST TO THE WEST

God-devoted mind,
Self-banished exile, purposely desolate,
To sacrifice self-condemned, so you might find
Some dubious path, some narrowly opening gate,
Whence gleamed a fitful hope for human kind,
Onward you moved, doomed to the nobler fate,
While we to common uses of the day are left behind.
H. W. Nevinson.

IT was now time to remember the third of the three great rivers—the Salween. We had as yet seen nothing of its valley north of where we had crossed it near Teng-yueh, and it is the least known of the three. A couple of tracks crossed the mountains to it from close to our present position and gave us our best opening. If we waited until we were any farther north we should be fringing on the frontier of autonomous Tibet, which we had promised not to cross, while if we had worked west from farther south the country was geologically unpromising and we should have been too close to the country of the Black Lisu to be comfortable when in a hurry. It was not far to the south that Brunhuber and Schmitz lost their lives in 1909, and the accounts of the same country given by Litton and Forrest did not suggest opportunities for placid meditation in the fight for existence.

We wished to spend three days on this excursion, which we took off the time allotted to the mountains of A-tun-tze, but we hoped to reach a point on the main divide which would give us a view to the west and glimpses down into the valley. The party and baggage were cut down to the lowest possible limit. Tinned foods for two or three days replaced the cook and his pots. Two soldiers came with us and two stayed behind. Instead of the mules we had porters, and Tien came to hurry them up. Finally the coolie, who was a good walker, came to collect and make himself useful. We took little else beyond a small mountain tent and our blanket-bags.

The initial step was to cross the Mekong, and we had our first experience of a Tibetan rope bridge, of which we had seen several in the last few days. Although they do not excel in most branches of architecture, the Tibetans build incomparable bridges (Plate VIII.A), and the method is delightfully simple. A stout rope woven of bamboo strips is fastened tightly across the river to a post low down on one side, and at a height of perhaps fifty feet on the other. A grooved bar of hard wood is laid on the top of the rope, and a leather thong is passed over the bar and then round the victim, who is thus suspended. He can steady himself by placing his hands on the top of the wooden runner. When ready, he is let go, and he rushes down the rope across the water. The real adept puts on extra initial speed by running down the jumping-off platform, but the novice dispenses with this acrobatic performance

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and thus secures a longer view of the scenery during the crossing. The return passage is by another rope which slants the other way. The ropes are carefully tended and replaced when worn. Old ones are sometimes moved higher up and used to fly prayer-flags, which give an untidy air to these otherwise neat suspension bridges.

So much has been made of the horrors of these crossings that the flight, as a matter of thrill, was a disappointment. It is less exhilarating than a rush on a cycle down a steep hill, and much less exciting. The novel feature is that if the rope broke one would have practically no chance of escaping from the boiling waters, while the far more likely failure of the bicycle brakes may result in a broken collar-bone or a fractured skull. But even if the passage does not give the thrills of a rapid switchback, it is most enjoyable, and it has the advantage of being useful. By measurements at two bridges we found that the speed reached in mid-span is over twenty miles per hour.[1]

We had intended to use the rope bridge opposite Tze-ku, but when we reached it we found the rope was ornamented with a garland and an old straw sandal, which meant " No thoroughfare—bridge under repair." In disgust we passed on to the next bridge, at Tsed-rong, a mile farther north, and when at length slings were procured and we crossed, we were welcomed by Père Ouvrard, a Catholic missionary. It was indeed good luck that we had not been able to cross to Tze-ku.

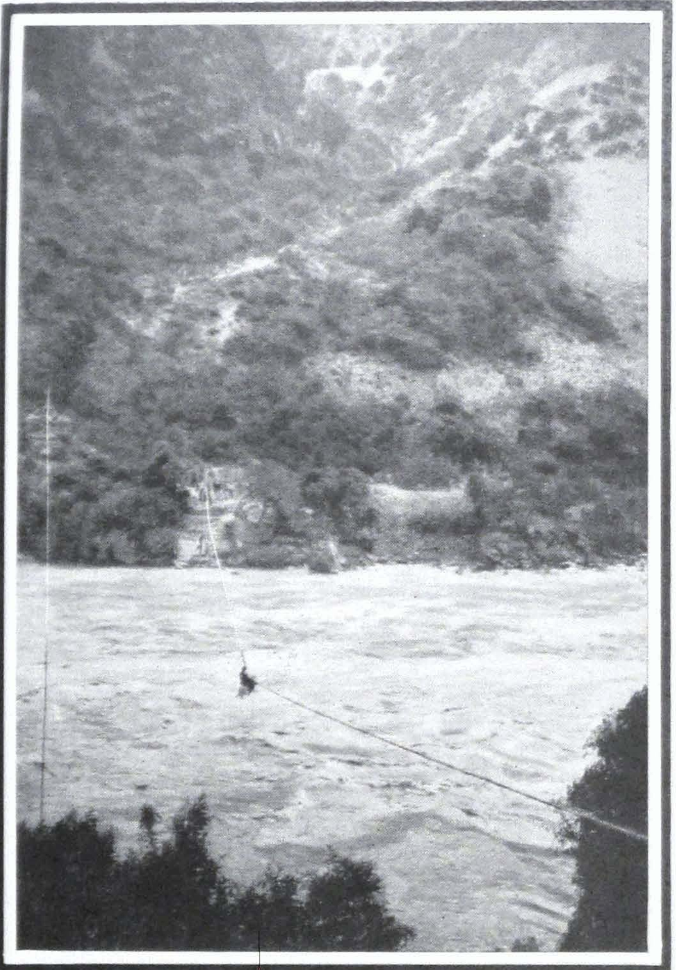
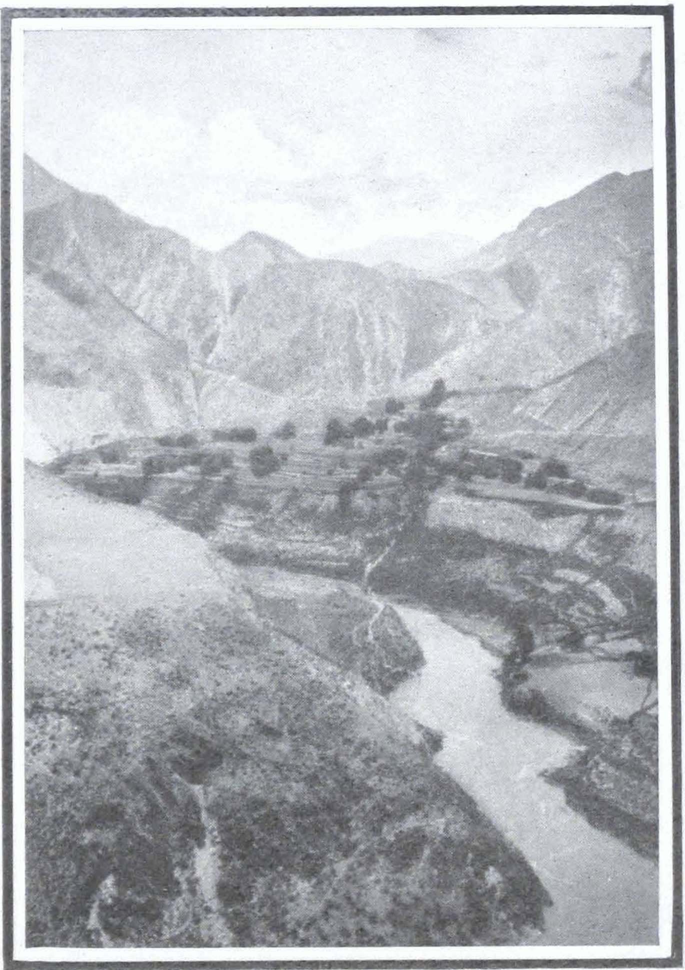


Plate VIII]

TSED-RONG BRIDGE

Two men are suspended from the rope, and are rushing across the rapid towards the figures awaiting them. The return rope is seen on the left.



ARID GORGES OF THE MEKONG

The river flows through the mass of hills forming the skyline, in a tortuous canyon over 1000 feet deep. The paddy-fields and groves of trees in the middle distance are at the oasis of Kon-ya.

We had now to overcome Père Ouvrard's hospitality. It did seem rude to push through his village and refuse even to visit his house, but we had to rush on at all costs. He at once supplied us with two porters, and while they were fetching their gear we had a most interesting talk with him. He told us that we could make a round trip in five days, rejoining the Mekong at Yang-tsa, one and a half marches away by the main road. We were so attracted by this route that we decided to take it and thus avoid returning on our tracks. The porters declared our loads were light and they promised to cover the distance in six days, but to make sure we took an extra porter, making three in all. Word was sent back across the river to the caravan to proceed to Yang-tsa and await us there. We had only tinned foods for three days, and we could buy nothing until reaching Pehalo, where we were to turn north. We learnt, however, that we could obtain abundant supplies at the French Mission at that place. To eke out our tiny supply of bread we bought some of the Tibetan multum-in-parvo universal vade-mecum, which is guaranteed unrivalled either as a pick-me-up or as a complete table-d'hôte—but more of this wonderful food *tsamba* in its right place.

At half-past four in the afternoon of 3rd July we started on our journey of discovery. In front lay the mountains, but hidden by the wall of the valley. Behind were the mules with the camp paraphernalia —beds, table, pots and pans, spirit-tanks, and all the other worries of civilization. Our larder was

slender—what matter, less to carry. All that needed "cooking" was tea—the meals would be served quicker. For clothing we had little beside what we stood in—less to pack in the morning. Instead of twelve men and ten mules, we had seven men—five fewer to look after. Père Ouvrard had indeed told us that in a few hours we should enter rain and that we should remain in it till we again approached the Mekong; however, it would keep us from being parched by heat and thirst, and though we were liable to pneumonia we felt safe against prickly heat.

The road runs south for a couple of miles, slanting up the hill, until far below are seen the walls of the old French chapel at Tze-ku, and the monument of the two devoted Fathers who were murdered there in 1905. The mission was founded as far back as 1866 by M. Biet after the burning of Kionatong, a village some days' march to the north-west. He was lucky to be able to make another start, for his colleague, M. Durand, was murdered by the cutting of the rope bridge over which he was trying to escape.

That fearless pioneer, T. T. Cooper, was entertained at Tze-ku by Fathers Biet and Dubernard when he passed southward in 1868, but on his return the station was unoccupied, for the Fathers had been forced to retreat to the mountains to escape from a party of Chinese soldiers who had been sent from Wei-si. Cooper himself lived near to death for months, so that the words he wrote fifty-two years ago have particular weight: "The history of the Tz-coo mission may,

from the date of its establishment, be traced in the blood of numbers of brave and noble-minded missionaries who have fallen by poison and the knife in the cause of their religion. Self-banished to this country, without a hope of return, the French missionaries have worked on, and, in spite of massacres by the savages, incited by the implacable hatred of the Chinese Mandarins, which even now often drives them to seek protection in the mountain fastnesses, their devotion has been rewarded by hundreds of genuine converts." [2]

The last such massacre occurred in 1905, during the Tibetan insurrection. The lamas came down from Inner Tibet spreading destruction and especially eager to exterminate the missionaries. On reaching Tze-ku the lamas had already cut off all means of escape, and the two venerable Fathers, Pères Bourdonnec and Dubernard, were murdered along with many of their Christians. It so happened that Mr Forrest was staying there, and his escape seems little short of miraculous. Nightly he crawled to the ring of fires which circled the valley and vainly tried to pierce the cordon. Once a dog smelt him and bayed. By day he hid in some spot to which there was but one approach, with his gun on his knee and his eye on the entrance. How he lived for eight days with no food but a handful of barley which had been split on a path, how he eluded pursuit during that time, and how again and again his life was saved merely by the determination to sell it dearly—it is not for us to tell. If Mr Forrest does his duty, he will write his memoirs some day, and tell

the story himself. Eventually he did escape to the south, and entered Wei-si at the head of a triumphal procession.

The French mission posts are seldom long vacant, however. Another priest at once steps into the dead man's shoes, and wears them till he too dies, by murder or disease or exhaustion or old age. On Père Ouvrard's arrival the mission was not rebuilt at Tze-ku, but a couple of miles farther north, at Tsed-rong. A fresh Christian congregation has come into being, and as it may well claim to be the direct descendant of the Tze-ku flock, the traditions of the older mission are carried on.

Fortunately for the reader there was no more time for moralizing and ruminating, and we had to drag our minds back to the matter in hand and our legs farther up the hill. The path turned up a spur, and after climbing to 1900 feet above the river it came to a house. Here, said the porters, was the resting-place for the first night. We were surprised, as there was a full hour more daylight and the next day was to be a long one, when we had to cross two of the three passes which separated us from Pehalo. Still, if there were no hut higher up it would be better to stop here.

The men took up their quarters in the house, but we preferred to sleep on the flat roof of the stable, which was itself covered by a light shelter. The owner removed most of the corn which was stored there and stacked it as a wind-screen on what proved to

be the lee side. We turned in when it grew dark so as to be ready for the great effort before us on the morrow, as well as to conserve our tiny supply of carbide for the acetylene lamp. One of us laid his bed on the extreme edge of the roof. It was wonderfully exhilarating as well as restful to lie there with the Mekong directly below. The stable was twelve feet high, and built on a shelf cut out of the hill-side. At the back you stepped down from the hill on to the roof, while in front was a tiny flat space. From the edge of it the hill fell precipitously until close to the river, which looked like a silver thread. It felt as though rolling over in bed would have plunged one into the distant waters. As it so happened, the outside man nearly did have a bath, for a rainstorm swept down the valley. He watched it with detached interest until suddenly the wind and rain arrived almost together. The roof gave no shelter for a deluge slanted in at a low angle, and for the next half-hour his attention was concerned with keeping the ground-sheet, which served as eiderdown, from blowing away and in controlling the runnels from it. The storm soon passed, however, and all was again quiet, except for the family dog, which barked continuously from our arrival to our leaving, and banished sleep for a light sleeper.

On the 4th we arose soon after four A.M. and made an early start. To our surprise, after climbing for an hour we came to a hamlet. It was here that we should have slept the night before. The coolies took life

very easily and they said that they could not reach Yang-tsa in the promised six days and required nine, but as we were on the first pass at half-past eight we felt confident that we could drive them over the next one in plenty of time. From this first pass at 9900 feet we dropped down into the valley which leads up to the main pass, the Si La. *La*, it may be noted, is the Tibetan word for a pass. Instead of the shrubs, the small firs and the dry vegetation of the Mekong, we found true rain-forest. The path ran among huge trees whose thick straight trunks were their most conspicuous feature; smaller trees, ferns, creepers and jungle growth filled the intervening spaces, and great lilies flowered at a height of eight feet. The light was subdued and the air moist and cool. Mist blotted out the mountains, but occasional rifts gave us glimpses of the pass ahead and some of the peaks which stood above our valley. The snow on the pass looked quite close, and the assistant was eager to reach the snow-line for the first time in his life.

Early in the afternoon we reached a clearing in which stood a Tibetan hovel, which was said to be the only inhabited dwelling between the huts we had passed early in the morning and Pehalo. The dense forest had thinned and some firs were now present. A great patch of avalanche snow at the back of the clearing kept the ground in a dismal state of swamp, which spoilt the attractiveness of this picturesquely situated bungalow. It was about twelve feet square, and many a Rural District Council at home would have fined a

villager for keeping pigs in such a sty. It was built like most Tibetan mountain huts. A low uncemented stone wall supported a gabled roof of brushwood or split logs, weighted down by stones or anything that came handy. The ridge-pole was some seven feet high, and the eaves four feet. The doorway was in the centre of one gable. There was no wall-paper inside. An incredible number of people could crush in, which was the more remarkable as the space appeared already well filled with churns for butter and for buttered tea, a fireplace, milk-bowls, smoke and a lot more miscellaneous furniture.

The most conspicuous member of the family was the dog. As so important a person could not be expected to live in the common piggery, he had a kennel to himself, which though small looked clean and comfortable. While inspecting Tibetan dogs it is well to keep one eye on the mooring. On this occasion the chain held.

Our porters seemed to be finding the journey tiring. They had sauntered along all day and they halted for lunch at ten. We kept as little in front of them as we could, but they did not overtake us at the hut for an hour. We then found why they had been so slow. We learnt that it was far too late to think of crossing the pass, that there was no place at which to spend the night higher up, but that they would be sure to reach Pehalo the next evening without fail. We should gain no time by going on, and if it came on to rain while we were up there we should all be

uncomfortable. See, said they, here were their crucifixes round their necks, they were Christians, and they could not tell a lie. As they were contradicting Père Ouvrard, it was evident that he must have been the fabricator.

We had been cheated of half-a-day's march, but we were determined that they were not going to have it all their own way. They admitted that there was a ruined hut an hour's march nearer the pass, but they said it was a useless affair, quite different from the substantial edifice in front of us. In other words, they were out for comfort. That settled the matter and we ordered them on. If the camp were uncomfortable it would discourage "a long lie" in the morning, and in any case going farther would save an hour on the next day's march.

The farewell to the owners of the hut was a long business, but it did not matter to us. The chief delay was supposed to be due to the purchase of some butter. It reminded one of war-time when margarine queues were at their longest. The wait was well worth while, for the butter was made specially for appreciative palates at Tsed-rong, and it could not have been nicer. At length the porters were persuaded to shift, and we left the herds of cows and their minders behind us.

The valley had narrowed and it was now a long straight trough, rising steadily with gently sloping floor and steep smooth sides which passed upwards into jagged peaks. As we went farther on the scenery became wilder. The woods grew thinner and dis-

continuous, and they were soon wholly of firs. The meadows became rich in alpine flowers, especially primulas. The valley increased in steepness and from time to time it was blocked by great masses of loose earth and rocks which marked where the glacier, which once smoothed the valley to its present shape, had its end. A stiff climb was required until the crest of the glacial dump-heap was reached, after which a gentler slope followed for some distance. Meanwhile the sky-line grew more rugged. Mere isolated peaks were replaced by bare rock which formed into steely blue-grey cliffs topping the walls of the valley, and they became more and more broken up until the saw edges on both sides of the pass could be seen in the distance.

The stream changed in character and became a brawling mountain torrent. Patches of avalanche snow grew more frequent, and snow lay lower down the sides of the valley. We came at last to where a snow-slide had stretched across the floor, and the stream had driven a tunnel through it. The track took advantage of this natural bridge to cross the burn. The snow was hard and firm but a trifle slippery. As the bridge was one hundred yards broad there was not much fear of falling off, but it sloped considerably towards either edge, and after passing the cavern at the lower side of the arch, where the stream came out of the blackness as a roaring cataract, we watched our footsteps. A slip into the rocks and foam would have wasted time. The porters lagged behind as we

approached the snow-bridge in the hope that we would continue up the same side of the stream and cause delay. The Chief was leading, however, and saw that the track must cross the stream near by.

The floor of the glen now rose steeply and the stream had cut a little ravine in the rock floor. When we reached the top of the rise we saw before us an even meadow, and in the centre was a tiny hut—our destination. The long grass was thick with bright flowers, and the rivulet wandered irresolutely through it over a bed of shingle. The great needles above frowned down out of the evening sky upon the tiny haven of peace, and the remnants of the winter snows, now so near, reminded the traveller that he would not always find it thus. The fir-woods, however, formed a protecting ring as if to shield this garden from the mountain demons without, while supplying fuel at the same time as shelter. Truly, if there be any beneficent spirits which fight the furies on the Si La to save the traveller from harm, here is their home.

A few drops of rain hurried us on, and our admiration had its first check—the long grass concealed a swamp. By the time we reached the hut the shower had turned into a deluge, and we had our second shock. Although built on a piece of dry ground, the hut had ceased to be worthy of the name. One half of the roof had gone to light fires, and the half which was left only stopped part of the rain which fell upon it. The sole surviving wall, which was of brushwood, was on the sheltered side of the roof, and the rain slanted in so as to reach

almost all the floor. The whole party huddled in somehow, but the porters soon took to the fir-woods and a thin column of smoke announced that they had a fire going. We two had secured the one dry spot, and after a while the rest of the men decided to shift to the shelter of a big rock a few hundred yards away, where they spent the night. When they had gone we pitched the tent inside the hut, for there the ground was merely covered with sodden pine branches, not semi-fluid as it was everywhere else. Here was justice! Had the men not pottered over the butter they would have had ample time to settle in before the rain came. We should have pitched our tent clear of the hut, which they would have been able to repair with pine branches well enough to keep them dry.

It is curious what conditions lead to high spirits. There was little enough to be cheerful about, but we had a most uproarious dinner-party. It is a traveller's duty to see to the comfort of his men before his own, but on this occasion it gave one of us great pleasure to hear the rain on the canvas and to think of what a miserable night the recreants outside had before them. It was perhaps the knowledge that for a few hours we were quite independent of the men and that we did not mean to do any writing that night that was so cheering, as well as sheer contrariness. It is to be hoped that the noise of revelry reached to the two other bivouacs.

We have already referred to *tsamba*, the universal food of the Tibetan. It is barley flour ground fine, slightly baked, and eaten without further cooking.

We experimented with our supply of it at this time and later, and should anyone think of placing it on the market, it is to be hoped that they may find the following statement a useful foundation for "a nice snappy little ad.":—

Try Thomas' Tibetan Tsamba in the Home

Free from alcohol
Suitable for infants from birth
To obtain Tsamba ask for "Thomas'"
Caution—beware of imitations
Free from cane sugar

Thomas' Tibetan Tsamba is designed to replace coffee, cocoa, chocolate, whisky, fish and meat, and as a substitute for soup, vegetables and sweets. It produces none of the harmful effects of sugar or albuminoids, but is beneficial to the nervous system and the physical frame. Its concentrated nature and easy preparation make it an ideal food for business men, vocalists, travellers, shepherds and other sportsmen, or whenever hungry or faint from physical exertion.

To prepare.—Mix as much Tsamba as is desired with as much water, milk, butter, or sardine as is available, stirring briskly at the same time. Serve hot, cold, or tepid, but do not put ICE in it. Mix fresh for each meal. Do not expose to bad odours of any kind. Keep all vessels scrupulously clean. No cooking required.

Suggestions.—Tsamba is delicious for thickening chicken broth, Irish stew, Bovril, buttered tea, or

sausage-grease. By mixing five parts of Tsamba with one part of water and one part of salt, delicious porridge can be made in five minutes. A hundred other uses will commend themselves to every epicure.

On a commercial venture the case might be stated somewhat strongly, instead of in the above lukewarm style, but all the results of a scientific expedition must be reliable to the point of stodginess. The future *tsamba* merchant is not recommended to proclaim that it requires a Tibetan digestion to derive much benefit from a diet of the flour.

NOTES

[1] These rope bridges occur in Central Asia in two forms. In the simpler type the passenger sits in a loop below a wooden ring round the rope of the bridge; he may slide for a short distance, but he is hauled most of the way by a haul-rope attached to the ring. Drew * has described a rope bridge of this kind as in use in the Chinăb valley in Kashmir, where it is called the *chikă*, which he conveniently translates "haul-bridge." E. Balfour † describes this haul-bridge as in use over the Nynsukh near its junction with the Jhelum, and on the Jummoo. It was also found in use by the Mount Everest Expedition at Gadompa (which is between Lumeh and Kharkhung, 87° 27′ E. long., N.E. of Mount Everest), where the rope was made of strips of raw hide and the passenger was hauled across by a thong tied to a travelling framework.

In the second variety the passenger sits in a leather loop or in a cane ring (as in the primitive form used by the Nung of northern Burma, shown in a photograph published by Mr Kingdon Ward ‡)

* F. Drew, *Jummoo and Kashmir*, 1875, p. 123.

† *Encyclopædia of India*, 3rd edition, 1885, p. 144.

‡ F. Kingdon Ward, *In Farthest Burma*, 1921, pl. opp. p. 208.

and is carried across the bridge either by his weight or his exertions. Of this rope bridge there are two varieties—the two-way bridge, in which there is a single rope fixed at about the same height at both banks; and the single-way bridge, in which the rope is fixed higher on the one bank than on the other, so that the passenger slides most, if not all, of the way across. In that case two ropes are provided, one slanting in each direction.

The rope bridge therefore ranges along the Himalaya from Kashmir to Chinese Tibet. Colonel Ryder kindly tells us that neither he nor Colonel F. M. Bailey knows of any occurrences of the rope bridge between Kashmir and Gadompa. It is doubtful whether knowledge of this invention has been carried along the Himalaya from one centre of origin or whether the device has, as Colonel Ryder suggests, developed independently in the two centres. The greatly improved though more venturesome bridge, in which by the use of two slanting ropes the traveller is carried by his own weight, is probably the later development, and so far as we know is found only in south-eastern and Chinese Tibet.

[2] T. T. Cooper, *Travels of a Pioneer of Commerce*, 1871, p. 312.

CHAPTER XI

DISCONCERTING NEWS

At last we reached the topmost crest of the Peak;
My eyes were blinded, my soul rocked and reeled.
The chasm beneath me—ten thousand feet;
The ground I stood on, only a foot wide.

Po Chu-i (A.D. 772-846). *Tr. by* A. Waley.

THE next day opened dull but tolerable. After breakfast, while the junior was striking camp, the leader went over to parley with the enemy to decide which way he was going to lead them. Things were going badly. It was clear that the porters did not intend to reach Yang-tsa by the end of the six days and we could spare no more time. Should we go on, and should they take the nine days that seemed probable, we should have but little time for the more important work around A-tun-tze. On the other hand, if we spent this day examining the pass and the hills near it, sleeping again at the same place, we could return to Tsed-rong the next day and we should have taken only the three days we had originally planned. It had to be made perfectly clear that we *could* only go on if they could retrieve their original promise. All the same, as the normal leisurely time for the distance was admittedly nine days, they were offered nine days' pay if they did it in the six days. As soon as they

caught a hint of the idea of return they were ready to promise anything, and they made out an energetic but quite feasible programme. When they had pledged themselves to it the order to march was given.

On such a shelf as we had left, but smaller and less sheltered, we passed a pile of rocks, and it was pointed out to us with high glee that it was hollow and contained bones of men. In the spring a Chinaman and a tribesman had attempted to cross the pass; they had been caught in a blizzard and lost their lives. To us there was pathos in that grave, to our followers nothing but amusement. Tien seemed to think that if we were not careful we should go the same way and that it would serve us right.

Now the real climb began. For the last 1700 feet there was no path and we had to clamber up as best we could. On the lower part patches of large rhododendrons, unfortunately not in bloom, often gave handhold. The way taken zigzagged to avoid impossible places and to make use of the snow-slopes. Steep smoothed surfaces of rock showed through at intervals, while above them in sharp contrast stood lines of rock spires, in places forming a toothed ridge, in others well separated. From each bare surface seemed to come a voice, sometimes a whisper only, at other times a regular shout. The rocks spoke of what we had come so far to learn, of their history, of the bad times they had come through when the wave of the Himalaya swept forward against the mass of Yunnan. Here on this old foreland the rocks could not but sing the epic

of how, crushed and twisted, they had stood against the rocky breakers which foamed about them.

A pass is often praised for being so sharp that the view on both sides can be admired from the same spot. In Yunnan to say so is a waste of breath. It is inadvisable to stand on a really sharp pass, because, apart from the difficulty in not falling off, the knife edge is nearly sharp enough to cut through boot-leather. The ascent had seemed steep. On reaching the crest it was a surprise to find a sheer drop down which we could look as from a battlemented wall. Rectangular blocks had fallen out of the overhanging cornice so that we could peer vertically down as if through a hole in the floor. The thought that the block might be delicately poised kept one a little back and down, and an embrasure then became a window framing the distant hills.

The foreground occupied little of our thoughts for the minute. Before and seemingly below us lay a dissected plateau, but not now the plateau of Yunnan. Far away in the distance, but yet clear-cut, was a little triangle. It was on the Assam-Tibetan frontier. Could we cross the intervening country we should be within a few days of Calcutta. As to the comfort of such a journey, let anyone who wishes turn up the writings of the only three men who have forced their way through into Assam from China. Henri d'Orleans, a prince of the Royal House of France, was the first. In 1895 he overcame fearful hardships and after fifteen weeks he accomplished the distance of nearly three

hundred miles from Tze-ku through Hkamti to Sadiya in Assam. Mules could only be used for the first few days and thereafter all the loads had to be carried by porters. Food was continually an anxiety, and during the last part of the journey hunger and illness nearly conquered the party. Twice the column had to be divided into two owing to the sickness of Prince Henri's two European companions, and those who pressed on had to send back food when they were able to obtain it.

The second successful adventurer was E. C. Young, in 1906. The route by which he reached Sadiya lay to the south of the previous one, passing through Yun-lung. He too had to use frightful tracks, and found difficulty in buying food. It was hard to obtain porters and he had to abandon many of his loads.

Colonel F. M. Bailey was the third. He chose a route to Sadiya through Tibet which proved greatly superior, and the difficulties he experienced were not comparable with those of his predecessors.

It was no part of our plan to attempt this journey, but we looked at the mountains with rapt interest until the mist blew over the distant giant. Then we turned our attention to the nearer ranges. They were plentiful enough. The nearest, which seemed so far below as to be hardly worth noticing, had still to be crossed before we could drop down to Pehalo. Between us and the nearest range lay a straight valley filled with forest in its lower part and having the trough-like shape which is so frequently a result of glacier action.

It was bitterly cold after the muggy valleys, sitting in the wind on the edge of nothing, playing hide-and-seek with the mist for the sake of camera and compass. The temperature was only 48° F. instead of our usual 78°. The Chief lit a fire in a sheltered corner and sat over it under the pretence of boiling the thermometers, but even seeing him burn his fingers could not keep his apprentice warm. We were glad to hurry down the steep zigzag over a talus slope after the porters, who were already slipping down a snow-field. The altitude of the pass is 14,000 feet.

We halted for lunch just above the floor of the "Valley of Hail," and then moved on down it into the wet forests, past the last avalanche snow and across the stream by a tree trunk, until we came on a hut. To our surprise it was inhabited and in excellent repair, for three trappers were here catching the small rats which abound in the long grass. The insides are in much demand as medicine, and freshness does not seem to affect their market value. The porters were so pleased with the spot that they absolutely refused to climb the next pass. It was indeed too late, for they had underestimated the distance to Pehalo up till the present and now they overestimated it. They gave us their promise—a valuable gift—to reach the mission so early in the morning that halting here would not matter.

They had scored again, but they had exhausted our patience. We were both determined not to have any more of this game. Our deliverance lay

at Pehalo if anywhere, for there we should be able to supplant the perjurers. The time was so far spent that it would be hard to keep tryst at Yang-tsa, and impossible if there were any delay. Only one thing could be done. One of us must press on ahead to make what arrangements were possible, while the other stayed behind with the interpreter to see that the porters did not run away or refuse to shift altogether. We could trust no one else to do this duty.

The junior secured the command of the advance party. He took the better of the soldiers, who was cheerful, willing and unusually bright, and the coolie, who was also a good walker. They could pass the time of day or ask the way of anyone we might meet, and the two kept each other company. The first task was a climb of 2600 feet up the wall of the valley. The greater part of the ascent was so steep that one had to make frequent use of one's hands to clamber up among the roots of the trees, which made more a ladder than a path. It is marked as a pack-road on one of the maps, but it would puzzle an English circus-horse without a load to make the passage.

Heavy rain had fallen during the night, and now the neighbouring hills were hidden by mist. It was dreary work puffing up between the wet firs, under or over fallen trunks, stopping every few minutes to regain breath and pressing on again to carry out the plan, for there was plenty to arrange and talk over at Pehalo and the caravan might be close behind. It was indeed a pleasure to reach the pass and rest for a few minutes

in the small rain while taking some readings, before plunging down for nearly 5000 feet. Only one low ridge hid the Salween, the wide valley of which ran straight on either hand. Mist filled it and flecked the opposite hill slopes.

The firs came only a little way down this side of the ridge, and at their lower edge lay a more gently sloping shelf covered with rich grass full of flowers. A herd of cattle which was grazing on it recalled Nestlé's Swiss Milk to mind, and supplied a welcome assurance that we were approaching settled life again. Our worries were not yet over, for the rain had made the path into a mud slide which was as slippery as wet ice. Shrubs were a great help down the worst parts where it was impossible to avoid walking on the track, for one could reach forward, catch a bough, slip down a few feet, find foothold, and repeat. The Assistant did not try the more sporting method of sliding down more often than he could help, for occasional roots and other hazards tripped him and soon made him sore, and an aneroid and half-chronometer watch had to be considered. As he had no load he soon outdistanced the men, who had a rifle and a rucksack between them, and he gallantly did his best to prevent their being delayed, by removing from their path as many as possible of the abundant wild strawberries.

While the party was slipping down thus painfully on its haunches it met half-a-dozen porters who were trudging steadily up the hill with their loads as if there had been a perfectly good staircase. They were some

of Mr Forrest's collectors, who had gathered as many flowers as they could carry, and they were now on their way back to Li-kiang with the results of the season's work. Our coolie spoke to them, and their replies produced such laughter from him and the soldier that it was evident that they had no common language.

Eventually, through a break in a layer of mist below it the party saw a large house and a few huts. Could this be the prosperous townlet one had expected? The answer came on seeing the cross which crowned the chapel, and the courtyard of the mission was soon reached. The distance had been covered in four hours, while the caravan which started half-an-hour after the first party did not come in for another three hours. The barking of the dogs soon called Père André to the balcony which overhung the court, but it was astonishing to find not one Father but two, for by great good fortune Père Genestier had come down from the north on a visit. When they had recovered from their surprise and found that the emissary was not such a ruffian as he must have looked, they provided a royal welcome. A wash in hot water, a change of clothing, a charcoal brazier, a chair and plentiful coffee seemed as much as any mortal could wish for at one time.

As soon as common civility would allow, the urgency of our case was stated. It was explained that we had to reach Yang-tsa in three and a half more days, and a request was made for three porters and fresh victuals. The tale of the behaviour of our men was greeted

almost with incredulity and it was clear that we should have all the help it was humanly possible to give, but the demands which had been made were no light ones. Nearly all the men were in the hills, but two good porters were found to go with us. The third was a difficulty, and much discussion and running of messengers went on. The mission evangelist suggested a name which was vetoed with scorn as being that of a weakling. Eventually a man was found whom the Fathers could approve as being steady, reliable and fit for the job like the other two. There was no question of the men refusing to go, and their pay was fixed for them by the Fathers, who said that it was quite feasible to cover the distance we wished in the time available, " mais il faut *bien* marcher."

The matter of food was a worse difficulty. They had not yet been able to gather the harvest owing to the heavy rains—a contrast to Wei-si—and the crops the year before had failed. The result was not mere shortage but starvation. The mission had barely enough for itself, no food could be bought in the valley, and only one march to the south people had already died of hunger. We had still some of our original three days' supply left on this the end of the third day, and obviously the only course was to escape over the mountains out of the land of famine before we had eaten what was left. If it was hard now to obtain enough food for a couple of days, we might be in an impossible position if we tarried. These little-known stretches of the Upper Salween are an attractive

hunting-ground and we were anxious to see what we could of the third great river; but we knew what difficult country it is from the experience of others; and though in normal times we might have been tempted to spend a couple more days on a thrust a little farther west, only absolute necessity can justify taking food out of the mouth of a starving people, and any farther penetration was not to be thought of.

While these preparations for an immediate start were being made our old porters were congratulating each other on the top of the hill. They pointed out that they would spend the night at Pehalo, load up with abundant supplies of food and dash on next day to sleep at the very village which we actually reached without any strain that night. Whether they would have covered the ground in a total of nine days or not, had they been able to buy the food they expected, is doubtful.

When the main body at length arrived, the Chief had as kind a welcome as his forerunner. As the rain had come on heavily he was soaked through, and while he was changing our old porters appeared to pay their respects to the Fathers. They entered bowing, with their faces wreathed in self-admiring smiles, and crossing themselves knelt for a blessing. They received anything but a blessing. Our hosts fairly bristled with indignation and preceded their remarks by a noise which can only be described as a growl. They continued with some well-chosen, sharply pointed remarks, which had a surprising effect. As soon as one of the Fathers paused the other took up the thread

and emphasized that the men's conduct was not all that it might have been. Père Genestier was especially well fitted to judge, for he once walked over from Tsed-rong in a single day entirely by himself. It was funny to watch the self-complacency of our ruffians turn to surprise and then to mortification when they found that not only had they earned the reproof of their superiors, but they had forfeited the rest of the contract. When they were paid, they said that the money was not nearly enough, but the Fathers took pains to explain to them that only two days' pay was due to them and that they had not earned that. They had already eaten their six days' supply of food, and how, or if, they obtained any more we did not hear. We were no more troubled by the trio. So perish all traitors.

While our new porters were making their few preparations we were entertained to a feast. It is to be hoped that the mission did not have to live on extra short rations for the next fortnight in order to make up. Our hosts apologized for the poor meal which was all that they could prepare at such short notice, and they laughed heartily when congratulated on the banquet. The only one of the many courses which comes to mind is sponge cake with thick cream and *compote* of wild strawberries. Let the reader judge.

The mission-house was built by Père Genestier, but Père André had lately come from France to relieve him. The latter fought all through the war and won the Croix de Guerre and many other medals. Père

Genestier had moved a few days' march to the north to the old mission to Kionatong, which was burnt down in 1865. He is now the oldest resident in northern Yunnan, for he came out from France in the days of Desgodins, one of the earliest members of the mission. Most of the remainder of his contemporaries were killed in 1905, but he who had escaped murder for so long escaped again.

In paying a tribute to the French missionaries to Tibet, no comparisons with anyone else are intended. In civilized parts no doubt great problems also arise which need pluck and endurance to solve, but conditions are utterly different. There is here no one to protect the exiles in the land of mist and snow, and each of them knows how sorely he may, in fact probably will, stand in need of help some day. The French Government has even disowned them at Peking. Few parts of the world can be more isolated, for the journey from Burma takes six weeks and two dozen Europeans cannot be met in that time. Letters from home spend a couple of months on the way and parcels take almost as long again. For several months in the year the passes to the east are under deep snow and impassable by man, during which time the Upper Salween is cut off from the rest of the world. To the west and north lies Inner Tibet, with its jealously guarded frontier and its hostile priests. To the east is the snow-clad rock wall which we had found troublesome to scale even at mid-summer. To the south is the land of the Black Lisu. The truth is that these residents are not

of this world, but they form a world of their own into which a European face intrudes but once in every few years.

The work they do is worthy of the sacrifice they make. One can say no more. Of the many magnificent sights we saw, none has left a deeper impression than the devotion and success of the French Fathers of north-western Yunnan.

CHAPTER XII

A HURRIED RETREAT

The road that I came by mounts eight thousand feet:
The river that I crossed hangs a hundred fathoms.
The brambles so thick that in summer one cannot pass!
The snow so high that in winter one cannot climb!
With branches that interlace Lung Valley is dark;
Against cliffs that tower one's voice beats and echoes.

Hsu Ling (A.D. 507-583). *Tr. by* A. Waley.

OUR stay at Pehalo was but short, for we had to make a half-march before dark. The porters were paid by the job, and as they crossed the square of the mission on their way out Père André instructed them as to what point to reach each night, and we felt that even if our staff urged them to go slower and said that we wished it, the porters would pay no attention. After a last farewell we hurried after the men, who were passing out of sight, and looking back from the first corner we could still see the two figures in front of the building, with the cross on the chapel above them silhouetted against the sky.

We descended to the stream we were to follow next day, and climbed up the other side to three houses, where we pitched our tent. Thanks to the supplies which Père André had given us from his tiny store, we had sufficient for ourselves so long as we were not delayed, but we hardly needed an evening meal after the feast we had had.

The morning was overcast but fair, and we were on the move early. The path led among high grass and ferns which shut one in and cut off all view except for a couple of yards ahead. What country for an ambush! What worried us more was that the bushes were soaking wet and pushing through them provided a cold douche in the most approved early morning style, but with no rub down afterwards. The path was so slippery that without the aid of a stout five-foot pole progress would sometimes have been next to impossible.

We reached the summit of the ridge from which the ground fell steeply to the Salween itself, but the valley was flooded with mist. The path did not cross the ridge but continued up the same gorge. Higher ground intervened soon after and we never caught a glimpse of the waters of the river itself. All the morning we worked up the ravine of the stream we had crossed the night before, at a considerable height above the river, but descending to it for lunch at a log bridge. It was a pleasure to be able to turn round again without fear of slipping down the hill-side, for the track along the gorge had been narrow, and sometimes we had had to climb down or over places where the foothold was precarious and a slip would have been serious.

The distance continued reticent under its veil of wetness, and we saw nothing that day of Mt. Francis Garnier, although it had been visible from afar off the night before. Heavy rain during lunch made us glad to move off, and our porters did not wish to halt for long. The Chinaman with his interminable rice likes a midday rest of as much as a couple of hours, but the hillmen can do with a quarter of that time.

The march all the afternoon was horrible. Fortunately it only lasted for four and a half hours, and the men halted for ten minutes after every fifty minutes' marching. The path combined the objectionable features of the earlier and later parts of the track of the forenoon with a fresh set of its own. It was only a few inches wide, on a precipitous slope which was so densely wooded that the light was quite dim, and we could only see the opposite side of the valley through an occasional chink in the jungle. The sun came out late in the afternoon and we tried to photograph both the forest and the porters, but with no success. One might have taken the trunk of a tree six feet away or a head-and-shoulders study of one man, but more was impossible on that corkscrew ledge.

The torrent had frequently cut back the side of the ravine into a rock wall, and the path had to climb above each such place by zigzagging up the hill-side at a slope steeper than most staircases. Once past the cliff it would drop again to find some easy way across a cascade or climb still higher to cross a stream where it was smaller. Some of the streams were crossed by a narrow bridge of a couple of logs, but at others it had been swept away. Great fallen tree trunks had to be climbed over, but generally a tiny notch or two had been cut in them for one's feet, which saved having to cross on hands and knees, for the trunks were slippery and they lay at a very steep angle.

The men slept beneath a dangerously overhanging tree. Every passer-by had obtained dry kindling for his fire by hewing a piece off the trunk, which was so reduced in thickness that it looked as if a strong

wind would bring it down. There was no flat space on which our tent could nestle, but the path was wider than usual and one piece sloped only moderately. We invited the interpreter to join us in it, for he was having the worst time of anyone, with no mule, no rice, and no scientific enthusiasm. He refused, however, even when pressed, for it seemed that the soldiers considered that they were more important than he was and that if anyone slept in comfort it should be one of them. If he could not keep the men in order and preferred to do as they told him, we saw no reason to make ourselves violently uncomfortable, for the tent was small enough for two and it would have been scarcely possible to turn over with three.

The next day again began foggy, and as we worked up a steep spur we could see nothing beyond a few yards. We were among scrub now and after two hours of climbing we reached the summit, where there was a tiny strip of grassland between fir-woods. Looking across a little valley, we could sometimes catch sight of the rocks of Mt. Francis Garnier vignetted in a gap in the driving mist, which rushed up over the rocky shoulders from the blankness behind us. The path led to the foot of the limestone mass which forms the mountain peak, and here we halted to boil the thermometers. From the pass we had to descend the long valley on the eastern side of the divide into a land of comfort and plenty, of warmth and sunshine, of dry blankets and camp-beds. The danger of delay was still present, for it would be easy to be stopped for a couple of days between flooded streams, and delay

would have meant hunger. We hoped, however, that the track would improve greatly, but we soon found that it was not "roses, roses" all the rest of the way. The path was quite satisfactory until it disappeared at the bank of a stream over which there was no bridge. The water was icy-cold, knee-deep, and running swiftly over loose rounded boulders. The men had not paused to examine the rocks on the descent as carefully as we had, and as they were all ahead there was nothing for it but to ford.

We stopped for lunch at a meadow containing three mansions of the kind already described on the Si La. Tien caused us great alarm by announcing that he wanted to buy a Tibetan dog, so as to cut a bit of a dash at Teng-yueh. We should have gladly consented to anything within reason, such as an alligator, or a king-cobra, or a tadpole, but a Tibetan mastiff was about the limit. However, we agreed to the animal joining the party in the hope that it would kill its master first and that it could then be shot, unless anyone else was to be disposed of at the same time. It was indeed fortunate that we gave way to the dictates of our kind hearts, for agreement could not be reached as to the price and the purchase was never made.

We expected that the road would now run at a steady rate down a broadening valley over springy turf beside a bubbling brook. Never was there a sadder disillusionment. We entered a forest ravine at once, and as we scrambled down it the torrent leapt over cliffs in its effort to drop as quickly as we did, and instead of the desired bubbling it maintained a continuous roar. The next performance of our track was to recross

the stream, again without a bridge. It would be unfair to blame the road altogether, for although such a double crossing seemed unnecessary, the water alone was responsible for the method, as it had washed away a primitive bridge. We rode across in style on the soldiers' backs, at a place which did not happen to be a waterfall.

For all the rest of that day the path worked down the valley. The descent of more than five thousand feet might be unavoidable, but we were constantly forced to climb up a few hundred feet, and drop down on the other side at a rate which was no compensation for the climb.

Finally we reached the end of the day, and what is more, we reached Lon-dre. The jungle had once more given place to dry scrub and the air was again warm.

A mystery enwraps the name Lon-dre. Tien told us we were going to Yung-je, and that Lon-dre was on the Mekong, an entirely different place. The porters clearly pointed to the village hitherto called Lon-dre by travellers and said "Yung-je." Whether they knew the word Lon-dre did not transpire, but the most probable explanation is that the two words are the names of the same place in different dialects, and that Tien confused Lon-dre and Yang-tsa. The place itself is a group of typical Tibetan houses such as are described elsewhere.

On the 9th we had only to make a short march to Yang-tsa. The road was good but it had a difficult task, for the river it followed had, like so many of the tributaries to the Mekong, cut a narrow cleft through a line of hills in its last couple of miles, and little or no

flat space lay beside the stream. Well-built bridges were frequent. At one place the path crossed a landslip by a little cat-track at some height above the water. One earnest geologist was busy whacking a projecting knob of rock when he realized that if he were not careful he would renew the landslip and grieve the hearts of those who had made it crossable. One flake jumped nearly into the river, and he was content with a smaller chip than he had at first intended.

The climax came just before the confluence of the tributary with the Mekong. On each hand rose red cliffs, and we slanted across the northern one till at three hundred feet above the river we reached the turn to the left beside the Mekong. The path was sometimes cut in steps out of the rock, at others it was carried on wooden supports actually overhanging a sheer drop. The cliff opposite gave as fine an exposure of the rock structure as could be wished for.

A couple of hours brought us to the hamlet of Yangtsa. The river was so high that anyone crossing the rope bridge would have had to pass through water near the lower end. However, the headman called for man-power from the neighbouring villages to tighten the rope, and by the time we had eaten our lunch the helpers had arrived. A picturesque medley resulted. As many as could find room tugged and hauled on the rope, while a couple more took up the slack after passing it round the terminal post. Their efforts met with only partial success, but reinforcements arrived and the bridge was soon high enough to cross. Our three loads went by themselves, and it was with anxious eyes that we watched to see whether our blankets and note-

books would clear the water. Thank Heaven, they did. A strange procession followed. Everybody seemed to be crossing. Many of the passengers carried hand-luggage, but the man who took half-a-haystack with him was overdoing it, and he reminded one of the notice : " This rack must not be used for heavy or bulky articles."

When at length we ourselves crossed, we were surprised to find how easy it was to pull oneself along the rope for the last few yards. This bridge, however, had exceptionally little sag. We were welcomed by a selection of the men, and our jovial friend the old muleteer opened his heart to us—in Chinese of course, but rendered partly intelligible by signs and smiles. Some of his conversation had to do with the number of days they had been halted, for while he wished to pass off the information as mere gossip, he intended that there should be no mistake on the matter when the contract was up and they were due their money.

It was only a few yards to the house in which we were to stay. When the old muleteer had presented us with a huge and beautiful moth and the cook had sent us a sponge cake, and when we had sat upon our beds and put on dry footwear, we felt that it was indeed good to be home again.

CHAPTER XIII

FROM DESERT TO MIST

> . . . while many a change
> Broke on my view, for I was free
> To breast the proud Alps' mighty range.
>
> R. Munro.

THE remainder of the day went in writing. One of us dug up half-forgotten memories in order to advise our French friends of safe arrival, and he scratched his head long and earnestly whether to write "donnée" or "donnaient." The next morning (10th July) we were back to the trivial round, the common task; so much so that the faithful historian is faced with the description of a gorge. The place was named "Hogg's Gorge" by Cooper, who was greatly impressed by it. It is to be hoped that curiosity will be satisfied with one fact. The path was so narrow that mules which were laden in Chinese fashion could not pass this way and the caravan took a higher road. The men did not warn us of their intention and as a consequence we waited for them for a considerable time in the middle of the morning, after emerging from the first gorge.

We were now well in the arid belt of the Mekong. We had read of its existence, but the climatic change was so striking that it could not but come as a surprise (Plate VIII.B). The valley seems to be so narrow

and deep that the clouds blow right over it, and while there is heavy rain on the mountains, as we found to our cost, hardly any falls in the valley. The hill-sides are covered with angular rock fragments on which little grows beyond sparse low dry scrub and lizards. The collection of the latter offered excellent sport—that is, the amount of excitement and turning over of stones was out of all proportion to the number of captures. The heat was great though dry, and it was always a relief to climb up into the more bracing air of the mountains after a spell in the valleys. Only a few hundred feet up the hill-sides were rough pastures with some trees which provided a contrast with the bare gorges through which we were passing. Houses were absent except where water was available. Whereever a large valley cut down to the main river the side stream was diverted to a canal which would run along the hill-sides in what looked like a horizontal line. At the end would be an oasis rendered a deep green by numerous huge chestnut-trees, among which nestled mud-built houses, with occasional terraced paddy-fields.

We halted at the oasis of Ken-ya after one o'clock, while the coolie tried to find some lunch for us. A small shed on the farther side of the village contained three prayer-wheels, while from under one side of the house a stream of water issued, probably the outflow from some derelict water-driven prayer-wheel. On shelves round the three cylinders stood small lumps of greyish-white clay each perhaps four inches in height, all of the same shape, which was roughly a cone with the top rounded off and a swelling at the base. Each of these

was a potted lama—the complete earthly remains of a dear departed. The lama is condensed to this very compact form by grinding up his bones. The result is highly satisfactory. The body keeps indefinitely, can be transported as easily as a rock specimen, occupies little space when planted on its appropriate shelf, and in general appearance it is superior to an English cemetery monument or even to a typical Chinese grave.

The coolie could not find us anything to eat, and as it was seven and a half hours since breakfast we thought somewhat wistfully of our lunch when we moved off for the next village.

Of the gorges we had passed through in the last couple of weeks only a few have suffered description, while many have escaped. The trench we now saw must submit to joining the minority, even though no adequate description is possible, and a list of superlatives does not give the intended impression. The valley is here barred by a rock wall a thousand feet high at the lowest and a mile broad. The river has cut its way through by a series of straight reaches of nearly equal length connected by exact right-angle bends. Statements of gradient convey little, but 58° is an unusual inclination for the sides of a gorge over a thousand feet deep. The hot rocky slopes could hardly support any vegetation, and even the lizards seemed to find the barrenness overdone. Over one of the west to east stretches (Plate IX.B) a great glacier several miles away shone in the sunshine. It was on Do-kar-la, one of the sacred mountains of the Buddhists. Between us and it was a small group of dark blue rock pinnacles

which compelled admiration from their colour, shape and size.

The path reached the top of one of the walls which threw the river into its eccentric course, and below us on the other side lay a village marked by the usual greenery. Here we found our caravan was resting, and, what was more to the point, food. The men wished to spend the night here as they said it divided the distance better than did the next village, and for once there proved to be positively no deception. As some hours of daylight still remained, we had a chance to clear off some arrears of work and to appreciate the beauties of the house.

It was built of mud and wood, with rather more mud than wood. The front door led into the stable, a levelled piece of ground open to the sky in the centre and covered by the first floor elsewhere. There were no windows and all the light and air came down the pit in the middle, along with whatever rain was available. The mixing of litter, mud, dung, animals hoofs and rain in what appeared to be an area of internal drainage gave a spongy slough which must have been disagreeable for the poor mules. It was a pleasure to reach the main staircase and ascend to the next flat. The ladder in question was as usual a log about as thick as a telegraph pole leaning nearly vertical against the edge of the floor above. Deep notches cut in it, or projecting knobs, afforded secure foothold, except where broken. We never saw one of these ladders roll round with anyone on it, but at times skill in balancing seemed necessary.

At the top of the flight was a contrast—a flat wide-

open floor of mud, and on it several detached buildings. In the middle was the square hole through which the guest had entered. At the back there was a drop of nine feet into the street; in the front, a drop of anything you like into space; at one side, more vacancy; at the other side, the main block. The floor was supported on wooden pillars and rafters, and seemed firm and impenetrable. Later we had experience of Tibetan mud roofs in wet weather, and we learnt that they can leak at every pore and let in the rain in torrents. The real use of the structure is to provide a flat space for threshing barley and wheat, but this is scant consolation to the wretched traveller. A shed open along one side formed the family granary and a notched pole led to its flat roof, a fine viewpoint. Our room was another isolated shed, of ample size and equipped with a good door and two windows. One of the windows overhung the pit, but the other opened on to the threshing-floor, and it was found a boon by several small boys. The main block of apartments was close by, and the interior receded into mysterious darkness from which it was a job to summon any of the men. Fortunately the cook, whose whereabouts was not revealed by an opium lamp, for he never smoked, could be left to his own devices.

More than the small boys are inquisitive in Asia, and the adult Tibetan combines Chinese curiosity with a cheerful assumption that everyone will be delighted to see him. We were sitting working when the door opened and a couple of picturesque Tibetans strolled in. We naturally expected them to have some excuse for intruding, but the necessity for

EASTWARD FROM THE JEM-SA LA

The dark marks on the further wall of the valley are rocks which have been crushed by mountain upheavals.

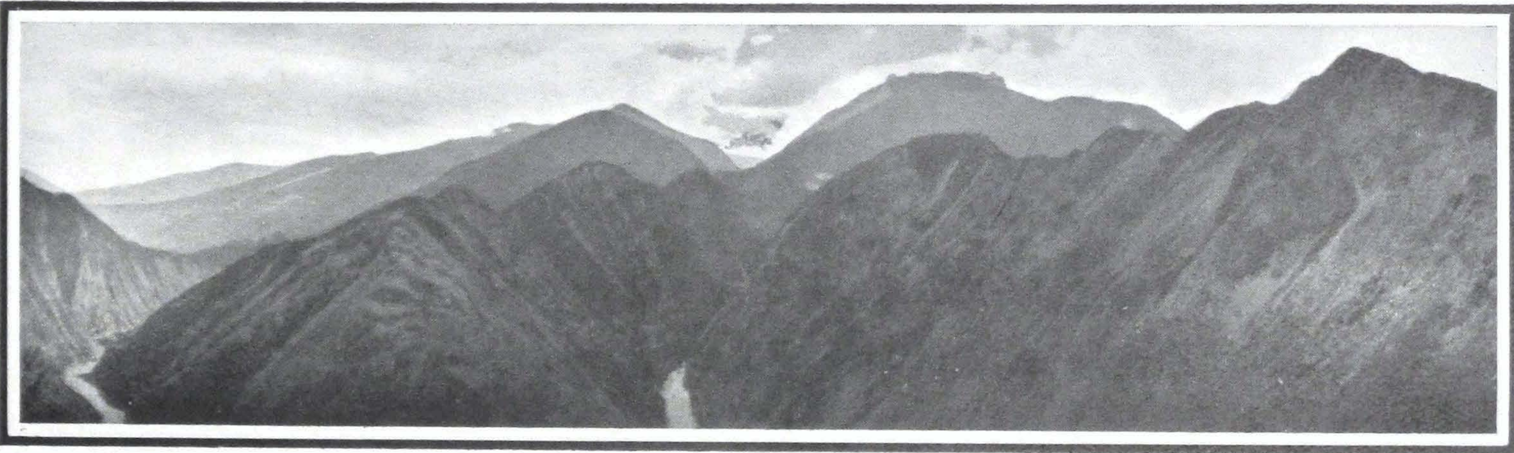


Plate IX]

ZIG-ZAGS OF THE MEKONG

North of Kon-ya. The snowfields of Do-kar-la, the sacred mountain, lie in the distance in the centre.

this had never occurred to them and their conversation was evidently a flow of questions interspersed with the smallest of talk. When they made too much of a nuisance of themselves in examining our possessions, we wished them good-day and showed them out.

Not long after it was evident that someone was peering through the crack of the door. Whispers soon showed that there was more than one watcher on the threshold. The surveillance did not worry us and we put the subject aside, until our attention was recalled to it by the door bursting open and a mass of humanity falling forward on to its nose. The pressure of the crowd had become more than the latch could stand. There was a rush out amid laughter, and no more inroads were made on our privacy beyond a few starers through the window, and even they soon melted away.

Just outside our door a lama was camped who, like us, was on his way to A-tun-tze. We were on most cordial terms, and when his evening meal-time came, the assistant slipped out and begged a cup of his buttered tea. No book of travel in Tibet is complete without a description of the beverage, just as no Tibetan is complete without a drink of it. It is nearly as important an article of his diet as *tsamba*, but it is more of a luxury, for it takes a little time to brew and it requires a fire. The tea is made in a vertical wooden cylinder and a quantity of butter is added. The molten grease is made into an emulsion by churning the fluid, by forcing up and down a circular wooden disc pierced by holes at the end of a rod. Salt is added to taste. The product is filtered through a funnel-shaped basket to remove the tea-leaves, and

served scalding hot in each drinker's wooden bowl. If tepid it is greasy and unbearably nasty, but when as hot as is tolerable it is not unpleasant, and it keeps out the cold. The taste is not in the least like tea, but it is useless to try to describe flavours.

Next day we rejoined the Mekong at the northern end of its zigzag course. The cliffs on either side separated to half-a-mile and between them lay a sun-baked desert. It was in several terraces, each of which was extensive in places. The world seemed to hold nothing but rocks and dry scrub, sunshine and lizards. The Chief was strongly reminded of parts of Colorado, but by the time he was able to pass on the information the scenery was becoming Scottish.

We led an unsociable existence. On the march we were seldom within speaking distance, and even when we were, conversation was sparse and almost wholly "shop." On this day we must have been three miles apart at times. We met at meals, but we were then too busy eating to say much, except to refer to a new dragonfly, seen but not caught, or to a geological structure, or to a photograph required, or to the distance travelled. When halted in a town we each had the arrears of our own work to overtake, and if there were men to be paid, mules to be hired, or a call to be made on the Magistrate, the senior performed these duties, while the junior welcomed the chance to develop another couple of films or plot a few more days' notes of sketch map.

A-tun-tze lies at the head of a tributary valley, and the path now turned east to climb up to it. On the other side of this little valley a long horizontal line of

green ran on a hill-side which was so bare and steep that the geological structure was as clear as in a diagram. At the end of the irrigation canal stood a village with profuse foliage and chestnut-trees. Wherever water is led, the soil appears productive.

The path led along the bottom of a little gorge, and across it ran a rope bearing a number of prayer-flags. It was always pleasant to meet with one of these automatic praying machines which used the forces of nature to return petitions to the Author of Nature. The notion is both ingenious and ingenuous.

The valley climbed steadily towards a vista of rounded and tame-looking hills; though once there, higher hills, which were hidden for the moment by the sides of the valley, dominated the scene and made it anything but tame. On a house-top in the distance a group of half-a-dozen threshers plied the flail noisily and dustily. An aqueduct made not of bamboo but of hollowed logs supported on forked poles carried water to some little fields, and crossed the main stream on its way. Behind us lay the distant glaciers on the other side of the Mekong. Now we turned the last bend and saw in the distance the houses of A-tun-tze.

CHAPTER XIV

AROUND A-TUN-TZE

Above the pines the moon was slowly drifting,
The river sang below ;
The dim sierras, far beyond, uplifting
Their minarets of snow.

BRET HARTE.

DURING the march up the Mekong we had seen occasionally the superb mountain range of the Do-kar-la and Ka-kar-po. Their towering pyramidal peaks resembled—to compare it with Switzerland—a row of Weisshorns rising above vast snow-fields, and from the range long glaciers flowed low into the dark pine-woods. This range we were not at liberty to reach, for along its crest runs the forbidden frontier between autonomous and Chinese Tibet. Bearing in mind the wisdom of the Chinese advice, " When in an orchard do not tie up your hat-strings, and when in a cucumber field do not retie your sandals," we had thought it better not to climb the lower slopes of the range as the Chinese officials would suspect us of an attempt to enter autonomous Tibet; for if we reached the snow-fields there would be no one to stop us. Hence to examine the mountain structure of the area we had turned eastward to the highest peaks on the divide between the Mekong and the Yangtze.

We were examining the rocks in a stream bed to find

out what rocks formed the eastern wall of this vale when we saw a European riding towards us. It proved to be M. Gaston Peronne, the one European merchant in north-western Yunnan. He has been living in the province, trading in musk, since 1903. His commercial relations with the mountain tribes and his wide travels in Yunnan and Tibet have given him unique knowledge of the geography of this region. He walked back with us up the valley, pointing out to us the site of "old A-tun-tze," which was overwhelmed by a landslip. He explained to us that the broad sheet of shingle over which we were walking was only two years old; a tract of fertile meadow-land beside the A-tun-tze River was then suddenly buried by a flood of gravel. Several hundreds of thousands of tons of boulders were swept from the mountain-sides by a cloud-burst and spread over the floor of the valley.

A-tun-tze (Plate X.) is still essentially a Tibetan town, though it was conquered by the Chinese general Yo-king-ye in 1703, and was then annexed to Yunnan. Its name means "the beacon hill," for the hill beside it offered great advantages as a look-out station. The Chinese have built a fort on a commanding viewpoint above the town. Apparently it has never been used, as after its erection the site was found to have no permanent water, and any aqueduct that might be constructed to it could be cut in case of attack and the fort thus rendered untenable.

A-tun-tze has fallen on evil times in addition to physical catastrophes. It was formerly an important trading centre where Tibetans from the northern steppes bartered their merchandise with Chinese traders. It

was the seat of one of the most important lamaseries in the Tibetan frontier lands, and, after 1876, of one of the stations of the French mission to Tibet. In 1905, during the Tibetan revolt, the mission station was burnt down and its inmates murdered. On the reconquest of the town by the Chinese, after desperate fighting, most of the lamasery was destroyed and its re-establishment in the town was prohibited. A smaller lamasery—containing only two hundred monks—was established in 1906-1907 on a hill-top to the north. Part of the buildings have been left standing and are used as the barracks, while the house of the Living Buddha was converted into the telegraph office.

A "Living Buddha" is the religious and secular head of each of the chief lamaseries in Tibet. The belief in him illustrates the strange capacity of the human mind for unconscious self-deception. These Living Buddhas are regarded as reincarnations of Buddha. The sanctity of the spiritual headship of the lamaseries is maintained by perpetual reincarnation. On the death of a Living Buddha he is believed to reappear in a boy born shortly afterwards. The selection is either by lottery, which is clearly often manipulated to secure a desired result, or by observing which of the available babes appears to recognize some object connected with the late Living Buddha. Some object that belonged to him is shown to the infants, and a smile or an upraised hand is regarded as evidence of recognition by the soul of the deceased of his former property. The selected babe and its mother then settle at the monastery, and the child is educated for its high position. In some nunneries the Abbess

is regarded as the reincarnation of an Indian goddess and the perpetuity of the goddess's connection with the institution is maintained by a similar selection. The lamasery during the minority of the selected infant is managed by an acting head lama or regent, who, according to widespread rumour, often poisons the Living Buddha before his attainment of his majority, so as to secure another term of regency. Lay people, on the other hand, regard the Living Buddha with great reverence; and it was probably owing to the sanctity attached to his person and possessions that the house in which we were accommodated had not been destroyed with most of the rest of the lamasery. Half of the house had been taken on lease by Mr Lewer of the Pentecostal Mission as the headquarters of that mission among the Tibetans. Mr Lewer lived there for some time studying Tibetan, but owing to the decrease in the population the mission had withdrawn to Wei-si, and he kindly allowed us to use his rooms. The house was badly out of repair. The telegraph official is reported to have left A-tun-tze suddenly, taking with him all the portable equipment, and the telegraph station had been derelict for more than twelve months. The roof of the wing of the house in which we lodged was delightfully airy in dry weather; but as it rained most of the time it was difficult to find sufficient dry spaces in the rooms for a table or beds. To keep our beds dry we had to cover them with tarpaulins. The Magistrate paid his return visit during a heavy storm of rain, and he politely did his best to appear unconscious of the drips on his best costume until our insistence on his trying place after place to avoid the

leaks rendered his ignorance of their existence impossible and he offered to find us drier accommodation. As we hoped not to spend many nights in A-tun-tze, and as while out on our excursions we could keep our goods dry under tarpaulins, we thought it better to remain in the house, which was otherwise safe and convenient. One great attraction was a room that could be used for photography, though the drying of the negatives in that moist air was a serious difficulty.

We had dinner with M. Peronne, who is an accomplished and enthusiastic photographer, and has an unrivalled collection of Tibetan photographs. He entertained us with an account of his recent journeys in south-eastern Tibet, where his long commercial relations with the people secured him a most friendly welcome. He gave us the most detailed information that we had received as to the murder of Dr Shelton, the distinguished American medical missionary who had lived for many years at Ba-tang, which is the next city to the north of A-tun-tze and on the main road from southern China to Lhasa. Dr Shelton was the head of the Ba-tang station of the Foreign Christian Missionary Society, of which the headquarters are at Cincinnati. Attached to this station is a hospital, handsomely equipped by the Rockefeller Foundation. Owing to his medical services to the people around Ba-tang Dr Shelton was widely known and most highly respected. Early in 1922 he left the mission to visit Lhasa on the invitation of the Dalai Lama. He was, however, sent back by the Tibetan authorities on the ground that the invitation did not authorize them to allow him to traverse eastern Tibet, and he must wait

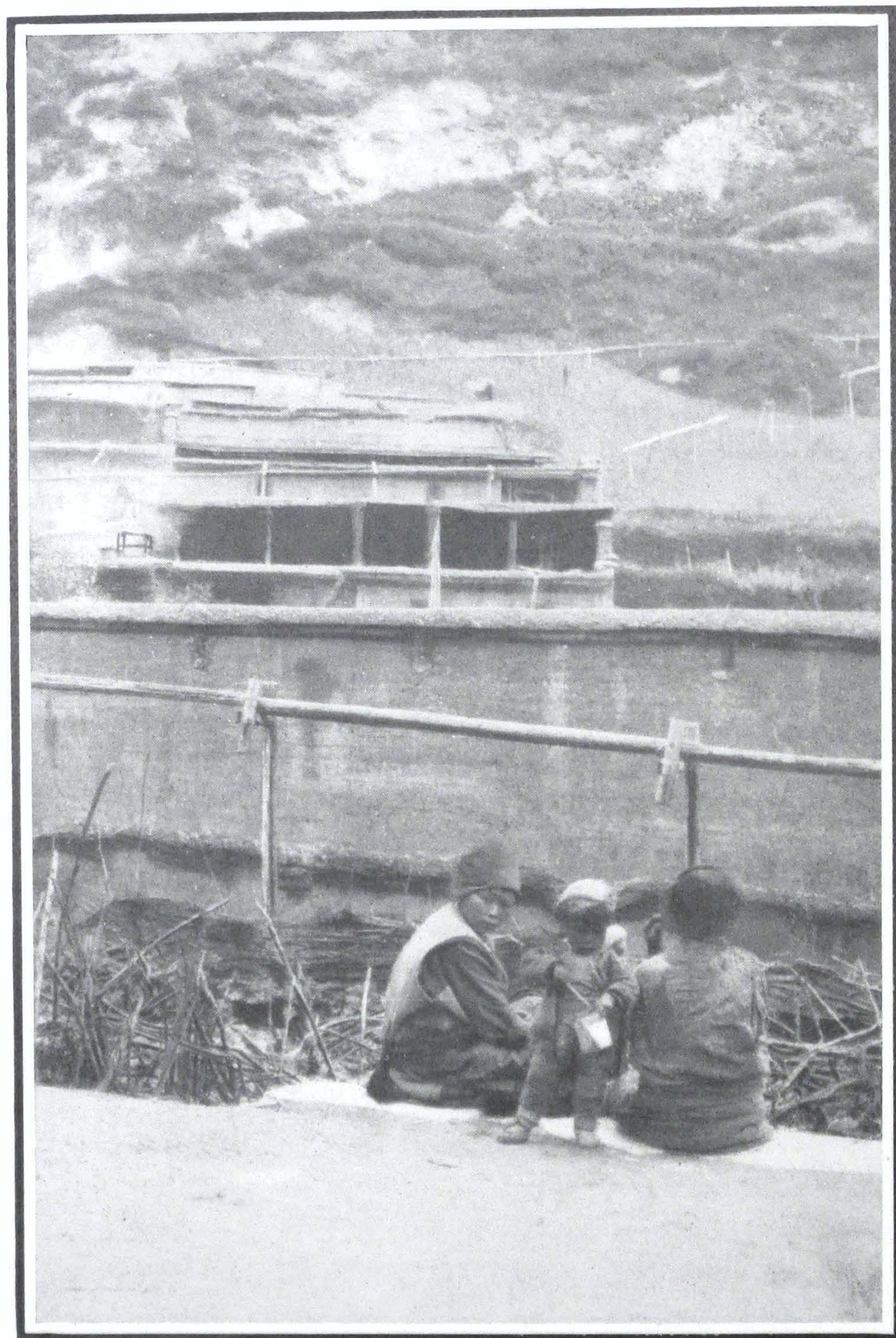


Plate X]

A-TUN-TZE

From the barrack square. The houses are mud-built with flat roofs. The water supply is carried in the hollowed logs supported on poles.

until they had received instructions from the Dalai Lama. On the way back the caravan was attacked. Dr Shelton, who was in Tibetan dress, was threatened by a man with a gun. He called out to the robber not to shoot and gave his name. The man then placed the muzzle of his gun about a foot from Dr Shelton and fired. The brigands looted some of the loads and then withdrew. Dr Shelton died a few hours afterwards. The fact that he was the only member of the caravan injured, and the apparent deliberation with which he had been singled out and shot, had given rise to the idea that his murder was the real object of the attack. According to one suggestion the East Tibetan lamas were annoyed at the friendly relations established between Dr Shelton and the Dalai Lama; according to another view, the murder was due to the anger of some Chinese officials at Dr Shelton's vigorous denunciation of the regrowing trade in opium. We were therefore relieved to hear from M. Peronne that both he and Dr Hardy, the present head of the mission in Ba-tang, regarded the murder as the independent action of a band of local brigands who were merely out for loot.

M. Peronne explained to us that we had visited A-tun-tze at an unfortunate time. The town was living under a reign of terror due to repeated attacks by the revolted tribes from the plateau east of the Yangtze, from whom a fresh attack was expected as soon as the river fell sufficiently to become passable by ferry.[1] Under these conditions the traders in the town dared not keep stocks of goods; the Tibetans were afraid to bring in their merchandise; the supply

of food was scanty, prices exorbitant, and trade dead. It was therefore advisable for us to send our mules to some lower village where fodder was more abundant and they could rest more comfortably and cheaply during our stay in the district.

The next morning we sent cards to the Magistrate, to the officers in command of the troops and of the military police, and to the two officials of the salt department, one of whom, Mr Li, spoke excellent English. The Magistrate arranged to see us at mid-day and M. Peronne kindly accompanied us and acted as spokesman. The Magistrate emphatically objected to our going farther north. As we had already decided that we could use our time to better advantage in the mountains to the east of A-tun-tze than along the oft-traversed route to Ba-tang, we consented to be guided by his advice in that matter, and we asked for permission to visit the mountains to the north-east. He objected to our going farther in that direction than could be managed in single-day excursions, so that we might always sleep in the security of A-tun-tze. He warned us that the mountains were frequented in the summer by people collecting various materials for medicine, and that these medicine collectors were pirates and villains of the worst type. He also advised us to return to the south via Wei-si as that road was the safest and the most comfortable; the alternative routes along the Yangtze valley he assured us were both impracticable as floods had swept away bridges and destroyed hill tracks which could not be repaired till the following dry season. We insisted that a half-day's journey to the north-east would be quite

inadequate. He therefore promised to send some military police into the mountains to find out whether the medicine collectors were numerous and dangerous. He gave orders for two men to start at once so that their report should be available by the next night. Their visit proved futile, for the weather was so wet and the hills covered in such dense mist that any useful inspection was impossible.

After the return of the two policemen, although their report was ambiguous, we insisted that as we had waited for it we must be allowed to proceed; and as M. Peronne kindly offered to accompany us it was obvious that our proposed journey was practicable. The Magistrate reluctantly consented, gave us an escort, and secured for us three riding-mules and some local pack-mules so that our own might enjoy a well-earned rest.

We climbed the eastern wall of the valley, enjoying widening views over the Mekong basin and of the series of depressions which continue the A-tun-tze valley to the north. After a steep ascent of nearly 2000 feet we entered the Jsu-su valley, which opens high up on the eastern side of the main valley. At the entrance to this " hanging valley," at the height of about 12,500 feet, we saw a weathered overgrown moraine which gave the first clear signs of former action of ice in this district. This Jsu-su valley, being sheltered, was occupied by pine-woods through which we rode in heavy rain. We camped just outside the forest belt in a glen gorgeous with alpine flowers. Close beside the camp a rounded rock surface had been smoothed and scratched by a former glacier; and a

little distance farther up, at the height of about 14,000 feet, the valley was crossed by large terminal moraines showing further evidence of glacial action.

The primary object of this excursion was to examine the structure of the mountain group to the east of A-tun-tze and to determine the position and approximate height of its highest summits. It was also desirable to see what glaciers are still existing amongst these mountains and what evidence there might be of their former greater extension. In the map published by Mr Kingdon Ward[2] he marks in this district four snow mountains over 20,000 feet high; two of these—viz. Keni-chun-pu, west of the Salween, and Ka-kar-po, on the Salween-Mekong divide—were inaccessible to us, being on the frontier of autonomous Tibet; the other two were in the Mekong-Yangtze divide east and south-east of A-tun-tze, and one of them is said in the same work to be 21,000 feet high. In answer to inquiries regarding this 21,000 feet snow peak east-north-east of the town, we were assured that there was no such mountain; the highest peaks in the group were said to be farther north beside a pass known as the Jem-sa La, which is used by the Tibetans in crossing from Mo-ting on the Yangtze to A-tun-tze. We therefore decided to visit the Jem-sa La and determine our future movements in accordance with what we saw there.

We struck camp in the Jsu-su valley early on the 15th July and rode over the moraines and past a small tarn in a hollow amongst them; we entered a broad valley with rounded smooth slopes and the U-shaped cross-section which is characteristic of valleys that have

been formerly occupied by glaciers. The floor of the valley was strewn with extensive moraines and some of the rocks exposed on it were ice-scratched. Climbing over a high rocky shelf we reached a higher platform and halted at midday beside the largest tarn in this valley, which is known as Tsu-na, or "The Black Dragon Lake," at about 15,300 feet. To the east of us rose a jagged frost-riven ridge with a sharp notch, which the men pointed out to us as the Jem-sa La. The peak on its southern side was the most conspicuous along the range, though a summit to the south (175°) appeared probably the highest in this group. We resolved to cross the Jem-sa La, which, according to the only previous record, was at the height of 18,000 feet. We passed a fourth tarn and began the steep climb to the pass. Toiling up the ascent one of us remembered the formula that was once current in Alpine circles that nobody aged over forty-five should climb above 14,000 feet, as beyond that level the risk of undue heart strain is too serious, and he wondered what had been the recognized limit in altitude for a man of fifty-eight. The pass is a narrow deep notch on the skyline, due to the rocks having been worn away on a line of ancient fracture. We stopped on the top to boil the thermometers in order to determine the height, which the observations indicate as about 16,800 feet. It was therefore somewhat lower than we expected. There was practically no snow on the pass, probably owing to the violence of the wind, while the adjacent peaks are too precipitous for the formation of any considerable snow-field. In a depression on the eastern side is a small corrie glacier at about the level of the

pass. The view from the pass to the west was particularly magnificent. We looked down the long glaciated valley over ridges which had been rounded and rubbed down by former glaciers. Beyond the Mekong rose the serrate mountain line of Ka-kar-po, with four great glaciers flowing down from its wide snow-fields and a series of peaks which, judging from their height above the snow-line, must rise to about 24,000 feet in height. To the east the view (Plate IX.A) was bounded by a range of which the geological structure was unusually varied and interesting. In line with the fracture which had formed the Jem-sa La we could see a belt of rocks which had been smashed and crushed during the mountain upheavals. The floor of the valley below us was a sheet of meadow-land with a lake nestling in some moraines. We sent the mules and men on to pitch camp in some sheltered position beside the lake and we followed after we had completed our observations, and had attempted, when the clouds lifted from Ka-kar-po, to secure photographs of that superb mountain range (Plate XII.A). The weather was, however, unfavourable, for even when the snow peaks were visible the atmosphere was misty, and no photographs could be obtained comparable to those taken by M. Peronne in the clear, cloudless skies of winter (Plate XI.).

The site of our camp was picturesque, but our men did not regard its beauty as compensation for the lack of fuel. We sent some of them to collect some woody shrubs from lower down the valley, but our main supply was from roots that we found far above the present tree-line in earth exposed on the sides of the

gullies. The amount obtained was sufficient to cook food, but not for a camp-fire, so that we spent a very cold night. Early next morning we started down the valley in further search for the 21,000 feet snow peak. We kept high on the eastern wall of the valley along a track which led over to the next pass, the Ni-ma La or Chnu-ma La. A couple of miles down the valley we found the opening to this pass up a branch valley to the east. We followed it past some interesting peaks whose uptilted red beds had attracted our attention from the summit of the Jem-sa La. The pass, of which we made the height 16,500 feet, should in clear weather command a wide view over the Yangtze valley, but the whole of the country to the east was one swirling mass of cloud. By waiting patiently we were able to observe through breaks in the clouds the bearing of several peaks and the nature of their rocks. During our return to the camp the clouds to the south-west lifted for a short while and revealed the highest peak in the A-tun-tze group. It remained visible for a sufficient length of time to observe its direction, to note the arrangement of its small glaciers, and to form an impression as to its height relative to the remaining peaks of the group.

We had contemplated attempting the ascent of the highest peak in this group if it should appear sufficiently attractive. This mountain presented no serious difficulties, but it would have taken more time than it appeared to be worth. As its glaciers seemed much smaller than those of Pei-ma Shan, we thought that mountain would better repay attention. The largest glacier we saw on the A-tun-tze group is a corrie

glacier overhanging the western side of the valley south of the Jem-sa La and opposite the Ni-ma La.

We therefore returned to camp and started back over the Jem-sa La in time to reach a site sufficiently low to ensure ample firewood for the night. The men were delighted to leave this fuelless valley, and after crossing the pass went quickly ahead, while we kept along the northern ridge in order to examine its rocks. It was nearly dusk before we found the camp pitched among the moraines by the lowest tarn. Next day we returned to A-tun-tze and began arrangements for a journey to Pei-ma Shan and back to Li-kiang by the Yangtze route.

One of us with the theodolite climbed Mount Reg-ni, the mountain to the west of the town, in the hope of determining the height of Ka-kar-po. Though the morning was wet, the prospects were considered favourable for a fine afternoon. A couple of coolies carried up the theodolite, and the guide instead of following a track led the way up slopes so steep and through scrub so thick that the porters with the instrument had great difficulty in following. It was so difficult even for a man with both hands free to force a passage that any further progress often seemed impossible. These efforts were all in vain, for the rain continued steadily and the mountains remained the whole day enveloped in cloud. The other had kept that day free, as the Magistrate had asked him to visit an ancient silver mine half-a-day's journey from the town. The mine is reported to have been worked about sixty or seventy years ago, and to have then yielded much silver. At the last minute, however, the Magistrate said the visit

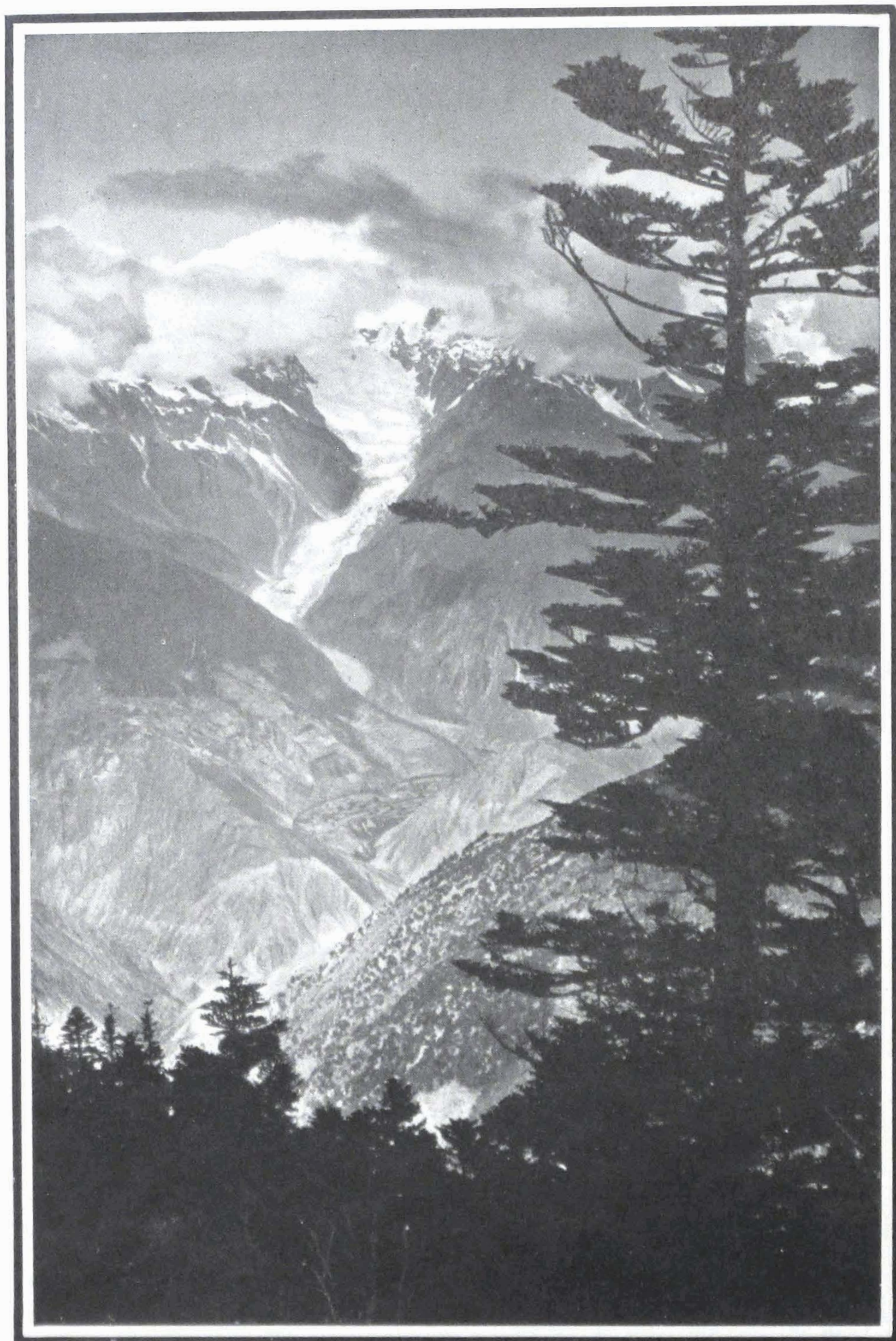


Photo by] [*G. Peronne*

KA-KAR-PO IN WINTER

With a long glacier. Looking across the Mekong from near A-tun-tze.

Plate XI]

was not worth while, as he had sent men to collect specimens of the ore. The ore samples had, however, apparently not arrived before our departure from A-tun-tze.

In view of the discouraging history of modern mining and projected mining in Yunnan, as related by W. F. Collins,[3] the abandonment of this visit was accepted with pleasure. We did not like to refuse the Magistrate's request to examine the mine, though glad to escape the responsibility of advising him as to what he should do with it. He will probably follow the wisest course and leave it alone.

The Magistrate, who had from the first been very suspicious of our object, appeared to have had his doubts strengthened by the reports of the escort. He sent at night for our interpreter and cross-questioned him as to our work and proceedings; he especially wished to know if we made maps.

Chinese officials have often been inconveniently suspicious of map-making. During Huc and Gabet's historic visit to Lhasa in 1845 the Chinese Ambassador there had the two missionaries arrested, as he accused them of this evil Western propensity. The Governor of the prison at Lhasa explained to his prisoners that " maps are feared in this country, extremely feared indeed . . . the Chinese authorities are very suspicious on this subject; as you do not draw maps that is all right." Huc and Gabet were saved by the fact that only one small printed map and no manuscript maps were found amongst their luggage. Our own notebooks would not have yielded such negative results had the Magistrate insisted on inspecting them.

Our interpreter loyally did his best to relieve the Magistrate's anxieties and said that we had so many maps that we did not want any more. He declared that our interest was in cracking stones: we would crack a stone, then put a mark on the map; hurry off somewhere else, crack another stone, and put another mark on the map. The Magistrate then said that if we were only cracking stones and not making maps there was no objection to our visit to the country.

In a final conference with the Magistrate he was induced to remove his original objection to our return by the Yangtze road. There were two available routes in that district, one closely following the course of the river, the other passing near the heads of the chief tributaries to the Yangtze. The Magistrate agreed to let us go by the road nearer the Yangtze, provided we would keep together and not go more than a short distance off the track.

After a series of wrangles with the muleteers over prices and the length of time necessary for the journey to Li-kiang a bargain was struck, and we repacked to begin next morning our return journey with its projected branch excursion to the glaciers of Pei-ma Shan.

NOTES

[1] An attack across the Jem-sa La was made a few days after our departure.

[2] *Land of the Blue Poppy*, 1913, opp. p. 69.

[3] *Mining Enterprise in China*, 1918, pp. 63-72.

CHAPTER XV

PEI-MA SHAN

Ye are bound for the mountains!
Ah! with you let me go
Where your cold, distant barrier,
The vast range of snow,
Through the loose clouds lifts dimly
Its white peaks in air—
How deep is their stillness!
Ah, would I were there!

MATTHEW ARNOLD.

OUR excursion eastward from A-tun-tze had discovered no peaks as high as we had expected, and the smallness of the snow-fields and glaciers there could be explained by the small area above the level of perpetual snow. The other snow mountain reported on the eastern side of the Mekong is Pei-ma Shan—"the White Horse Mountain"[1] —to which we turned with the greater interest as two photographs published by Mr Kingdon Ward[2] show that on its northern end occur glaciers much larger than any we had seen east of A-tun-tze. We were also anxious to visit this area because on Mr Ward's map in his *Land of the Blue Poppy* (1913, Map IV., opp. p. 69) Pei-ma Shan is shown as part of the Mekong-Yangtze divide; whereas on the map by General Davies and on a later map illustrating a paper by Mr Kingdon Ward[3] Pei-ma Shan is represented as

a western spur from the main divide, between the Mekong and one of its eastern tributaries. Mr Ward had crossed the pass at the northern end of the Pei-ma Shan range and reached a small glacier there, and he is apparently the only European who had previously visited the mountain. M. Peronne has frequently seen it from the road from A-tun-tze to Pang-tze-la on the Yangtze, and he again gave us the pleasure of his company.

We left A-tun-tze on the 20th July and followed the valley past the ruins of the French mission station, and a bivouac of Tibetan travellers (Plate VII.B), till the Yangtze route turned off to the south-east up a steep track. During the ascent we passed a small green tarn lying on the floor of the ravine. The first pass is about 1500 feet above the floor of the A-tun-tze valley, and from it we looked down into the upper part of the valley of the Yung-kun-ko, the lower part of which we had traversed on the way from the Mekong to A-tun-tze. From the pass the track descended steeply and we feared that, in accordance with the habits of Yunnan roads, it would go down to the very bottom of the valley and climb up the opposite side, but for once the road-makers had been merciful. The track kept an undulating course high on the north-eastern side of the valley, at the head of which we could see a great bank of moraine. The march was one of great interest and beauty, for while crossing the spurs we saw through breaks in the clouds the snow peaks of Ka-kar-po. The weather was fair and raised high hopes for a few days' cessation of the tedious rain. The road had obviously been once much better tended and

more used. In Gill's time there were Chinese guard huts along it, but it is now deserted, and after leaving the A-tun-tze valley we saw no habitation until we were near Tung-chu-ling. We camped for the night within the bifurcation of the main stream, among some moraines in which we found boulders that had been polished and scratched by ice. The next morning, following the westerly of the two branches of the river up a valley covered with moraine material, we climbed to the ridge at the head of the valley. From this pass, at the height of 14,300 feet, we had hoped for a view of Pei-ma Shan, but it was all in cloud. South-east of us, however, we saw a range of limestone hills quite different in character from any that we had seen in the Mekong basin. The mules were far ahead so we hastened in pursuit to stop them so as to secure time to examine this range. We caught up with the mules on a tract of meadow-land on the floor of a valley watered by several streams. According to our interpreter, the name of the locality, Janu-la, means Four Streams.[4] A few Tibetans were camped here, and one of them offered us a newly killed yak calf, which we gladly purchased, as its price of a dollar was only slightly more than the cost of a chicken at A-tun-tze. While the cook was frying veal cutlets we collected fossils from the boulders in the stream bed. The most interesting of these fossils is a coral (*Spongiomorpha*) of a kind previously only known in the Triassic limestones of the Eastern Alps. Some other fossils appeared consistent with the age of this limestone indicated by the coral. We contented ourselves therefore with a short excursion eastward to see the rocks where the river had cut

through the limestone range. A heavy storm of rain during our lunch diluted the gravy of our cutlets and confirmed our view that we had better hasten on to camp, so as to prepare for our Pei-ma Shan excursion. After half-an-hour's march the track had climbed up the eastern side of the valley to a sufficient height to give us an alluring view of the glaciers of Pei-ma Shan. M. Peronne considered this place as the easiest from which to reach that mountain. So we descended to the floor of the valley and camped. One of us climbed the western ridge to prospect a route for the morrow and found on the other side a deep valley up which there was an easy road to the northern glacier. We resolved to start at daybreak for two or three days' climbing on the mountain. Heavy rain fell all night and it was still pouring at dawn; so we allowed the men to sleep on until about eight A.M., when there were signs of better weather. A Tibetan herdsman passed through the camp and both he and M. Peronne agreed that the indications promised a fine afternoon. We summoned breakfast, packed a light mountain tent, blanket-bags, a " billy " for tea, and food for three days; and armed with ice axes, crampons and a rope we climbed through the pine-woods on the ridge beside the camp.

The Tibetan herdsmen had warned us solemnly of the danger from bears in this forest. They said that they never went through it without meeting some. We were glad, therefore, that we had weapons which, if the bears did interview us, would prevent all the fun being on their side. Bears are usually harmless, but when short of food, and sometimes apparently as a mere freak of mischief, they may be troublesome and

dangerous. One of us had twice been in localities where the bears had become suddenly aggressively offensive. The possibility of trouble with dangerous game was one of the considerations which had led us to take fire-arms, against the emphatic advice of some authorities who consider it safer to travel in Chinese Tibet quite unarmed. A European caravan, provided it is not carrying much money, offers little temptation to local brigands. Most of its equipment would be of no use to them, and as the articles could be identified even years later, their discovery might at any time get their holders into serious trouble with the Chinese authorities. A caravan containing the ordinary trade goods of the district is well worth capture; but the loot from the baggage of a European traveller would be more dangerous than useful. The only exception to this rule is that of fire-arms and ammunition, for which most of the hill tribes are avid. Hence it is urged that the possession of fire-arms is a source of danger, and that if a caravan is attacked the soundest policy is to make no attempt at defence, to let the robbers take what they want, and to send in a bill for the loss to the Chinese Government. We, however, decided not to adopt this policy, for though the weapons of ourselves and our escort would have been quite insufficient for effective defence against any large body of Tibetan raiders, they might have been sufficient to frighten off or repel small parties of local robbers whom, under the existing conditions of Yunnan, we were more likely to encounter. We should probably hear of any large force on the warpath in time to take precautions against a surprise attack. Our decision to

take weapons was partly to secure freedom of movement in localities where there might be dangerous game. We were warned while passing through a belt of forest near the Burmese frontier that we must be careful as it was occasionally visited by tigers; and an encounter with bears in the highland forests appeared quite a likely event. Our weapons fortunately enabled us to accept the risk of meeting bears with a light heart. We, however, saw neither bears nor any trace of them, though on the muddy ground their footprints would have been very conspicuous.

The summit is a gently undulating track of moorland from which there was a steep descent through more forest to the Cho-ni (or Cho-nyui) valley. Our first view into it from the southern edge of the moor showed it to be a typical glaciated valley with moraines which had been left by a former glacier at intervals along its swampy floor. In the lower part of the valley were some Tibetan tents and herds of yak; we descended obliquely towards the head of the valley, where, having found some moderately dry ground, we pitched our tent near a Tibetan camp. The weather welcomed us with a few minutes of encouraging sunshine, of which M. Peronne took advantage for a series of photographs. As we expected the weather to improve further and were busy at the time, we reserved our photographic material for better light—which never came. M. Peronne and the porters then returned to Janu-la, but as there were a few Tibetans in the neighbourhood one of the men remained with us as escort, sheltering in the Tibetan hut. After a hasty lunch we went up the valley, crossed the stream by a

broad snow bridge, and climbed the ridge to the south in order to see the central and southern parts of Pei-ma Shan and find the best route on to its snow-fields. By a laborious climb we reached the summit of the ridge at the height of 15,000 feet, whence we had a view that was most instructive as to the topography of the range. At our feet lay the valley of Chon-yung (or Cho-nung), which comes from due south along the eastern foot of Pei-ma Shan; it then turns abruptly to the east and joins the Cho-ni valley near the Yangtze road. We were on the level of the northern glacier and saw an apparently practicable route across it to the snow-field at its head. The northern crest of the mountain could thus be reached, and it promised to afford a reasonably safe route to the summit of the northern peak. Farther south lie three glaciers, of which two are much larger than those at the northern end of the range. The middle glacier is the largest; it comes from the highest part of the range; it discharges from a large snow-field, is broken by three ice-falls and contracts below to a long narrow tongue of ice in a steep gorge. The southern snow-fields were the widest and offered an attractive route to the summits at that end of the range. Our examination of the view was attended with some discomfort. We saw it at intervals through a bitterly cold sleet, which numbed our hands so that though we got out one camera and took a photograph with it, getting it back into its case was difficult, and we could not open the other. By much rubbing of hands we managed to observe the bearings of the chief points on the eastern front of the range and then fled back to camp through the steadily increasing rain. One of the

men took our wet clothes to dry at the Tibetan hut; they were returned next morning incompletely dried, partially burnt, and with a heavy bill from the Tibetans for firewood. The rain continued all night and in the morning the whole valley was under cloud. At eight o'clock there was a slight improvement, but to cross these unknown ice-fields over new snow which would be lying sometimes on rotten and sometimes on smooth wind-polished surfaces of ice would have been unduly hazardous; and as the chances of a view from any of the higher peaks appeared hopeless, the ascent would have been useless. Reluctantly, therefore, we abandoned the project for that day; one of us went up the valley to examine the structure of the northern end of the range, while the chief photographer remained in camp to take such photographs as the weather permitted (see Frontispiece).

The Cho-ni valley rises rapidly west from the camping ground over sheets of snow and of boulders which had been dropped there by a former glacier. Our first view into the lower part of the Cho-ni valley had shown that the stream had the characteristic milky colour of water discharged from a glacier, and as it retained this colour above the last tributary from the big northern glacier it was obvious that there was a further glacier on the north-western front of the range; but as that part of the mountain was wrapped in mist all day, the glacier which gives rise to this "glacial milk" remained invisible. In the afternoon the porters came back, and as the weather appeared "set bad" no serious climbing on Pei-ma Shan would have been justifiable. For better snow and weather

conditions we should have had to wait at least several days. Hence, though very reluctantly, we struck camp and returned through the pine-woods to Janu-la. Next morning the weather was still deplorable. M. Peronne roused the camp at five A.M. so that we could start early in our opposite directions; he sent off his baggage, but we postponed departure in the hope of taking some further photographs. The weather was cruel, but we waited until further delay seemed useless. Then with great regret we said farewell to our cheery companion. He started back to A-tun-tze, and we toward the famous lama monastery of Tung-chu-ling.

NOTES

[1] Gill (*River of Golden Sand*, 1880, ii., p. 239) quotes the name as Pai-na-shan, "the White 'to-bring' Mountain," which would appear a plausible name for a mountain with large snow-fields.

[2] *Geogr. Journal*, vol. xlviii., 1916, opp. p. 56; vol. lvi., 1900, opp. p. 188.

[3] *Geogr. Jonrnal*, vol. xlviii., 1916, p. 63.

[4] It probably means "the uppermost pass."

CHAPTER XVI

TUNG-CHU-LING & THE YANGTZE TO LI-KIANG

The dusk of twilight round us grew;
We felt the falling of the dew;
For, from us, ere the day was done,
The wooded hills shut out the sun.

But, on the river's farther side,
We saw the hill-tops glorified—
A tender glow, exceeding fair;
A dream of day without its glare.

With us, the damp, the chill, the gloom;
With them, the sunset's rosy bloom;
While dark, through willowy vistas seen,
The river rolled in shade between.

Sudden our pathway turned from night;
The hills swung open to the light;
Through their green gates the sunshine showed,
A long, slant splendour downward flowed.

Down glade and glen and bank it rolled;
It bridged the shaded stream with gold;
And, borne on piers of mist, allied
The shadowy and the sunlit side!

WHITTIER.

THE meadow-land around the Janu-la camp ends down-stream at a steep gorge by which the path is forced to climb over a high spur. We were repaid for the toil of that ascent by the view from its summit down the Janu-la River and over the drainage system east of Pei-ma Shan. As previously

remarked (p. 219), some of the maps represent that river as a tributary of the Yangtze, and we found that view generally adopted in A-tun-tze, where the moraine-capped pass to the north-west of Janu-la was regarded as on the Mekong-Yangtze divide. The structure of the country and the trend of the valleys as we saw them from this spur left us in no doubt that General Davies's map is right and that the Janu-la rivers and all the drainage from the eastern slopes of Pei-ma Shan work their way through ravines at the southern end of the range into the Mekong.

We had another steep descent before we began the climb to the Yangtze divide. We had had from the spur one or two momentary glimpses of the glaciers of Pei-ma Shan, but the persistent clouds on the range reconciled us to our conclusion of the previous day, for we could have done nothing on the mountain had we delayed. On leaving the stream at the beginning of the long ascent to the divide we soon entered the clouds; we reached a wide tract of undulating moorland covered by a litter of red sandstone. A partial break in the clouds disclosed a broad valley to the south; the general character of the scenery, the persistent drizzle and the raw cold mist reminded us of some of the duller central parts of the Scottish Highlands. The divide was marked by a group of four "obos," or piles of stones, each with a number of poles bearing prayer-flags. We were thankful for the piety of the travellers who had built these obos, as otherwise, so dense was the mist and numerous the undulations on the way, we might have crossed the divide without recognizing it. We calculated its height as 14,500 feet.

On the chance of a view from the summit we sat for a short while in the shelter of the obos, examining the various patterns in which the Tibetan formula, " Om mani padme. Hum! " is engraved upon them. That mystic formula, " Almighty, the Jewel, the lotus. Amen! " has received many interpretations which are applicable to many different conditions. We wondered which of them were believed by the men who built up these piles by adding an engraved stone as a mark of gratitude for safety on the ascent; or whether the words relieved the home-sickness of some Chinese traveller as he thought of the lotus-bejewelled pools in some warm lowland valley. The fluttering prayer-flags round the obos repeated the prayer for us; but so far as we were concerned they were quite ineffective, for they did not give us the one boon we desired—a break in the mist, which drove past us with contemptuous indifference. As soon as we were thoroughly cold we started the descent, crossing moraine matter and ice-scratched stones, which were observed to as low as 13,500 feet. We searched in vain for any rocks from Pei-ma Shan which would prove that its glaciers had reached this locality. So far as we could see these moraines had all been deposited by local ice.

The drizzle increased to heavy rain; the path became steeper and muddier, and after we had entered a forest at about 13,000 feet it was still more slippery. The trees are noble pines with tall straight trunks clothed in masses of grey beard-moss. While in the forest we met two caravans, one of twenty-four and one of twenty mules, with especially gorgeous Tibetan trappings. They were travelling together for safety.

We halted for lunch in a tract of open grassland forming a typical alp (Plate VII.A). Purple, yellow and white alpine flowers were grouped in patches like well-kept flower-beds on a lawn. The beauty of this foreground was heightened by the view across it of a snow-speckled mountain far to the south-east. A steep descent then led us into a forest of oak and poplar beginning at about 12,000 feet. Beyond the Yangtze rose a high white limestone plateau, which the men pointed out to us as Chung-tien, the seat of one of the greatest lamaseries in Chinese Tibet and the home of the rebels who terrify A-tun-tze. The first house we came to, Ji-chia-po, stands amid fields on the edge of the plateau above a romantic gorge down which we saw the gilded cupola of the monastery of Tung-chu-ling. We reached the village of Tse-chio below the monastery at dusk, and received a cordial welcome from the Tibetan headman. He invited us to use his best room, which is his household chapel. Its images and altar might have been interesting, but it was too dark to see them; there was no ventilation and the reek of stale incense forced us to beg for more airy quarters, which we found in a shed on the roof. Thence in the morning we had a superb view down the valley to the high plateau beyond the Yangtze.

Tung-chu-ling monastery was situated high above the village and we arrived too late to visit it. It is occupied, we were informed, by four hundred monks, and there was said to be nothing of special interest in it, though it is of historic interest as the residence for several months of Charles René Renou, the gallant pioneer of the French mission in Tibet. In 1851,

during his second visit to Tibet, he reached this monastery disguised as a Chinese trader and intent on learning Tibetan. His goods were so limited that their disposal would not have kept him at the monastery as long as he desired, so he asked exorbitant prices and refused to lower them. The Living Buddha greatly coveted a telescope which was promised him if Renou were allowed to stay in the monastery for six months to learn Tibetan. He there compiled a Tibetan vocabulary which he wrote in Chinese during the daytime and transliterated into French in the secrecy of his cell at night. Suspicions were at length aroused, and he was sent back into China, taking with him, however, the documents which rendered possible the establishment three years later of the mission at Bonga, the first of the important French mission stations along the Tibetan border.

A short distance up a branch valley a building was pointed out as the local nunnery. These institutions appear to be much fewer than the monasteries, for in some cases, as in one which one of us had visited in Sikhim, the nuns lived in the same dwelling as the men. The nuns are less numerous than the monks and hold a very inferior position, except when the abbess is regarded as a reincarnation of an Indian goddess, and thus acquires special sanctity and consideration for her nuns. The dress of the nuns is a robe like that of the monks, and their heads also are shaved.

Tung-chu-ling stands near the boundary between the wet forests on the upper parts of the divide and an arid belt beside the Yangtze. After leaving the village the

KA-KAR-PO IN SUMMER

The Salween-Mekong divide, as seen from the Mekong-Yangtze divide. The cloud-enwrapped peaks are twenty-four miles distant.

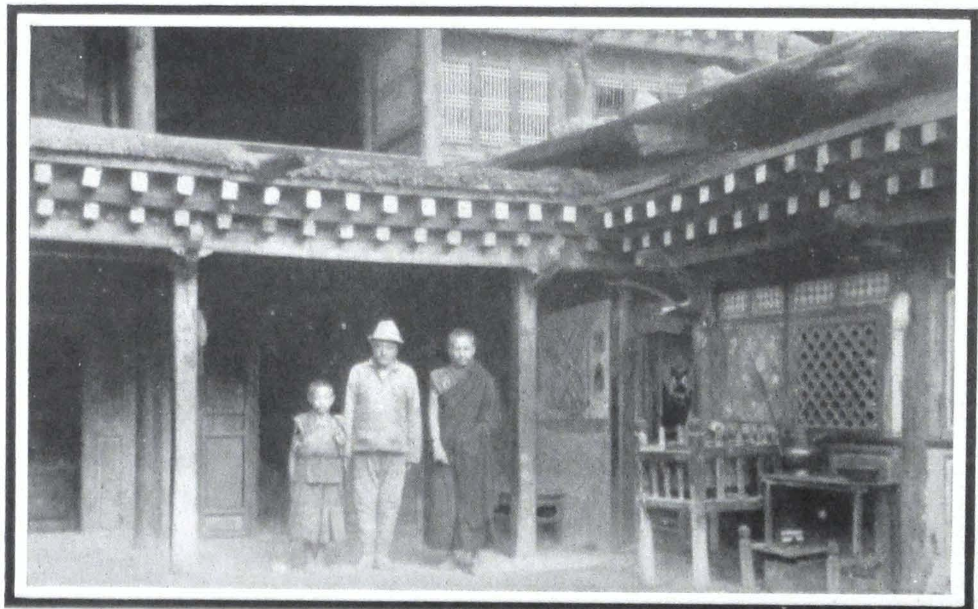


Plate XII]

A SHAN CHIEFTAIN

With his two lama sons. The door on the right, bearing the painted face, leads into the chapel of the lamassery.

forests were replaced by scrub, and as we continued down the valley the scrub was reduced to thin turf, and this in turn to scattered tufts of grass or dry herbs. The villages became somewhat more numerous, but were all small and the houses clustered together for defence. Most of them had a high tower, which reminded us of the "peel towers" of the English-Scottish borders; they were apparently for storage, outlook, and shelter in case of raids. Since the establishment of the Chinese administration these towers and the village walls have become less important and are falling into decay. The village of Nren-da was one of the most picturesque of these fortified villages. It stands on the edge of a steep bluff, and the road winds through it, entering by a strong gateway, so planned that the garrison could close the road to raiders from the mountains.

After the village of Reni-kon-ka we began a steep descent towards Pang-tze-la, the chief ferry across the Upper Yangtze. We descended towards it through a ravine between bare walls of granite and over a stream bed composed of granite pebbles and coarse sand. The whole scene was as arid as any South African kloof.

Pang-tze-la is one of the centres of alluvial gold-mining in the Yangtze; but there was no work in progress at that time owing to the high level of the river. We heard that gold is always obtainable, but that the mining does not pay the Chinese companies, as the miners are reported to keep most of the gold for themselves.

At lunch we had to decide as to our further route. The muleteers reported that the river-side road was impracticable, as it was in places covered by the river.

They therefore declared that we must go by the mountain road against which the Magistrate had expressly warned us. As it was not in his district, but in that of the Magistrate at Wei-si, we did not feel bound to regard his views on this question as binding upon us. We insisted, however, that the escort must agree as to the necessity of taking the mountain road, as we did not want them to get into trouble on their return to A-tun-tze. The escort advised against the Yangtze road and we gladly accepted their opinion, as we expected the mountain route would prove geologically the more instructive. We therefore turned aside from the road to the Yangtze up a valley leading to the village of Sha-hi. We descended to the Sha-hi River at the village of Ba-zin and, as the Chief was anxious to examine the geology of the gorge, left the coolies to wait for the muleteers and went ahead. The stream in the gorge is utilized for driving a number of corn mills. Small villages stood upon the edge of the plateau, the most conspicuous from the valley floor being protected by a tower which from its position must have been built as an outlook. The Chief saw no signs of the caravan following him and feared he had taken the wrong path till a woman directed him to Sha-hi, which was hidden by a high shelf across the valley. Climbing upon this shelf the village clusters around the house and lamasery of the local chief. Near the village are two prayer-wheels driven by the stream. Some of these large prayer-wheels are stated to contain the lama prayer printed one hundred million times. Each revolution of the wheel is equivalent to the repetition of the prayer as many times as it occurs on the rolls within the

cylinder. As the flood was making the mechanism rotate at a high speed, that prayer-wheel during the course of a few minutes repeated the prayer often enough for a month's praying for the whole population of Tibet.

Upon the arrival of the caravan we crossed to Sha-hi, as the name appeared to us to be pronounced there, or Sha-lu, as it is given by Gill, Loczy, and the maps of the Indian Government. The chief (Plate XII.B) is a Shan whose ancestors had settled in the valley. The influence of this Shan settlement had been immeasurably for the good of the neighbourhood. The chief's house was rather of the Tibetan type in the massive stone architecture of its lower floor; part of it is a lamaist temple and the chief maintains a number of lamas who performed the lengthy Tibetan ritual throughout the morning. The chief's sons had also entered the religious order and were lamas. In those respects the family had been Tibetanized, but in everything else the Shan influence was predominant. The decorations of the house and the paintings of flowers and birds in the entrance hall were typically Chinese. The house was throughout clean and well kept; the pictures on the chapel walls lacked any of the obscenity characteristic of Tibetan temples. The prayer-wheels in the stream were neglected as one of the two had broken down. The chief had one wife, and there was no evidence that the Tibetan custom of polyandry was tolerated in the village. The Shans had introduced better methods of agriculture, and had taught the people various handicrafts which they pursued in the intervals of field work. The men of the village had been trained in the use of the lathe and turned wooden

flower vases and lacquered *tsamba* bowls, which are used by the Tibetans for preparing the mixture of barley flour and water that is their staple diet. The chief presented us with two of these bowls in exchange for a bottle of medicine which was prepared for his wife.

We had the better opportunity of studying this settlement as on the morning after our arrival a downpour of rain, which had lasted all night, was clearly going to continue all day. The muleteers objected to the attempt to cross the pass known as the Jin-go La in such weather, and after a long conference they agreed that if we stayed at Sha-hi till the next day they would not want to stop, whatever the weather might be, at any later pass. They promised to reach Chi-tien in seven days and Li-kiang in eleven. So we rested at Sha-hi that day and started the morning after to cross the Jin-go La. The chief sent with us four men as an additional escort, in accordance with instructions which he had received from the friendly Magistrate of Wei-si. Each of these men had a firelock gun. It is discharged by a piece of lighted tinder being lowered on to the touch-hole by pressing an iron trigger. The tinder is kept dry on the march in a woollen bag fastened to the butt of the gun.

At 12,400 feet we entered a belt of rhododendrons which lasted almost to the summit at 13,400 feet. The hills on either side of the pass were higher and in them were small corries the sides of which, as seen from below, looked ice-worn. We were therefore not surprised to find on the summit of the pass some deposits left by a former glacier, which extend down the southern side to the height of 12,000 feet.

The descent to the village of Ka-ri, the first village, was down a narrow gorge in which the road was obviously derelict. Much of it had been swept away. It had been in places buried by landslips of material still on the move. One of us stopped for a minute to examine some fallen rocks, but a soldier urged him forward by pressing his elbow, and on reaching the other side politely remonstrated at halting on such a boulder-swept slope.

At Ka-ri we were advised to go on to the next village, but we were tired and it was already dusk. So the escort insisted on the people receiving us, and though at first reluctant to admit us, they did their best to make us comfortable. Our start the next morning was delayed by two mules having wandered away during the night. After they were found we crossed a wide plain of shingle formed as the delta of the Ka-ri River. The main river into which it flows was sometimes called the Ju-ba-long River, but its correct name appears to be Ju-geh River. We crossed it by a well-built Chinese covered bridge, from which our escort from Sha-hi returned after giving us over to the care of two local men who were armed with cross-bows.

The two days' march along this river was a very pleasant interlude in the long mountain tracks. The road was in good order and the scenery attractive, reminding us of that of the Wye valley on a grander scale. The valley alternately contracted to a gorge, where it traversed hard rocks, and widened out to a pleasant dale, where the beds were softer. Through the gorges the river rushed in broken rapids; in the dales it flowed swiftly through deep dark pools.

Belief in river dragons along this valley is natural as being the easiest explanation of the deep boom made by the collision of big boulders on the river bed, of the noisy rattle of the pebbles as they are rolled forward in shallow water, and of the gluttonous gurgle of an eddy which, eating its way into the bank, suggested that the hungry river would enjoy anybody it could engulf.

The upper part of the Ju-geh valley was unoccupied except where a delta formed by a tributary stream was large enough for a single homestead. We saw, however, frequent signs of cultivation on the plateau above. After a pleasant day's march we stopped for the night at a dismantled lamaist temple. Its secularization and the gabled huts built on the flat house roofs were signs of the increasing Chinese influence. Around the hamlet were large walnut groves and the best fields of Indian corn that we had seen for some time. The walnuts in this district have usually much thicker shells than those of Europe; their chief value is as the main local source of lamp oil.

The start next morning was late owing to heavy rain. The muleteers early showed their intention of taking two days over the next stage. They no doubt found the valley more pleasant than the mountain passes and were reluctant to leave it. By insistent pressure we got them as far as Se-kon. There we stayed in a large well-kept Chinese house, with some of the rooms adorned with pictures, a superb array of copper and brass cooking pots in its spacious kitchen, and crowds of people who studied our every movement closely, and slept on the roof just outside our bedroom. In

order to make up for the short march of the previous day we roused camp before daybreak and got the caravan away early. The men started reluctantly, as they saw their desire for a half-march would not be attained. The river was in high flood and had spread through the lines of willow along the bank into broad sheets of purple loosestrife on the roadside. The river took a sudden right-angled bend to the east, but the track along it to the Yangtze was then impracticable. We turned off from it, therefore, at the village of Ron-sha for a long climb southward across the Ju-go Shan. We halted that night at Kwei-jen-yera, the last hamlet before the pass. The house was one of the filthiest that we met with during the whole journey. We were again amongst primitive Tibetans. The ground floor was occupied by cattle; it was quite dark and we had to flounder through its filth to reach our quarters. Our beds were in a verandah which was open to the south and of course the rain came during the night with a violent south wind. Our ground-sheets, however, kept us moderately dry. The climb to the pass from the hamlet was up a derelict track which in places was a ditch blocked with fallen trees. The mules had several times to be unloaded to get them past these obstructions. We reached the summit (12,000 feet) and found no trace of former glaciation, such as that for which the evidence was so clear on the Jin-go La. We had a superb view over a dissected plateau extending far southward from the foot of the range, resembling a field ploughed by colossal furrows (Plate XVI.A). Looking at it with eyes half shut the valleys became imperceptible and the country had the aspect of a vast

plain, as all the ridges came to about the same level, though with a slight general slope to the south. This type of view is familiar in Chinese landscapes. As Sir Laurence Binyon has remarked[1]: " Chinese landscape is certainly pre-eminent in the landscape of the world in suggesting infinite horizons, the look of mountains beyond mountains melting away into remote sky." The fascination of this scenery depends on the indefinite repetition of the same geographical form; and it occurs unequalled in scale and with unrivalled charm in those parts of China which consist of a table-land that has been broken up into a maze of mountain ridges by deep river-cut valleys.

Just before reaching the pass we had a moment's alarm, which was, however, encouraging, as the incident belied the prediction as to how the escort would behave in an emergency. The Chief was a little ahead, and approaching a point where the path divided round a clump of bushes he saw a man's head rise for a moment from a slight depression beyond and as quickly fall again. He ran ahead to investigate, drawing his revolver, but the man had disappeared. While he was going forward the leading of the two soldiers with us saw a man glide through the bushes beside the track. The soldier, signalling to his comrade, immediately rushed forward. The natives had, however, vanished in the dense bush and nothing more was seen of them. The escort instead of bolting at the first sign of danger, as we had been told they would, both dashed forward with their rifles ready, although they expected the natives to belong to an ambush armed with cross-bows and poisoned arrows. Word was passed back to the

soldier with the muleteers, but they passed without seeing anything of the hidden natives.

During the descent of the southern side of the pass we had the pleasure of meeting Mr Kingdon Ward, who was on his way to A-tun-tze to carry on his botanical and geographical work. He had spent most of the summer in the district of Mi-li, but had had much trouble with men and muleteers owing to the unusually disturbed condition of the country.

After leaving this pass we turned eastward along the Chi-tsung Ho towards the Yangtze, and during the traverse of this valley passed from Tibetan to predominantly Chinese conditions. The bulk of the population of the villages belong to the race of the Nahsi, for we were on the northern border of their territory. The vast rice-fields and methods of cultivation were Chinese; and so was the fine inn with its spacious courtyards, airy rooms and many excellences —but many insects. The villages were numerous and attractive, and the people were dressed in neat blue cotton cloth instead of untidy Tibetan fleeces. That Tibetan influence had once been predominant was shown by the "obos," or piles of engraved "Om Mani" stones, though these structures were neglected and grass-grown. The village people were spirit-worshippers, for beside a powerful spring where a large stream issued from a limestone cave was a circle of medicine sticks placed as offerings to the spirits by men who had benefited by worship at the pool or by bathing in its clear water.

By a march down the valley through a series of basins and gorges we reached Chi-tsung, where the

Yangtze flows in a sinuous course between precipitous limestone cliffs. High on the opposite bank are two graceful and picturesquely placed lamaseries.

From the Chi-tsung basin we climbed through a narrow pass over a high spur. During the descent we were caught by a deluge of rain; we were compelled to stop the night at Wu-lu, at a farm which was surrounded by fields of tobacco and a garden of sunflowers, but could not supply us with any flour, fodder, or other food for man or beast. So we hastened next morning to reach some more productive village. The valley widened to the south, and the country, by its groves of walnuts, ferns of common European kinds, and its sunlit limestone crags, reminded us of some of the valleys of southern France. The gentleness of the scenery did not extend far from the river-side; occasional glimpses up the side valleys showed that they soon passed into the intricate mountains of the high plateau. At the Lung-pa Ho we were delayed by a broken bridge. One part of the stream was too strong for the mules to wade, so the muleteers made an embankment and placed planks from the old bridge across the deepest part of the channel. The third mule to attempt the passage fell into the river and the cook's pannier was swept down-stream till it grounded on a shoal. Our store of bread was a sodden mass on its recovery. The men carried over most of the loads, and after some empty mules had crossed safely their success restored the confidence of the rest and the last went over fully laden.

Just before our midday halt we reached the end of a narrow gorge to the south of which the Yangtze valley

widens out to a large trough-shaped basin. The descent to it was over some extensive hills of gravel beyond which the river meandered through a vast plain. This basin ends suddenly to the south where the Pailien ridge juts into it from the west and overlaps with a similar projection from the east. Beyond the defile between these ridges we came to a further basin, wherein lies the town of Chi-tien, which we had passed on our way to Wei-si. The last part of the march to Chi-tien took us much longer than we expected, for we had to make many observations and to wade rivers and swamps. The mules had gone ahead and darkness fell on us while we were still among the rice-fields.

Chi-tien stands on a mound beside the Yangtze in a swampy plain, across which the temple light acted as a guide. We arrived in detachments. The Chief arrived with one soldier but could not find to which of the many inns the mules had gone. He at length sat on a stone at a cross-road in the town while the soldier continued the search. One of our muleteers happened to pass and led him to the inn, where his violent performance on the mule gong brought in the soldier. Men were sent out to watch for the arrival of the other members of the party.

Meanwhile the Assistant had been diverted from the way, for though he had taken the correct side-turning, following the tracks of the mules, his soldier insisted that he was going wrong, and as it was too dark to be sure of the marks he consented to the soldier leading the way. After a couple of miles they reached a village, but the wrong one. They were accompanied by a coolie whose bump of locality was pretty good,

and now tired with the blunderings of the soldier, he left the path and struck across rice-fields in the moonlight. After walking along the little banks between the fields for some time they reached Chi-tien and began their hunt for the inn. The town straggles over a long distance, but fortunately they encountered one of the muleteers, who had come into the centre of the town on business, and he directed them to the caravanserai on the farther edge of the town. Our servant and the third soldier came in an hour later, very tired.

The march to Chi-tien had much exceeded the ordinary day's journey so we made a late start next day. The men persuaded the interpreter that we should easily reach Li-kiang in the promised four days and so we allowed them to go on for some hours at their own pace; but when it became clear that they intended to exceed the time they had agreed to, the Chief refused to stop at the village where they had intended to spend the night, and marched on some miles farther. It became then advisable to halt, owing to one of the most impressive storm effects that we had seen. The valley ahead of us was blocked by huge masses of white cloud blown down a tributary from the Mekong divide. We were already in dark shadow, but the steep-fronted cloud-bank was glowing from the light that shone down the side valley; the whole mass was heaving and swirling as it was hurled forward by successive blasts of wind.

Probably owing to the men's annoyance at the extra evening march a couple of mules were lost in the morning; but the caravan was driven on in spite of this delay to Gad-sze. There to our disappointment we

found the village overcrowded with mules and porters who were detained there as the limestone gorge farther south was blocked by a rise of the river. The supply of fodder for the mules was already exhausted; food was at famine prices, and was being brought in from distant villages. We placed a peg at the water's edge to mark any change in the level of the river. All that night and the following day the rain fell in such torrents that it was useless to attempt the passage of the gorge. The men were anxious to go on owing to the exorbitant price of food. Next day, as the weather was better and the river lower, we went on to try either to force the river-side path or find some way over the hills. We met some soldiers who said that the river was falling so fast that the path would be uncovered by the afternoon. We went south in company with many of the porters who had also been delayed at Gad-sze (Plate XIII.B) and a falconer whose falcon made successful flights at young birds.

By the time we had reached the defile the track was clear, though the line of wet mud on the cliff showed that the water had risen to a level at which passage would have been quite impossible. The flood was probably due to rains in the south having raised the level of the river in the Shih-ku basin and thus held back the water above the gorge. As we reached Shih-ku we found much of the lowland flooded or covered by slippery mud, so that progress was slow and it was dark before we reached the town. There we found accommodation for the night in the temple. The keeper, though polite enough to ourselves and the muleteers, was very surly to the soldiers. The

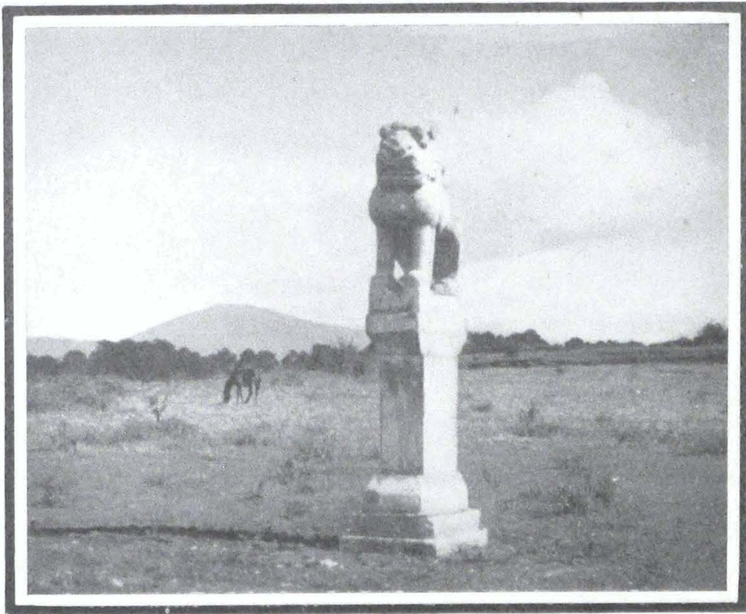
courtyard was a sheet of mud and there was no reasonable shelter for the soldiers except in one of the unoccupied rooms. The keeper locked them up, expecting the men to camp in the open yard. A geological hammer unlatched a store-room door and gave the escort comfortable quarters for the night. There was nothing in the room worth stealing and no damage was done; hence a slight payment was adequate compensation for the accommodation, though it did not allay the temple keeper's rage in the morning when he discovered what had been done. This incident was one of several during our journey which illustrated the contempt of the Chinese civilian for the military class.

From Shih-ku it was obviously impossible for the mules to reach Li-kiang in a single day, especially as the basin of La-shi-pa was flooded, so that it would be necessary either to go by a route far to the south or to wade laboriously on a long submerged footpath. We were now anxious as to the length of our return journey, for our interpreter was alarming as to the time required in the rainy season for the journey to Teng-yueh. The Chief therefore decided to walk to Li-kiang that day, so as to endeavour to secure fresh mules and lessen the risk of delay there. We started early from Shih-ku along the bank of the Yangtze. The ferry-boat and some log rafts were hauled high up on the bank as the current in this season was too violent for them, but one boat containing four men was swirling down-stream. We left the Yangtze near Lan-shueh-ko, where, on the journey out, we had discovered a fossil coral reef, and we wanted more of its fossils. We collected there until the mules came up, when we put our specimens

on the loads, and the Chief with one Tibetan soldier, who had the unfortunate honour of selection as his escort, started for Li-kiang. The ascent was memorable from the fine views down the Yangtze to the glaciers and snow-fields on the western front of the Li-kiang snow mountain, and up-stream to the jagged spurs which fall from the plateau to the Hsi-ma Ho, a tributary in line with the Yangtze below its great bend. From the divide we had our last view into the alluring mountains beside the Yangtze, and we turned from it regretfully, feeling that our real work was done and what now lay before us was the task of getting our collections and notebooks safely to the distant coast.

The first part of the walk was easy on dry, smooth paths over wide moorlands and past huge " swallow holes." Near the edge of the moors the rain began and the road through the ravine by which we had reached the plateau had in several places been washed away. While having tea at a refreshment house at the end of the ravine some people who were returning from La-shi-pa said that it would be necessary to wade chest-deep through the floods. The first view of the La-shi-pa basin was disconcerting. It resembled a piece of Holland with the dykes breached. The Tibetan, used to arid steppes, did not like the look of the country. He urged that the right course was to keep on the hills. The only chance of reaching Li-kiang that night was to cross the basin, and as it seemed probable that the villagers would keep open some practicable track to the market town at Li-kiang they plunged into the swamp. For a mile they had to

wade through fields with mud up to their knees; then they reached a causeway which led to the bridge over the main stream in the south-western part of the basin. The soldier urged that they should stop for the night at the village, and to prevent him leading the way into a cul-de-sac which would render that course indispensable the Chief went ahead. A paved causeway raised elusive hopes that it might continue all across the basin; but it gave way to an earthen track which was then a bank of soft mud between deep ditches. The bank had been broken through in several places by the current and the breaches were too wide to jump. The Tibetan repeatedly fell off the bank into the streams, and he was carrying a satchel containing some spare clothes which it was hoped might be dry on arrival at Li-kiang. The Chief's sympathy with the Tibetan was increased when in trying to squeeze round some bushes on the edge of a specially large channel the bank collapsed and he also fell in, at a place where the water was over his depth and he had to swim a few yards before being able to scramble out. It had been pouring with rain for some time, so that his clothes could hardly have been made wetter, though the swim had made them much heavier. As both were now wet to the skin, they plunged indifferently through the channels till they emerged on the opposite side hoping for an easy walk along the road; but most of it was occupied by a stream, and after wasting time trying to keep along the shallower parts it was found best to walk up the middle, where the current being strongest it had washed away the mud and left a firm stony bottom.



A LONELY MONUMENT

On the moors south of Li-kiang.

Plate XIII]

FELLOW TRAVELLERS

Resuming their journey to Li-kiang, beside the flooded Yangtze.

The pass between the Li-kiang and La-shi-pa basins was reached at dusk and they stopped at a wayside stall for some tea and to wring out their clothes. During the walk in the dark along the muddy pool-strewn road to Li-kiang the rain ceased, and though still cloudy overhead the sky to the east became clear and progress was better. Crossing the western ridge of Li-kiang, with its long street of shops, packs of dogs protested against travellers coming into the town after dark. At the mission the Chief received a very kind welcome from Mr and Mrs Klaver. They had the cheering news that the balance of our money was awaiting us, but a disappointing estimate of the time necessary for the return journey during the rainy season, and depressing information as to the paucity of mules in Li-kiang. Fortunately, however, the next morning the mission evangelist found a man who, with some friends, was returning that day without loads to Ta-li. They were ready to wait till the next day and promised to go to Ta-li by the Ho-king road in five days. As that was exactly what we wished to do, an agreement was soon reached, and being again in the land of telegraphs, we sent a telegram to the Rev. A. B. Cooke of the mission at Ta-li asking him to secure mules in readiness for us there. On the arrival of the caravan the men were disappointed to learn that instead of a good rest in the city all was ready for a start next day across the mountains which form the Yangtze-Mekong divide to the historic city of Ta-li-fu.

NOTE

[1] *The Flight of the Dragon*, 1914, p. 79.

CHAPTER XVII

A COUNTRY OF SURPRISE RIVERS

Twilight came; silence came;
The planet of Evening's silver flame;
By darkening paths I wandered through
Thickets trembling with drops of dew.

W. DE LA MARE.

ON 9th August we crossed the south-eastern limb of the four-armed Li-kiang plain and mounted a hill on which stands a pagoda plainly visible from the town. It is a tall white masonry column, square in plan, built in eleven sections each a little smaller than the one below. The ground beyond it was nearly level grassland on which grew several woods. The afternoon was so warm and sunny that the floods of La-shi-pa and elsewhere seemed far away, and in spite of a thunder-cloud and the threatening masses of mist on the now distant Li-kiang peak we hoped that travelling conditions might remain more comfortable than those we had just experienced.

In a little while we passed four monuments cut in stone and carefully erected in a straight line with long intervals between. The central figures were heraldic animals (Plate XIII.A), and with their pedestals stood some ten feet high. On either side was a slender stone pillar, more than twice as high, decorated with three expansions. They were all well executed and formed striking objects so far from any house. Some way on,

the path ran between a couple of stone kylins, but they had not been cared for and the thorns were springing up to choke them.

Suddenly we reached the edge of the plateau, and the path dropped steeply through a thick wood. Below us was the head of a long plain which stretched southward until its end was lost in the soft evening light. The hills bounded it on either side with remarkable straightness, but with just enough irregularity to avoid monotony, while the plain itself contained a few slight undulations, and the expanse was further broken up by dark woods and a winding river.

The caravan was out of sight ahead, and it possessed no friendly gong to encourage us. Darkness was quickly falling, and when it became necessary to feel the way the chair dropped behind, while we put away our notebooks and pushed on with the two soldiers who were escorting us. At first we floundered miserably in the mud, but the night grew lighter instead of darker, and in a little the moon rose over the farther side of the valley. The path soon lay along the lower slopes of the western hills over turf which afforded good walking, with an occasional pitfall for the unwary or a bit of swamp in the shadow. The moon was only two days past the full, the sky was nearly free of clouds, and though the plain continued in the shadow of the eastern hills for long after we were in the light, it gradually became flooded with bright moonshine. The air was pleasantly cool, and the absence of glare was restful.

Full enjoyment of the beauty was lost for us, however, as we were wondering whether we could be on the right

path. The last daylight had vanished about seven, and it was now eight. It seemed hardly credible that the muleteers should still be pressing on. The soldiers were confident that everything was all right, but we could not help fearing that the caravan must have turned into some village and that we had passed it. If so, we had the prospect of supping off a bowl of rice or not at all, sleeping on a dirty floor, and, what mattered far more, losing time in the morning. However, we knew that if we went on long enough we should come to some town. Dark patches in the plain showed where hamlets were surrounded by trees, but the road studiously avoided them and kept to the moors at the foot of the hills. We passed a cemetery on our right, laid out with no regard to the area covered, and it seemed to keep beside us for miles. Far away a dog might bark, to be answered by another still farther off, and occasionally a light was visible, but for the rest we might have been in a fairyland with no inhabitants.

At nine o'clock we entered a town where a man who was awaiting us with a feeble lamp led us to the caravanserai. The mule-train had not been in long, and the chair coolies arrived later. Thus ended our first large-scale night operation, but unfortunately not our last.

Next morning we were interested to see clearly the plain which had been such a thing of shadows the night before. We were glad that we had not gone on for another few miles in the dark, for engraved on the western side of the valley was a sort of geological poster, in particularly large type. Being interpreted, it dealt with the interference of one set of mountain-

making movements on another, and made statements which were of great interest. The announcement was made by the stratification of the rocks, which from being almost horizontal were suddenly flung to a steep inclination.

The road led to Ho-king-chow, and we were not the only travellers. It was market-day at Ho-king, and the whole of the population of the plain to the north seemed to be trooping in with goods to sell. They moved in single file, for the path did not encourage walking abreast, and they were so numerous that gaps in the line were the exception. A score of persons might pass one close behind the other before any break came.

We were not allowed to enter the North Gate of the town as only a postern was open, guarded by a sentry, and we had to go round to the West Gate, but the significance of the episode did not strike us at the time. Ho-king is a beautiful residential town, but we had been warned that it is anti-foreign, and we suffered from the citizens' unrestrained curiosity more than anywhere else. We sat down at a table outside a house for some while, and it was with the utmost difficulty that we kept the crowd from actually touching us. At a rule the people had stared in their impassive way from the respectful distance of a few yards, but here they were less moderate. The reason probably was that they were quite unused to foreigners. They were far from any mission station, and most Europeans travel from Li-kiang to Ta-li by the road through Kien-chwan, part of which we had traversed during the journey north.

Ho-king is famed for the manufacture of a white paper which though coarse is extremely tough. It is possible for use as writing paper, though it is absorbent, and smooth only on one side. Count Szechenyi ran out of paper in this neighbourhood in 1880 and had to curtail the number of his observations in consequence. It would be interesting to know whether he had tried using the local material.

At midday we were glad to leave the town, and after passing among more flooded rice-fields by a well-maintained road (Plate XIV.) we struck on to the hills near the south-western corner of the plain. Dusk found us still ascending moorlands, and at dark the chair coolies urged us to stay for the night at a house which was the first we had passed since leaving the plain. The muleteers, however, did not wish to stop here, as they could not buy any beans for the mules. We ended the noisy dispute between the two parties, but had we known the distance to the next human habitation we should not have given our decision in favour of going on so light-heartedly.

The stars had come out, and in spite of some clouds Jupiter, which was brilliant, gave a little light, but the moon did not rise till eight. Mercifully we had an acetylene bicycle lamp in readiness, but it will be remembered that we were in the company of more mules than our own, and although one lamp is sufficient for a couple of men, it is a scanty allowance for a score of mules and nearly as many men. For the first half-hour progress was painful, and it was sometimes difficult to know whether what we were on was a path or not. The animals wandered among bushes and boulders,

against which they bumped their loads, and threw them off altogether at intervals. Now this treatment does not improve the accuracy of any theodolite or the state of preservation of specimens in spirit, and it was a relief to enter a gorge where the path though rough was unmistakable, with wooded slopes on one side and a noisy river on the other. After the moon rose our worst troubles were over, and at about nine we reached the hamlet where we were to stop.

A burst of complaints was reported by Tien, who gave us the hardly credible news that the cook had grumbled. As the cook worked earlier and later than any other of the men, the information would not have been surprising had he been anybody but himself. We learnt that he and the soldiers were saying that they had *never* worked like this before, " work *all* the day and *all* the night! " and Tien lost none of the emphasis in the telling. The chair coolies, who spent the night at the first house, came in early in the morning, and some men went back for things which had been dropped in the dark. One of the soldiers had unfortunately fallen and cut his face, but perhaps he might have done so in the daytime. After all these dissipations we reckoned an eight-o'clock start next morning as quite creditable.

We finished the ascent to the pass, our last over 10,000 feet, among wooded hills which though steep were comparatively tame in outline. On the other side we saw a long plain running south, of the same general shape as the one we had left the previous day, but from our height the hills around this plain did not attract so much attention. After passing through a

gorge we joined the main road from Kien-chwan to Ta-li, and reached the northern end of the plain. The interest of the geology had delayed us, but the mules reached the inn at Niu-kai by the last of the daylight, and though for three-quarters of an hour we were in pitchy darkness, the road was good and the bicycle lamp gave sufficient light.

An isolated hill crowned with a pagoda stands an hour's march south of Niu-kai, and from its base issue a large number of hot springs. The highest temperature we obtained was 174° F., and the water smelt strongly sulphurous. It was received in shallow basins specially built for washing clothes, and these ponds were evidently much appreciated. From Niu-kai we kept down the eastern side of the plain. The morning was dismally wet and long stretches of the road were submerged. After the first plunge, and when one's boots had filled with water, the actual wading was endurable, but it was tiring and grew very monotonous. As we neared the south-eastern corner of the plain we were glad to turn on to moors, but a little farther on we reached a hollow in which a river ran, with no suspicion of a bridge. Fortunately it was split up into several channels in a wide expanse of shingle and each one proved fordable.

Suddenly the path swung to the left, and we found ourselves at the mouth of a narrow gorge in the bottom of which flowed a big river. Incredible as it seemed, the whole drainage of the Niu-kai plain plunged into the hills, and the waters which flooded innumerable rice-fields escaped through a tortuous cleft with a well-concealed entrance. A row of mills stood beside

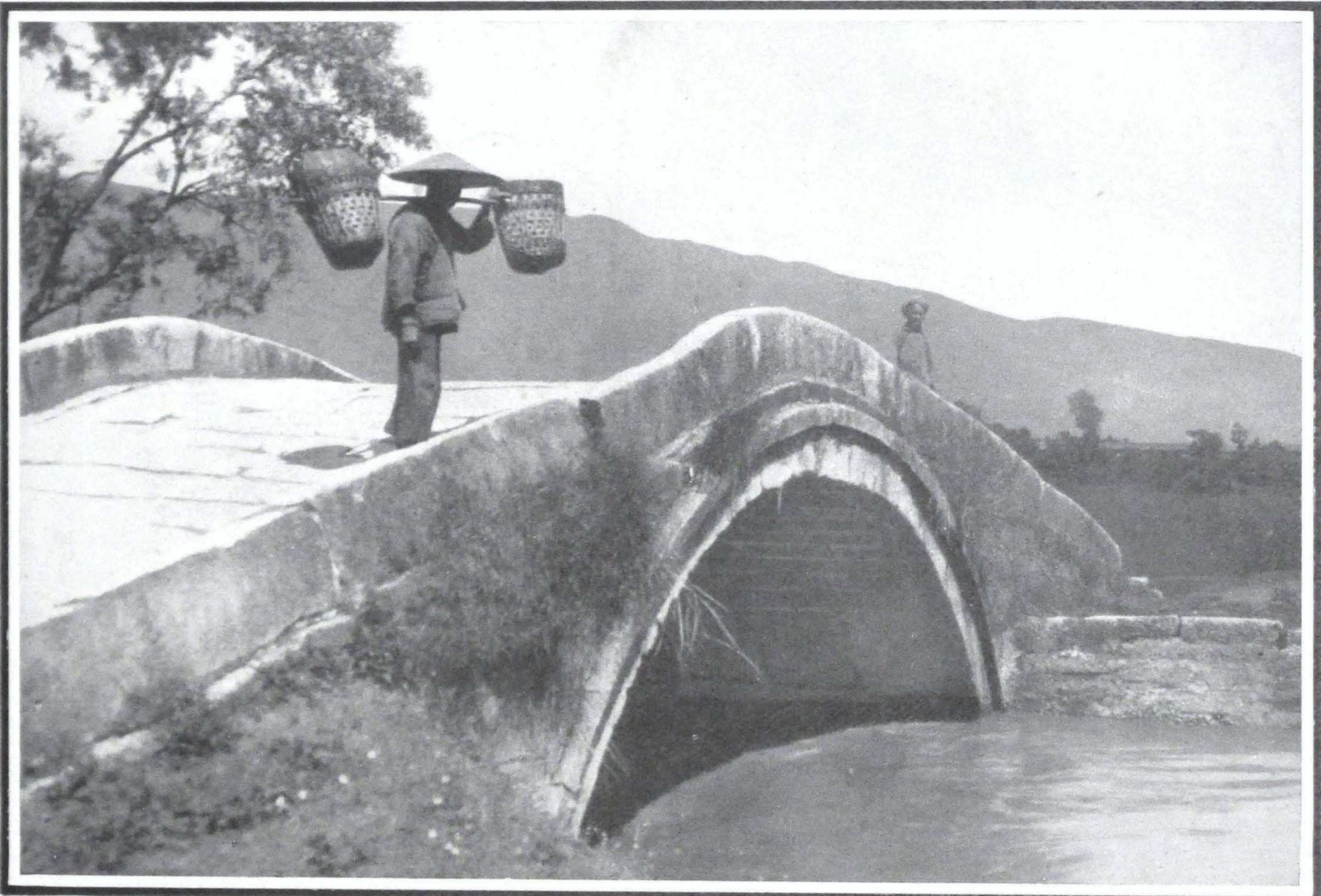


Plate XIV]

A Stone Bridge

South of Ho-king. Wicker baskets are commonly used by the inhabitants for carrying goods, one at each end of a pole borne on the shoulder.

the river, but what interested us more was a crab on the edge of the water, which we duly started on its journey to the Calcutta Museum. After a couple of miles we emerged into the north-western corner of the large plain in which lies Erh Hai, the lake of Ta-li, though the lake itself was hidden by a low ridge. The river which we had followed, instead of meandering across the plain, became canalized, and it flowed in a straight line towards the lake on the top of a high embankment, like so many of the Chinese rivers of farther east.

We spent the night at Chung-so, a small town, and for the first time for a week we were all in by daylight. Some of the streets were under water, but that was nothing to the floods we met next morning. After an hour on a dry path through the rice-fields we reached a water-splash the best part of a mile long. The whole country-side was flooded, with an occasional arched bridge or higher piece of road forming an island, and the path was under a foot of water. The inhabitants were roaming over their fields in shallow boats which they punted about, but they would not ply for hire. At the town of Teng-chwan our escort was changed, and we had our fourth detachment of soldiers in a journey of only five and a half days.

On crossing a ridge we came in sight of the lake, and we remained near it for the next few days. It is twenty-five miles long, and occupies the floor of a north-south valley of the same shape as those of Ho-king, Niu-kai, Kien-chwan and Yung-chang, but larger than any of them. On the west is a straight steep-fronted line of hills of an even height, the foot

of which is separated from the water by only a mile or two of flat or gently sloping ground. In winter this range of the Tsang Shan is capped by snow, and many a traveller has been awed by the grandeur of the snow-clad mountains, but we saw nothing but mist on the hills and they did not look very imposing. The lake was as blue as the sky and it was dotted with shipping. Far out, junks with high bows and mat sails were slowly drifting along in the light airs, while close in-shore other boats were being poled among the reeds and duckweed. The boatman when at the bow would plant his pole on the shallow bottom of the lake, and walk towards the stern, pushing the boat forward, as on a Norfolk wherry.

The rivers which flowed from the hills into the lake had laid down such quantities of shingle where they crossed the strip of nearly level ground that they had raised their beds above the level of the adjoining country, so that instead of going downwards to cross the streams the traveller had to ascend a ridge of shingle, and in a depression on the top he found the river. Generally the bridge was built of slabs of rock up to twelve feet long by a foot wide, left rough, but split off the parent rock with remarkable regularity. The piers were made of a couple of such slabs standing vertical, with a third laid across them. The roadway was made of a number of longitudinal slabs with each end resting on a pier. Too often, however, the bridge had been swept away, and the local authorities were awaiting better weather before replacing it. The currents were strong and at one ford it was only just possible to retain foothold.

The head muleteer lived a few hours' march north

of Ta-li, and he wished to push on to his house without making a halt for lunch, proceeding to Ta-li next day. The plan suited us well, for we were enabled to spend an hour at midday collecting beside the lake and follow in the afternoon. We made our halt at Shang-kwan, a town with a strong but ruinous wall and a busy market. The variety of goods for sale was greater than at any place we had yet seen, and included, besides the usual articles, embroidery and delicate silver filigree.

The muleteer made us very comfortable in a house which was so newly built that it was beautifully clean. He provided us with a bowlful of dried sunflower seeds, a great Chinese delicacy, but we did not make much of them. Next morning we finished the journey to Ta-li with what should have been a short march, but the floods made the way seem longer. Sometimes a stream would leave its channel on reaching the road and flow along it instead. A solid bank on either side kept the water in, while a prickly hedge on top of the bank prevented pedestrians from using it as a footway and so spoiling it. The water was so muddy that it was impossible to see the bottom, but fortunately the pavement was generally level. At one place it was not. The Assistant crossed to one side of the "road" in order to splash his way past some men he was overtaking, when suddenly his feet slipped down a steep slope and he found himself swimming. He had stepped off the road into the ditch beside it which had thoughtfully been dug broad and deep so as to keep the road dry. Fortunately the morning was warm, and neither he nor his numerous watches, compasses, notebooks, insect-boxes and so forth took any harm.

At Ta-li we found that the North Gate was closed, and the busy stream of traffic into and out of the town was led by a circuitous route up an incline on to the wall and down the earth bank on the inner side which was provided to strengthen the masonry. We soon heard the reason—namely, to keep out the rain spirits. Elaborate ceremonies were being held all over the district to abate the floods, but without any very obvious result. We could only hope that the worst of the rain was over, and that henceforward we should find conditions on the mend.

CHAPTER XVIII

THE RETURN

At first, when we started on our track,
  The willows green were growing,
And now, when we think of the journey back,
  'Tis raining fast and snowing.
And tedious and slow the march will be
  And food and drink will fail us.
Ah, hard to bear is the misery!
  None knows what griefs assail us.

Song of the troops in a northern expedition.
(*Chow Dynasty*, 1184-571 B.C.)

TA-LI-FU is a large, walled city and the headquarters of several high officials. The one who was of most importance to us was the head of the salt administration in the district, for he was a European and he entertained us nobly. Mr W. N. Fergusson has travelled in nearly every province in China, and he is especially well known for his rescue of the body of Lieutenant Brooke, who was murdered in western Szechuan in 1908. He has described his travels on the eastern borders of Tibet in his book, *Adventure, Sport and Travel on the Tibetan Steppes.* Curiously enough he had travelled up the valley of the Lo-ma Ho to Lan-ping, partly along the road we followed only a few days later. It was strange that two independent parties should cross this blank on the map so close together.

A marble is mined on the hills behind Ta-li which when cut presents a remarkable resemblance to

landscapes, rivers and waterfalls, castles and mountains. The slabs are carefully selected and polished, a little artificial colouring being perhaps introduced in some cases, and the finished article is fitted into a wooden stand, or framed and hung as a picture. Large slabs are used as panels in ornamental arches, or even on graves. The pictures obtained are delightfully Impressionist, and each beholder can interpret the view as it appears to him.

In response to our wire from Li-kiang both Mr Cooke and Mr Fergusson had kindly tried to obtain mules for us, but only three or four were to be had and those at an extortionate rate. The Government was commandeering all that it could catch and sending them down to Yunnan-fu, where preparations were being made for a military expedition. The only course possible was to persuade the men who had brought us to Ta-li to take us on to Teng-yueh, but they were reluctant to go and they extracted a rate which was double that sometimes paid. They remained perfectly firm on the price and refused to lower it by a cent. As the geology for the rest of the way was fairly well known, we decided to adopt the luxury of a chair apiece, and a second chair carried by only two men was engaged. As if to make quite sure of the arrangement, the Assistant developed earache, and for a couple of days he used his chair in true Chinese fashion—that is, all the time—but at the end of that period he reverted to more normal conditions and the trouble did not recur.

As the road from Ta-li to Teng-yueh and Bhamo has been described repeatedly, little need be said about the remainder of the journey. We were compelled to

halt for a day while arranging for mules, and we started on the afternoon of 17th August. The road continues west of the lake to the southern end, where the whole drainage, including, it will be remembered, the waters of the Niu-kai plain, enters a deep gorge and flows west. The important trading centre of Sia-kwan stands at the head of the gorge, and a mile below it the road passes through a fortified post, intended for holding the gorge against an attacking force.

On the 18th our hopes that our muleteers would continue to make good marches were dashed, for instead of reaching Yang-pi in the evening they managed only half the distance, and it became clear that they intended to take more than their promised twelve days. However, they said they would make up the lost day later on, and the roads were certainly in very bad condition and generally wet. We entered Yang-pi the following evening. It is a moderate-sized town, and in the main street we passed a little squad of convicts being marched in chains from the jail to perform some manual labour. In the morning we breakfasted by candle-light, and started at five-thirty on the double march which the muleteers said they could perform. After crossing a chain suspension bridge on the edge of the town we climbed 3000 feet, and in the afternoon descended as much on the other side to the Shun-pi River, which we crossed at dusk by another chain bridge.

We had seen from above the Shun-pi bridge a hamlet which we fondly hoped was our resting-place for the night. We hurried on to reach it in daylight. There we found to our disappointment that Hwang-lin-pu was still many miles distant. As we were hungry we tried

to buy something to eat. Nothing could be found except some walnut toffee, which we all pronounced a delicious food. Refreshed by the toffee and a short rest, we started somewhat sullenly to climb the steep pathway from the village, for we realized from the nature of the Shun-pi gorge that the march would be difficult. There would be no moon and the clouds were heavy. We disliked night marches, for during them nothing could be seen of the country, collecting and photography were impossible, and the collections already made were risked by collision with rocks and trees, or by a mule falling over a cliff. The Chief, however, was anxious not to miss the steamer at Rangoon by which we had booked passages, and owing to the danger of delay by flooded rivers and broken bridges it was advisable to press on. We were now in country that was geographically well known, and where the loss of a few miles' observation of the geology was not important. So if the muleteers were willing to make long marches and risk their mules we did not care to let our prejudice against walking in the dark delay our homeward progress. Hence, though reluctantly, we tolerated some marching after dark.

For a few hundred yards from the village the path was good, but after the last huts it was in wretched condition and in the darkness difficult to find. It climbed up and down along the side of a deep gorge, and was in many places darkened by trees. It had begun to rain, which added to our discomfort. Where the track was unpaved it was usually a mere ditch full of mud. At first the soldiers led the way, as we thought their eyesight in the dark would be better than ours.

But they so often missed the path that we took turns in front, and ultimately, as the Chief's eyes became used to the darkness, he led for the rest of the way. The chair coolies struggled along manfully, but at length declared they could go no further. We tried to persuade them to make another effort in the hope of there being some shelter and food near at hand; but in spite of the drizzling rain they preferred to stay where they were until daylight. We left them sitting gloomily beside the track. A little later one of the soldiers fell off it, dropped his rifle and cut his head. We could not possibly go on without the rifle, and it was found, though with some difficulty. After the soldier had rested and had his head bandaged we resumed our tiresome march, feeling our way from stone to stone and wading through mud and pools; where the hill-side was gentler and covered by trees the utter darkness made progress very slow. We passed a small shrine on a headland overlooking the river, and, thankful for any relief from the monotony, blessed the man who built it. We stumbled over rocks in a steep descent into a wooded glen, and as we waded the stream at the bottom, for it was useless to look for stepping-stones, cursed it for having made the glen, and also some dogs whose barking had encouraged the false hope that we were reaching Hwang-lin-pu. The path crossed the next spur along the face of a cliff of which we could judge the height and steepness from the roar of the river at its foot. The bushes above darkened the path, which was bounded on the outer side by an irregular coping of stones, and in places supported by a rough wall. The path was so deep in mud that progress was

easiest by walking along the stones at the edge. The Chief was leading, and was slowly feeling his way along the coping, when he was startled by a terrified cry from the soldier who was coming last of the four, and instantly glancing round saw by the light of the luminous watch and compass on the Assistant's wrist that he had fallen off the path. The Assistant through hunger and fatigue had apparently fallen half asleep, stumbled over one of the stones and then rolled off the path. The Chief's first instinct was to climb down the cliff below him, but it was sheer and he had to run back to the point from which the fall had occurred. The Assistant had been caught about ten feet down by some bushes. He gained a firm foothold on the ledge, climbed up a foot or two, and was then able to reach the hand of the first soldier, who knelt on the path so as to help him. The second soldier rushed up, clutched the Assistant by the other hand, and excitedly helped him on to the track. No harm was done, and after a march of about half-an-hour we saw the welcome lights of Hwang-lin-pu. There we found to our surprise that the mules had already arrived. They had descended to the Shun-pi bridge by a shorter route and so had got ahead of us. A good meal was soon ready, and after it we listened to the men's indignant protests at the excessive length of the march. It was the longest we made, lasting for fifteen hours on foot, and the men did not enjoy it. The Chief had already resolved that whether we caught our steamer or not there were to be no more night marches. So after listening sympathetically to the complaints he promised that if the staff were good boys he would arrange

that the muleteers should in future always reach halting-place by nightfall. This rule was kept, with the exception of one occasion after leaving Teng-yueh, where we had a fresh staff who knew nothing of the misadventures on the march to Hwang-lin-pu and of the order based on them.

We took two days to cross the next range, and the scenery of the upper part was typical of this part of the country. The hills were dotted with woods and little of the ground was under cultivation. While the tops of the ridges sloped only gently, the gradients increased downwards, so that the streams flowed between steep banks generally, with no flat ground on either side. The nearer spurs made the middle distance look very mountainous, as indeed it was, but the farther ranges formed straight lines which combined to give almost the effect of a sea horizon. The land was formerly a plateau, which has been deeply cut up by the rivers so as to make it extremely irregular ; but when a view is obtained where the valleys are hidden in the distance, the general effect is that of a tableland with only slight undulations. We had seen the same arrangement from most of the high viewpoints we had visited, even in the mountains around A-tun-tze (Plate XVI.A), but of course with great variations in the middle distance.

As we descended to the next main valley we saw a deep cut in the hills to the north-west. It was the gap through which ran the main road to Yun-lung. We passed to the south of the town of Yung-ping, and reached a ford which we had been warned was impassable. The level had fallen, however, and, though the traffic had been held up for some days, the water

was now only two and a half feet deep and both animals and men made the passage without difficulty. Next day we crossed another ridge of the usual variety, with a rise of nearly 3000 feet and a greater fall on the other side. The most notable thing about the town Shan-yang, where we slept, was the water supply. The town is built on both sides of a long steep street, and the water is led down one side in the usual bamboos supported on posts. The aqueduct had numerous leaks, and beneath each leak a large tank was placed, into which the drips either fell or were conducted by running down a stick. A few miles west of the town lies the gorge at the bottom of which the Mekong flows. The descent of 1300 feet is down a road which, steep though it is, zigzags backwards and forwards across the hill-side. Like many Chinese roads, it is paved with irregularly shaped blocks of stone laid side by side without cement, at as steep a gradient as mules can manage when not too heavily laden. To increase the rate of descent still further a step is introduced every few yards. The ascent on the other side is by the same means for the first 2000 feet (Plate XV.B.), before reaching a little plain nestling within a circle of hills, and the slime on the pavement made it so slippery that the wretched mules floundered all over the track.

The bridge itself (Plate XV.A) is built where the river emerges from a gorge between sheer cliffs, and the confined waters swirl and suck at the strong stone piers built out into them. It is a single-span chain bridge of the usual type, with a neat wooden railing as parapet. It swayed a good deal in the centre, both up and down and from side to side, but it must be perfectly safe.

The following day, after spending the night at a typical inn (Plate XVI.B), we completed the climb of 3700 feet and descended into the Yung-chang plain. On rejoining our old trail we celebrated the event by drinking tea and eating toasted beans at the road junction, but as it was market-day and the streets were densely crowded we did not meet one another and we patronized different tea-shops. We spent the night at Yung-chang. The same small girl came to collect the money at the same inn, and we were actually supplied with an oil lamp. We were indeed nearing a land of modern luxuries. Usually we burnt acetylene, which gave an excellent light but involved a good deal of trouble, and too often the carbide was exhausted before we had done enough work to justify going to bed.

The head muleteer decided to sublet the contract and return to his own country to work for kind Chinese masters. His mules were certainly in very bad condition and in need of rest.

The journey to Teng-yueh took five days, making the same stages as were described in Chapter III. On the third day we dropped into the Salween valley, but instead of halting near the bridge the men climbed to 700 feet above the river before stopping for lunch. At this time of year the valley is dreaded, and conditions were much quieter than on our previous visit. In the afternoon we climbed half-way up the western wall on a road which we had been warned was old, for the modern road is unusable during the rains. We had had an uncommonly liberal education in roads, from staircases, narrow ledges and mud slides

to scrambles amid rugged nature, but we had not finished learning. This road looked like a deliberately planned obstacle race. It had once possessed a pavement of slabs of rock and boulders which was still extant in places, but for the greater part it had been swept away altogether and the soft clay excavated to a depth of from three to five feet. The traveller had to climb from this lower level on to the pavement, but a few yards farther on the table-top would terminate and he was forced to climb down again. At other places the pavement was still present for the whole width of the path, but as much unlike a road as pack-ice is unlike a skating-rink. The earth had been washed away from between the blocks, and they lay at all angles, with as much attempt at arrangement as if they had fallen where they lay from above. Progress could be made only by jumping from block to block, crossing hollows, and clambering over the larger pieces, for the dense woods and the steepness of the hill-sides rendered it impossible to leave the track.

Next day we performed the second half of the climb of nearly 6000 feet up the same kind of surface, descended 3700 feet to cross the Shweli, and ascended 500 feet. These figures are given not as being records, but as showing what is expected of the traveller in these parts as mere daily routine.

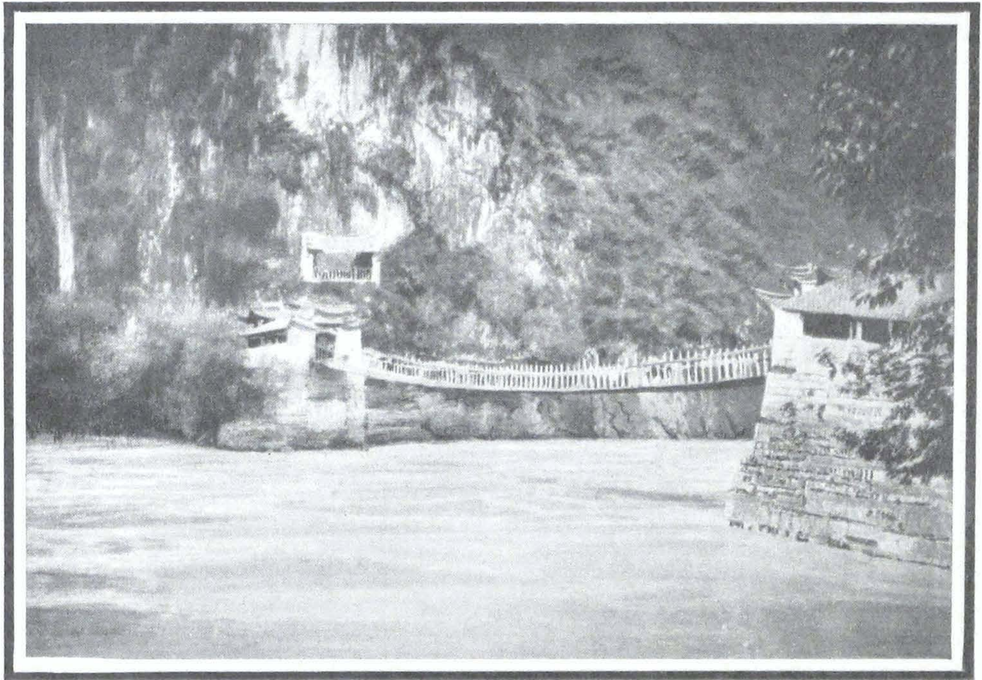
On the following afternoon, however, we reached Teng-yueh, and henceforward the road was comparatively speaking flat. We had warned Mr Houston of our intended date of arrival by telegraph, and thanks to his kind help we left for Burma after a halt of only a day. None of our former men wished to go to

Bhamo, as they are liable to take fever in the low ground and die, but the chair coolies came on for three days. We were without interpreter, cook or servant, but just after leaving Teng-yueh we met Mr W. M. Sclanders, who was coming to superintend the building of the new Consulate, for Mr Jex had been obliged to return to the coast owing to ill health, and Mr Sclanders' Indian cook returned after us, catching up on the second day.

The remainder of the journey seemed a sorry business. We said good-bye to all our good friends at Teng-yueh, and set forth on the 31st August. How low the hills looked! Could these contemptible ridges be the great ranges which had run beside us on the way up? After dealing for months with differences in level of thousands of feet mere hundreds were hardly noticeable. In addition, mist rested on the crests of the hills, and in spite of fine weather at the start we met with a deluge on the second day which did not improve the scenery. The next evening was also wet, and we made our last night march, reaching a comfortable shed which was called an inn at eight forty-five. As dusk was falling, the Assistant, who was by himself, missed his way at a place where the road slanted across a broad shallow river, and he actually walked up the bed of the river for the best part of a mile under the impression that the road was only a little wetter than usual. However, the stream curved until it led him in almost the opposite direction to that in which he wanted to go, and the last gleam of day served to light his compass enough to prove the mistake. He raced down the sandy bed till he gained what was undeniably intended

for road, and waited in the darkness for the last of the men, who fortunately had not all passed. The correct route was to slant across the river, climb a bank on the other side and drop on to a narrow path. A few minutes later we reached another and broader stream, and without a guide it would have been hard to know what course to follow across the waste of water and sand-banks.

On the next night to our two hours' splashing in the darkness we slept at Man-hsien, the last town in China, and we paid off the chair coolies, who were to come no farther. We felt we had lost all our friends, for the muleteers were clearly unused to Europeans, and as they were more curious than friendly they could rank only as acquaintances. True, we had no common language with the chair coolies, but some of them had been most attentive and had understood what we wished. Formal negotiations after leaving Teng-yueh were carried on through the Indian cook, who spoke Burmese, and the head muleteer, who also spoke Burmese, but the desired results were not always obtained quickly. For example, if the cook was asked to find out where the men intended to halt for lunch, he would reply, " Me poor old man, please," and sometimes we wished Tien were back, with his " The mules they say they can't go." No more, too, could Mr Houston's excellent cook provide an elaborate dinner at the cost of a few pence and arrange for firewood, water and marketing. Our poor little Indian not only protested that these people had nothing to sell, but he would hardly eat their food. He expressed a liking for tea, but it proved that he wished it to be a quarter milk, which was unobtainable, and 10 per



THE MEKONG CHAIN-BRIDGE

The building above the further pier is a temple.

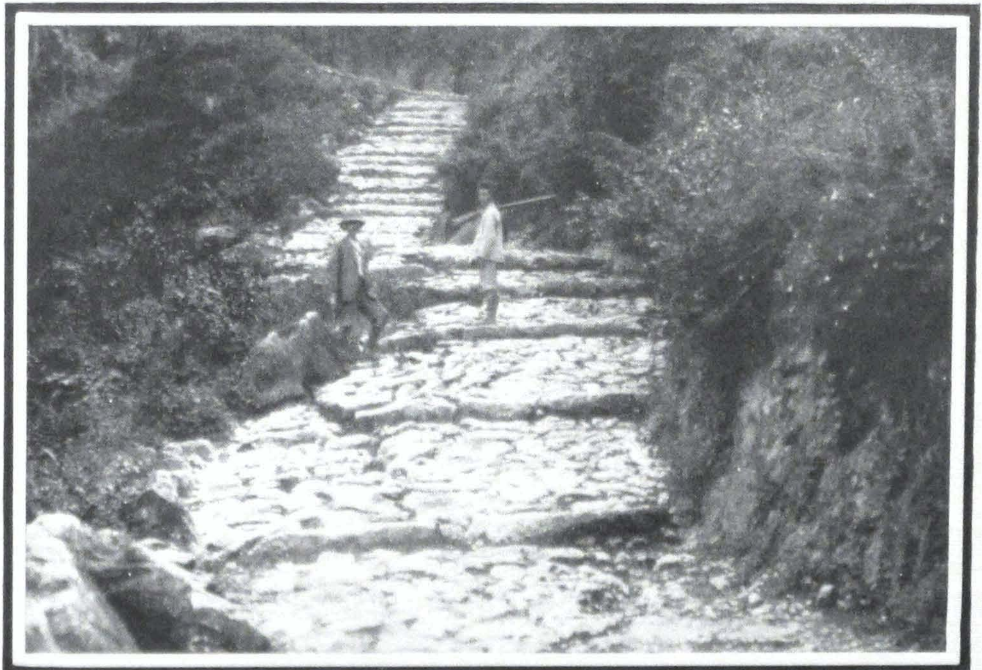


Plate XV]

PAVED ROAD

In unusually good repair. The figure on the right is one of our escort.

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cent. sugar, which was not allowed for in our cooking supplies; but it really did not matter for he did not call Chinese tea *tea* and we had used none other.

From Man-hsien a half-march brought us to the frontier, and after lunch we crossed on to British soil. Two soldiers who had joined us in the morning came as far as the bridge over the stream which separates the two countries, and they half waved, half saluted us a light-hearted farewell. Now we felt we were on our own ground and no more should we be made to feel our inferiority to the Chinaman. Our racial pride, however, was diminished by finding that the road was in an even worse state than on the Chinese side of the line, for though it was broad, level and well laid out, with bridges of modern steelwork and none of the troublesome fords of the past few weeks, yet it was a sea of mud. Eighteen inches of water on a hard bottom is nothing compared to the same depth of mud, and for a day and a half we clambered laboriously along the edge of the road, now and then slipping into the bog. The mule traffic excavated the road into a series of transverse ridges and furrows, and these ditches held not only stagnant mud, rain keeping them full to the brim, but also the mule and bullock droppings, and the stench detracted from the beauty of the scenery. The mules could only step in the furrows and the ridges nearly touched their bellies. It was difficult for a man in boots to keep his balance in stepping from ridge to ridge, for they were narrow on top and extremely slippery, and as they were about twenty inches apart they enforced a short step which was additionally tiring. In the words of the Psalmist: "I stick fast

in the deep mire, where no ground is. I am come into deep waters so that the floods run over me."

On the third day in Burma the road was much drier and we had a most enjoyable walk. The Chief added to his bag of snakes, but none was notable. The day culminated in reaching the made road and actually driving the last few miles in a gharry. We slept at Momauk, near Bhamo, and to our delight Mr Hewitt arrived there too on his way from Bhamo to a hill station. After a happy reunion we separated next day, and on reaching Bhamo went straight aboard the Irawadi steamer, which sailed early on the following morning, the 18th September 1922.

Eight days later we were on the liner steaming homewards. In four months we had covered some 1500 miles, mostly on foot, while we had spent only fifteen days on halts. With the camp-kit put away, the collections we had been at such trouble to form packed, roped and stowed, and our journals safe and dry, we could afford to look on the sunny side of life and let the eventless days pass with a contented spirit. But of the trophies with which we returned, most precious of all were our memories of the land of which we had had so fleeting a glimpse. The discomforts fade away and leave cloudless remembrances of the sun-baked plains and tropical forests of Burma, the endless hills and blue waters of Yunnan, and beyond both the mist-enveloped pinnacles and snow-fields of Tibet. Often in imagination shall our feet retread those roads and again carry us, but now free from trouble or weariness, to the Alps of Chinese Tibet.

CHAPTER XIX

THE PEOPLE OF CHINESE TIBET & ITS BORDERLANDS

> O wonder!
> How many goodly creatures are there here!
> How beauteous mankind is! O brave new world,
> That has such people in't.
>
> SHAKESPEARE.

1. *Ethnographic Contrast between China and India*

THE contrast between the geographical structures of India and of south-east Asia remarked on page 20 is repeated in the differences between the people of the two sub-continents. The population of India is a patchwork in which the components, though they may be from time to time cemented into a whole, preserve their individuality and angularity. In China, on the other hand, the different constituents in the population gradually fuse and the original differences fade away as the people merge into one composite race. In India the whole social system is dominated by caste, which is so deep-rooted that the democratic religion of Buddhism was driven from the land of its birth and replaced by Hinduism, which is an aristocratic social system and not a creed. China, on the contrary, has been a land of individual freedom, where success is the reward of personal merit and exertion, and any man may aspire to nearly any position in the Empire. This freedom has not prevented class oppression based on hereditary privileges that have

been entrenched by ancestor worship, which in China is the most intense religious impulse. A further great difference is that India has been repeatedly overrun by invaders from the north-west, who have been attracted by the fertility of the northern and north-western plains, and have gained access to them through the passes from Afghanistan. India has thus been occupied by the "Dark Caucasians," who are represented by a great variety of races in very different stages of culture; they range from the Veda of Ceylon, who belong to that primitive section of the Caucasians which includes also the aborigines of Australia and the Dravidians of southern India, to tribes similar in face and fairness of complexion to the people of southern Europe. India, in fact, is the main home of the Dark Caucasians. China, on the other hand, protected by the plateau of Tibet and the dense forests and deep valleys of the Burmese borderlands, is occupied by a race native to south-eastern Asia and is the main home of the Mongolians. Ethnographically, therefore, India is a mosaic, while China is the "melting pot" of Asia. India is a land of inflexible caste restrictions, and China a land of individual liberty. India has been peopled by Dark Caucasians, and its foreign influences have come mainly from south-western Asia and southern Europe; in contrast the Chinese, purely Mongolian, have worked out their own civilization and developed as one of the most original and inventive nations in the world.

2. *The varied Mongolian Cultures in South-Eastern Asia*

Though south-western China and its borderlands are occupied only by Mongolians, its swarming people

present great variations in physique and culture. The study of these tribes was not one of the primary purposes of our expedition; but as anthropology is one of the sciences in the purview of the Percy Sladen Trust we were anxious to collect information regarding the people, and in addition careful observation of them was essential to our success. A wrong judgment of their sentiments regarding us would have been as fatal to our journey as mistakes in dealing with local transport, such as feeding our mules with coal or trying to run the locomotives on the Burmese railway on penny buns.

The difficulty in dealing with the natives of Chinese Tibet arises from their complex psychology, due to the geographical conditions which have controlled their mental and physical development. The people of the northern plains have necessarily become nomads, while the dwellers in the valleys of Indo-China, owing to their prolonged isolation, have developed very differently psychologically and speak a babel of languages. "It is safe," says General H. R. Davies, "to assert that in hardly any other part of the world is there such a large variety of languages and dialects as are to be heard in the country which lies between Assam and the eastern border of Yunnan and in the Indo-Chinese countries to the south of this region." No less than eleven languages are used in the neighbourhood of the town of Myitkyina in north-eastern Burma. Remains of primeval races survive in southern and eastern Asia in widely scattered localities; some of them, such as the Veda of Ceylon, the Toala of Celebes, and the Hairy Ainu of Japan, are primitive Caucasians; others, such as the Andaman Islanders, are primitive negroes.

3. *Hypothetical Non-Mongolian Elements in the Population*

It has been often claimed that some of the people of south-western China and Burma contain a strong Caucasian intermixture, and that some are the modified descendants of a negro race which occupied south-eastern Asia and the Eastern Archipelago before the Mongolians. According to Thorel,[1] the aborigines of Indo-China were a race of Dark Caucasians, who came from India, or at least from some part of Asia west of their present home. This race includes the Lolo, Mantze, Miao and Lisu, so that, according to Thorel, the Dark Caucasians include one of the most primitive groups of the Mongolians, the Mon-Khmer, as well as some Tibetans. According to his description, some of these Lisu have a black beard of curly or at least wavy undulating hair, widely open horizontal eyes, "entirely comparable to those of Europeans," and a straight thin nose. His figure, however (*op. cit.* p. 325), is less different from the face of the Mongolian than would be expected from this description. The presence of a Caucasian strain in some of the people of Indo-China has been most authoritatively claimed for the Lolo; this view is supported by General Davies [2] to explain the "straight noses" and "sharp features" of members of the Lolo race whom he saw. The Vicomte d'Ollone, whose journey in 1906-1907 across "Lololand" threw so much light on the archæology of that part of western China, described the complexion of the Lolos as not yellow, but swarthy like that of the inhabitants of southern Europe; he concludes that they have "a European head—yes, but with

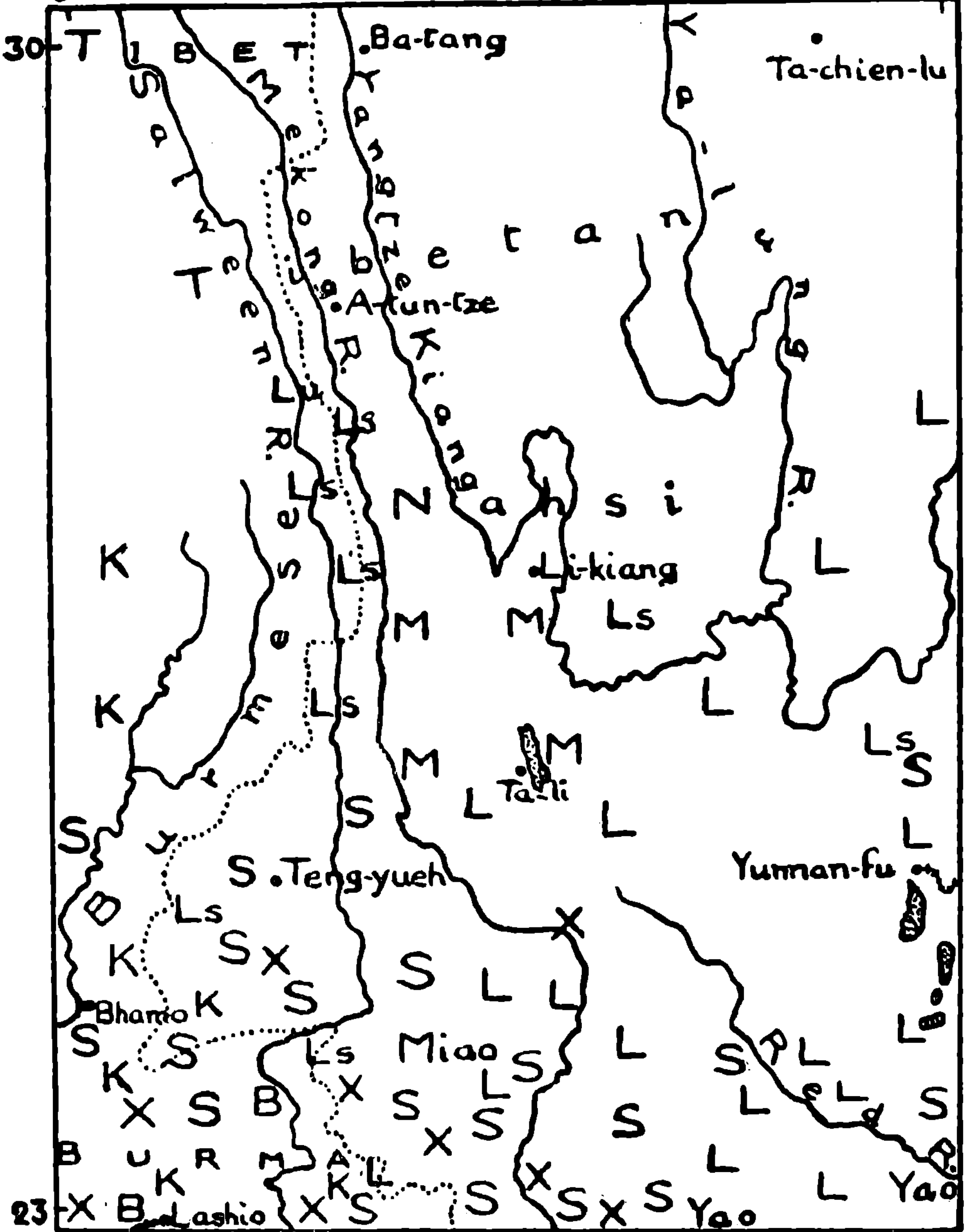

FIG. 4.—DISTRIBUTION OF THE RACES OF WESTERN YUNNAN

(*Mainly after Davies*)

Mon-Khmer	M = Minchia Miao. Yao X = miscellaneous tribes, including *Wa*, *Palaung*, etc.
Tibeto-Burmese	Tibetan *Hsifan*, Lu = Lutze, Nahsi (or *Moso*) L = Lolo, Ls = Lisu, *Woni*, *Lahu*, etc. B = Burmese, including *Maru*, *Achang*, etc. K = Kachin
Shan	= S

Names in italics do not appear in the figure.

something of the Indian type." His photographs,[3] however, represent heads which are Mongolian and not Caucasian. Mrs Elizabeth Kendall (1913), who has seen the Lolo of the same area as that visited by Vicomte d'Ollone, describes them as similar to the Burmese. According to this view the Lolo are not Caucasian. The Mongolian affinity of the Lolo is also adopted by Mr W. N. Fergusson,[4] who has had exceptional opportunities of seeing the people of the typical Lololand. He states that their ancestors come from Hunan, which is in Central China. He thinks that the race may have had its origin in Assam, but says they are of the same stock as the Koreans, who are unquestionably Mongolian. His photographs of the Lolos[5] all show Mongolian characteristics.

The name " Lolo " is rejected by the people themselves and has been represented as a Chinese term of contempt. It is probably based on the same root as " Lu " and " Li," which is found as the names of the Lutze of the Salween and the Lisu of the Mekong. Terrien de Lacouperie[6] has made the plausible suggestion that Lu is the name for man in one of the pre-Chinese aboriginal languages.

The view that some of the tribes have a non-Mongolian strain is adopted by Mr Kingdon Ward for the Lutze and the Lisu, but according to him the foreign strain is negro instead of Caucasian. He remarks of the Lutze[7] that " one of them had a distinctly negroid type of countenance, with thick lips and flattened bridgeless nose, and instinctively I recalled a Tibetan woman in A-tun-tsi who had precisely these characteristics developed in the same unmistakable

THE OLD PLATEAU OF YUNNAN

Looking south from the Ju-go Shan. The many distant ranges are separated by valleys up to 5000 feet deep. The men in the foreground are cooking lunch.

Plate XVI]

THE YARD OF A CARAVANSERAI

The inn at Shui-chai is a typical Chinese rest-house. It is built round an untidy muddy court, and has no windows in the outside walls.

way. There can indeed be no question but that amongst some of these Tibetan and other tribes a negroid type does occasionally crop out." . . . The Lisu,[8] he says, "exhibited those unmistakable negritoid characters which had so struck me from time to time amongst the Tibetans and Lutzus."

Any Caucasian or negro element in the Lolo, if present, must be very small. The drawings of the southern Lolo by Thorel and the photographs of the northern Lolo by Mr Fergusson and General Davies show people with Mongolian eyes and hair. We crossed wide stretches of the Lolo country and stayed in several of their villages. We had been warned that though the Lolo are more different in feature from the ordinary Mongolians than any other tribe in Yunnan, we should probably fail to observe any non-Mongolian trait in them; and so it proved. We saw in them no distinctly Caucasian or negroid feature. Any non-Mongolian ancestry in the Lolo whom we met must have been so swamped by intermarriage with Mongolians that it has left no recognizable trace. With the exception of Indian traders, and the descendants of the Muslim soldiers of Kublai Khan, the whole population of Yunnan seems to be Mongolian.

4. *Four Mongolian Subdivisions*

The inhabitants of Yunnan and its borderlands are all members of the Mongolian division of the human race, and they include representatives of its four subdivisions—the aboriginal tribes, the Tibeto-Burman, the Shan, and the Chinese.

a. *The Aboriginal Tribes.*—The aboriginal tribes

of this region are referred by General Davies to the Mon-Khmer group, which is named from the Mon or Talaings of Burma and the Khmer of Cambodia. The origin of these aboriginal people is doubtful. Languages alone form an uncertain test of racial affinity, for they change quickly and tribes readily adopt those of their neighbours or conquerors. The evidence of physical features is more definite, but it is difficult to collect and is lacking for many of the tribes of Indo-China; it requires careful measurements or photographs of people whose identification is thoroughly reliable. Opinion is divided on some of the primary facts regarding the natives of this region. Thus, according to some authorities, the Talaings of South Burma are the typical members of the Mon-Khmer group, and Mon, their own name for themselves, is included in that of the group. According to others, the Talaings [9] are the descendants of settlers from southern India who entered Burma across the sea. The Indian origin of the Talaings was adopted by a local official when calling attention in 1921 to a party of Talaing foresters on a steamer east of Moulmein. He admitted that these people were physically indistinguishable from the Burmese; but he explained their resemblance by the Indian settlers having married Burmese wives for many generations. The identity of the Talaings or Peguans in physical features with the local Burmese, quite apart from their language being typically sinitic, renders their Indian ancestry improbable.

The Yunnanese tribes belonging to the Mon-Khmer group whom we saw showed no trace of non-Mongolian

blood. That some of the Mon-Khmer (such as the Miao and Yao) came from farther east in China appears most probable; and the whole group may represent an early migration from the prolific plains of China into the western mountains. The most primitive of these tribes live along the western borders between the Irawadi and the Salween; they inhabit secluded villages and in their long isolation have retained many primitive customs both in daily life and in religion.

The most important tribe belonging to the Mon-Khmer that we met is the Minchia, who live on the shores of Lake Ta-li and along the Mekong. They long ago adopted Chinese ways of life and methods of agriculture, and many of them have become Muslim.

b. *The Tibeto-Burman Peoples.*—The second important element in the population are Tibeto-Burmans; they are the descendants of Mongolians who once lived in central or western China. A succession of migrations westward from China into the Irawadi valley led some primeval Tibetans into Burma, where they settled in the fertile lowlands and developed into the Burmese nation. Another stream of these immigrants travelled through the western hills of China, where some remain as the still wild Lutze of the Salween valley, while some of the Lisu settled in the valley of the Mekong; the Nahsi (or Moso) occupied the plains around Li-kiang and about Wei-si; others have given rise to the numerous clans known as the Lolo, of whom those who live in the mountains to the east of the Yangtze Kiang have longest maintained their

independence and have recently taken advantage of the disturbed conditions of China to regain it. The Lolo are scattered throughout Yunnan, and vary greatly in appearance and structure: the members of the southern clans are darker in colour; those of the northern clans are fair, a feature that has been attributed to a strong intermixture of Caucasian blood derived from some Indian source.

The ancestors of the Burmese spread through Burma along the eastern branch of the Irawadi a millennium or two B.C. The date of their entry into the country is unknown. According to local traditions, the first king of Arakan, the western province, began his reign in 2666 B.C., and Tagaung, the first capital of Burma, was founded in the ninth century B.C. These dates are legendary, but they support the conclusion that the Burmese entered the country centuries before the Christian era. The authentic history of Burma begins in the seventh century A.D., when the three races who have long struggled for supremacy—the Talaings (or Mon) in the south, the Shan in the east, and the Burmese in the north and west—already occupied much their present positions. Hence they must have settled in the country long before that date. The early annals show that Burma had then a court of barbaric splendour and an old-established despotism, which was even then tending to enervate the people and impoverish the country.

The Burmese having reached the plains beside the Irawadi found a rich, well-watered soil, a mild, moist climate free from great extremes of heat and cold, and the generous rainfall of 70 to 200 inches and 30 inches

even in what is known as the arid belt. The hills on both sides yield an unfailing supply of water and the plains of Burma are amongst the richest rice-growing areas in the world. The Burmese settled on the plains and developed there the civilization which has more nearly attained the ideal of the economist—the greatest happiness of the greatest number—than any other people. Easy conditions of life led to the rise of a leisured class; and their desires developed high skill in arts and handicrafts, while the adoption of Buddhism raised the moral and intellectual standards of the people. Buddhism exists in Burma in its purest and noblest form, free from the superstitious extravagances which have been added to it in China, or the corybantic fanaticism and demonolatry of lamaism in Tibet. Buddhism in Burma is most intimately connected with the daily life of the people. Every Burman must for a time, even if but for a few days, become a monk; and during that time he is dependent on the food daily collected in his begging bowl. He is not allowed to accept money. The temples and pagodas are innumerable and on them the people have lavished their wealth and affection. The pagoda has been often regarded as introduced from Ceylon, and as based on the burial mound. Its shape, however, is probably native to Burma. The bell form, which is common in Siam and is found in Burma only at the site of Asoka's temple at Bhamo, is nearer in shape to the burial mound; but it was introduced later than the decanter or bottle-shaped form, which has a solid base and a gilded roof tapering upward to the narrow lofty spire or "ti" encircled with tiers of wind-rung tinkling bells. That form

is characteristic of Burma, and it may have developed from the curve taken when a circle of bamboos is lashed together at the top to make a hut. Whatever its origin, this kind of pagoda is one of the chief features of the Burmese landscape.

Burmese art is expressed in buildings of real beauty, the construction of which required high engineering skill. The great bell of the Shwe Dagon Pagoda at Rangoon is a monument to the success with which the Burmese by simple means overcome great difficulties. On the British conquest of Lower Burma the bell was appropriated as a war trophy. It fell into the river while being shipped and the efforts to recover it failed. The Burmese asked if they might keep it if they could get it. Their request was granted in amused confidence that the task was beyond them. But they recovered the bell from the river and restored it in triumph to their venerated pagoda.

The ease of life and artistic temperament which have been given to the men of Burma by their geographical environment have rendered them apparently indolent, so that they are often blamed for leaving an unfair share of work to the women. This charge, according to some authorities on Burma, is unjust. The men do the heavy agricultural work, such as ploughing, while the lighter though longer work, such as transplanting and weeding, is the women's share. The Burman in his love of a simple, artistic life has certainly allowed foreigners to secure much of the wealth and control most of the business of the country. He takes no interest in trade and leaves it to the women, who are thus brought into close association with the Chinese

and Indian traders, with whom intermarriage is increasingly frequent.

Owing to the Burman's contempt for wealth, Chinese and Indians are steadily gaining control of Burma, as well as marrying some of the most enterprising of the women. The Burman's dissatisfaction with these developments has led to the cry of " Burma for the Burmese "; but any attempt to give practical effect to that sentiment and prevent the Indian having full access and equal rights in the country is impossible while Burma is a province of India.

The geographical conditions of Burma have therefore led to the development of the merry, unenterprising, easy-going Burmese, who are probably the happiest and most contented nation on earth. The genuine preference of the Burmese for a simple life has given their country the fascination expressed in the eloquent exaggerations of Fielding Hall's *The Soul of a People* and in Kipling's poem, *The Road to Mandalay*, which are probably the two best-known descriptions of Burma in British literature. Kipling's graphic pictures of Burmese life are accompanied by many geographical errors, such as the Moulmein pagoda looking eastward instead of westward to the sea, the coming of the dawn out of China instead of out of Siam, the presence of flying-fish on the Irawadi, the white colour of the cheroot, and the banjo-playing girl in a land where the use of musical instruments is restricted to men. Rudyard Kipling's geography is usually so accurate and careful that these misstatements may have been intentional to illustrate the muddled picture of the East brought back by the average British soldier. His

recollection of individual incidents is true and vivid, but he often misplaces them and is as inaccurate in detail as Shakespeare's Elizabethan traveller:

> . . . he hath strange places cramm'd
> With observation, the which he vents
> In mangled forms.

The effect of the geographical environment on the Tibetan has resulted in a temperament fundamentally different from that of his Burmese cousin. The conditions of life in Tibet are as hard as in Burma they are easy. The Tibetan lives at an elevation of from eight to eighteen thousand feet above the sea. The climatic conditions are severe and marked by great extremes of heat and cold. Arctic severity in the winter alternates with scorching heat in the summer. Food and fuel are both scarce, and the people are forced to become nomads by the frequent exhaustion of fodder and fuel. Tempests are so violent that tents are an inadequate shelter in winter, and Tibetan houses are built as low, flat-roofed structures, with the lower storey of massive stone. The roof is used as threshing-floor, promenade and playground; but it is neither a good look-out place nor easy of defence, especially for houses placed in positions sheltered from the constant winds. Hence most Tibetan hamlets have near at hand a high tower which serves as a sentry post, as a shelter to which the people can retire during raids, and as a food store during peace. As the supply of food is uncertain, famine is an ever-threatening horror. Hence the number of domestic workers for whom food can be provided is small, and the need for limiting the non-producers to a minimum is the probable cause of

polyandry, the marriage system under which a woman is the legal wife of several men.

Life at the elevation of 10,000 feet and upward has had a powerful influence on Tibetan mentality. It has led to that nervous delicacy of which indications are discernible in European communities established 6000 feet above sea-level. The highland Tibetan, unlike his Burmese cousin, is fanatical, excitable and unstable; and these qualities have led to the furious devil-dancing by which Lamaism has corrupted the dignified ritual of Buddhism, and to the obscene drawings on the temple walls, in contrast with the calmness and human sympathy expressed by the Burmese representations of Buddha.

A third type of Tibeto-Burman consists of the hill tribes who have settled on the forest-clad mountains of northern Burma and western Yunnan. They have there maintained themselves as village communities grouped as independent clans which have gradually spread southward by displacing less vigorous tribes. The best known are the Kachins of north-eastern Burma, a brave, vigorous race who to the north-east of Bhamo have advanced 200 miles southward during the last fifty years. They have proved most useful as military police and are the best native soldiers supplied by Burma to the Indian army.

These Tibeto-Burman hill tribes have developed on several different lines. Among the most primitive are the Lisu, a member of the Lolo group: they dwell in pile-built houses and gain most of their food by hunting; should their country fall under the control of encroaching neighbours, they withdraw farther into

the mountains; they have thereby retained their own language and primitive customs. Thanks to their active life they are among the most strongly built people in the country.

The Nahsi, or Moso, whose ancient capital is Li-kiang, and who also occupy some valleys near Wei-si, represent the other extreme. They have accepted Chinese dominion and ways of life, are agriculturists, and as a rule are small in size. Under Chinese influence they have become Taoists in religion, but their use of medicine sticks show that they have retained many of the beliefs of their spirit-worshipping ancestors. Strips of wood, decorated with pictures or imitations of written characters to indicate the qualities of the man and the nature of the disease with which he is afflicted, are placed beside a sacred spring, or arranged as a paling round a space where some sacrifice, usually a fowl, has been offered to the spirits. If the spirits be pleased by these attentions the man is cured, and he may withdraw his prized medicine stick for use on a future occasion.

The Lutze, who live in the Salween valley, are emigrants from Upper Burma and combine hunting and agriculture; they include some of the most turbulent clans in the Yunnanese highlands.

c. *The Shan.*—The third element in the population of Yunnan and its borderlands is that of the Shan—to whom is mainly due the agricultural development of the country. They are expert cultivators. Whence they came is uncertain. The main constituent of the Shan is probably the primitive stock of southern China, perhaps intermixed with a northern strain. The race

apparently developed either in the central provinces of southern China or in Yunnan. From their original home one section migrated eastward down the broad valleys of southern China to Canton, for the similarity of the Cantonese to the Shan has been often remarked. Another section went westward and developed as the typical Shan. They established a number of states in Yunnan and Indo-China, and colonies of them wandered as far west as Assam. Siam is the last of the Shan states to have maintained its political independence. The others are now tributary to China or Burma. Shan colonies spread through Indo-China and settled where they found unoccupied tracts of fertile land. The Shan settlements are in mountainous districts, but are situated on the floors of basins and valleys, and not on the mountain slopes. The Shan have been left unmolested in many of the lower plains as other people have been kept away by fear of fever, to which the Shan have become to a large extent immune.

The Shan states were founded early in the Christian era, and their inhabitants for long contested with the Burmese and Talaings the mastery of Burma. Parts of western Yunnan and eastern Burma formed one great Shan state, of which Ta-li-fu was the capital; this state lasted until its conquest by the north-western Mongols under Kublai Khan in 1267.

The Shan have proved one of the most useful constituents in the population of Yunnan and East Burma; their numbers are larger than those of the Chinese, to whom they are closely akin and for whom they prepared the way. Parts of Yunnan still consist of small Shan states or communities, which have a large measure of

autonomy under one of their own chiefs. The Chinese largely administer the Shan communities through these chiefs, who are the direct rulers, though they have no longer the power of life and death.

The eminently practical instincts of the Shan are shown by their clothing: the chief material used is the locally woven blue cotton cloth; the costume of the women consists of a blouse, short trousers and skirt, and it is well adapted to field work and to the frequent wading of the irrigation channels; the head-dress is a massive blue cotton turban which serves both as a protection against sun and rain and as a support for the heavy loads carried on the head.

The Shan have made two important contributions to Chinese progress. The colonies which migrated eastward to the estuary of the Si Kiang have adapted themselves to city life and developed at Canton into the most highly skilled of Chinese craftsmen. The westward migrants have developed as village communities; they are mostly agriculturists, and their home industries—weaving, dyeing, leather-work, the manufacture of earthenware and pottery, and their iron-working—are subsidiary to agriculture. Their crafts are less specialized than the elaborate embroidery, and the manufacture of porcelain, lacquer ware, and jewellery carried on by the descendants of the Shan in the cities of south-eastern China.

d. *The Chinese.*—The fourth element in the population of Indo-China consists of the Chinese, who though few in numbers are politically predominant. The main advance of Chinese culture beyond that of the Shan is due to their higher education and more highly

organized provincial administration. The Chinese system required better roads, permanent bridges large enough for mule traffic, more advanced metal-working, a better transport system, more highly educated officials, a postal service, and a military police force capable of keeping order and defending the frontiers. These requirements rendered necessary a wider and more efficient public education. The Chinese success in their organization of the Shan settlements and the various Tibetan and aboriginal tribes into the great province of Yunnan is due to their school system.

The Chinese civilization is so unique and has proved so stable that its genesis is one of the most interesting problems in the history of the human race. Whence the Chinese came has been the subject of much specua - tion. According to a theory which has the support of such authorities as Terrien de Lacouperie and A. K. Douglas, the Chinese are the descendants of emigrants from Mesopotamia who wandered eastward across Asia about 2300 B.C. This view is mainly based on resemblances of the language and written characters of the Chinese to those of the Assyrians. It is supported by various similarities in the traditions, customs and methods of irrigation of China and Babylonia. This belief agrees with the ideas of those Chinese historians who claim that Fo-hi, the father of their race and founder of their empire, was the patriarch Noah. Such legends are probably worth no more than the myths of the earlier British historians who claimed classical heroes as the founders of England and derived the name Britain from Brutus. The arguments relied on by Douglas may show that some Chinese customs and

beliefs came from western Asia, but is no evidence of the origin of the people themselves or of their culture.

The arguments based on the resemblances between the Chinese and Babylonian written characters and language are no more convincing than those based on the many coincidences between the languages of south-eastern Asia and of north-western Africa. Colonel Frey, a French officer who had served in the French protectorates in both regions, was so much struck by the resemblances between the languages that in his book, *L'Annamite, Mère des Langues* (1892), he claimed Annamese as "The Mother of Languages," and that all those of the modern world had their origin in Indo-China, whence some spread eastward to America and others westward to the Atlantic coast of Africa. That part of this theory which regards the languages of south-eastern Asia as the parent of those of south-western Asia is more plausible than the contrary hypothesis.

The Chinese civilization is doubtless indigenous to south-eastern Asia. The Mongolians occupy most of eastern Asia and before the time of Columbus held the whole of America; for the Red Indians and other aboriginal tribes of America are Mongolian by race. The European Mongolians, such as the Lapps and Hungarians, are clearly immigrants from the east; and those of western Asia probably came from the same direction. The geographical distribution of the Mongolians indicates that their original home was probably in south-eastern Asia or on land to the east of it that has sunk below the Pacific. The Chinese civilization has clear signs of great antiquity, and it is so well adapted to the geographical conditions of south-eastern

Asia that it probably originated there millenniums ago. Certain similarities between Chinese and Mesopotamian methods of irrigation may have been due to the Babylonians having learnt them from the Chinese, by the same means as the Persians gained from China the silkworm and knowledge of how to use it.

Whatever the origin of the Chinese may have been, they entered Indo-China from the east. They have extended their political dominion westward, sometimes by conquest, but more often by gradual peaceful penetration. The most impressive political fact that we saw on our journey was that of the steady and apparently irresistible westward advance of Chinese civilization and dominion. This advance has been due to the civil virtues of the Chinese, and not to their military powers, for in Yunnan their martial efforts have been generally unsuccessful. Farther north success in war gave the Chinese their suzerainty over Tibet, and the tribute paid by Nepal to China is an indemnity for a triumphal invasion in 1792. The Chinese attempts to conquer Burma by force of arms have, on the other hand, been uniformly disastrous. The annexation by China of its western provinces has followed the sinesization of the country by trade and commercial colonization. The farther westward extension of Chinese influence will be by its mastery of the arts of peace.

Chinese culture is not only indigenous to south-eastern Asia, but it may have been in progress there since the dawn of human history. The oldest and most ape-like of the known predecessors of man is the Ape-Man (*Pithecanthropus erectus*) of Java, and its

evidence suggests that south-eastern Asia or the adjacent archipelago was probably the original home of man. Chinese civilization must have been the product of a slow growth, and its foundations were doubtless laid in the alluvial basins of south-eastern Asia during the struggle to subdue the land, irrigate the plains, and improve the yield of the wild rice plant. The Chinese in these efforts have been so successful that they have developed the social system which supports in comfort a larger number of people to a given area than any other that has ever been developed. The Chinese system has proved itself the most stable in the world's history. It was established in prehistoric times, for it was sufficiently advanced to have developed the silk industry before the foundation of Rome. Its steady development while the classical empires rose and fell, its expansion through medieval times, and its still continued growth despite the troubles of recent years, mark the Chinese Empire or Commonwealth as the most firmly established the world has ever known. Its stability seems to be dependent on its essentially democratic and individualist basis. Theoretically the Chinese empire was an unlimited despotism; but actually the authority of the Emperor and his officials was limited by the vast size of the country, the slowness of communications, and the inexhaustible capacity of the people for passive resistance.

The strength of China has lain in its widespread education, the looseness of its constitution, and the general encouragement of individual effort for the well-being of the country and for the increase in its productivity. China early realized that education pays;

the education of boys is generally free and nearly universal. Most of the official positions were the prize of individual exertion. The Chinese poem on *The Importance of Education* is just in its claim that promotion is the prize of personal merit:

> In the morning I was an humble cottager,
> In the evening I entered the court of the Son of Heaven.
> Civil and military offices are not hereditary,
> Men must therefore rely on their own efforts.

The central provincial governments have persistently encouraged the study of the best methods of agriculture. One of the chief Court functions in Peking was the annual ploughing of part of the park by the Emperor and his courtiers to remind the public that the subduing of the land is the highest work of man, as upon it civilization ultimately depends. The influence of this example was strengthened by many edicts for the advancement of scientific agriculture. Thus the Emperor Yung Ching (A.D. 1723-1746) ordered each provincial and city governor to select the man in his area most remarkable for his skill in the culture of the earth, for peace with his neighbours, for preserving harmony in his family, and for freedom from extravagance. The man chosen received the decoration of a mandarin of the eighth order, as the "reward for bestowing care and attention upon the cultivation of the earth."[10] This edict, which was confirmed by subsequent emperors, conferred on the holders of this order the right to visit the local governor and drink tea with him! Good agriculture was further encouraged by a long-established Unimproved Land Act, under which all neglected land was forfeit to the Emperor.

Education in China is hampered by the years required to learn the characters used in the Chinese written language. Learning to read absorbs practically the whole of the four years' course in the lower primary school and of most of the three years of the upper primary course; the range of subjects that can be taught in a public school is necessarily narrow. Learning to read the Chinese characters has the educational advantages of teaching quickness and accuracy of observation, and writing has helped to develop their artistic sense and exquisite handicrafts. Their literary studies have given the Chinese their unrivalled skill as cultivators and their manual dexterity.

Patience and the habit of close observation have made the Chinese skilful experimentalists; and their early invention of paper and ink and the adoption of writing enabled them to record the experiences of successive generations. Chinese methods are largely based on careful observation and experiment, and many apparently foolish superstitions rest on prolonged experience, and are actually beneficial. Public administration is guided by Feng-shui, or "the laws of wind and water," which though fanciful in statement are in practice usually in accordance with sound hygiene. One of these rules condemns straight lines because malevolent spirits move along them, whereas good spirits move on curved lines. Hence Chinese landscape gardening and architecture avoids straight lines, with a great resulting increase in beauty and durability. A high stone wall (known as a *chao-pi*) is built before the doorway of a Chinese house, or sometimes across the entrance to a hamlet, to keep out

evil spirits, who can only fly in straight lines; but it is useful as a screen for the courtyards against the manure-polluted dust blown from the drying rice-fields. The prayer-wheel, although less used in China than in Tibet, illustrates the faith in experience and desire for economy of time and effort. It has been claimed that the prayer-wheel is based on the discoveries that a prayer written on paper and waved around the head is as effective as the recital of the prayer; and further that if the prayer be written on the paper ten times, one revolution of the paper is as effective as saying the prayer ten times. Further experience showed that the waving of a paper with the prayer ten times repeated on it around the head ten times is as effective as saying a hundred prayers. Hence the simple mechanical device of rotation by a water-wheel or by the wind of a paper bearing a prayer repeated a thousand times offers the prayers for a considerable community. Some of the larger wheels are said to contain the prayer a hundred million times. This principle, it has been claimed, has been established by generations of experience. Sceptics who doubted the efficacy of the prayer-wheel have been challenged to test it experimentally against other methods of prayer.

Similarly careful observation and past experience have made the Chinese realize that it pays in the long run to keep your bargain and your temper, always to fulfil a contract to the letter, to work persistently and carefully, to think over any job before beginning it, and to use materials and animals well below the limit of their strength, though when an animal is once done it may be treated without mercy or pity. The materialistic

attitude of the Chinese often leads to a callousness to suffering which appears strangely unlike his kindly nature and is the least pleasing trait in his character. His general point of view is essentially practical, and appeals to the average Briton. Chinese methods are like those of the Englishman in the story of the society which offered an award to encourage international research on the camel. The English competitor went to the East, and spent years collecting miscellaneous information about the camel, which he recorded in many volumes without order or index. His German rival meanwhile retired to his study to evolve the idea of a camel out of his inner consciousness. Whereas some Oriental systems have been based on meditation and derived from inner consciousness, the matter-of-fact Chinaman, like the Briton, has trusted to first-hand observation, the detailed record of fact, and the preservation of experience for future use. These methods have made the Chinaman in art and agriculture, and as a civil engineer, artisan and boatman, one of the most original and inventive races in the world. His capacity for steady work and for quick adaptation to new conditions has enabled him to spread westward, moulding to his own pattern all the people in his way. All sorts of tribes in varied stages of culture have been slowly converted into Chinese by peaceful absorption. The limestone downs near Li-kiang-fu contain many hollows due to the solution of the limestone by rain water; they were explained to us as pits dug by the Tibetans for the burial of their treasures when the Chinese entered the country. That legend is apparently the only local memorial of the Tibetan occupation. The

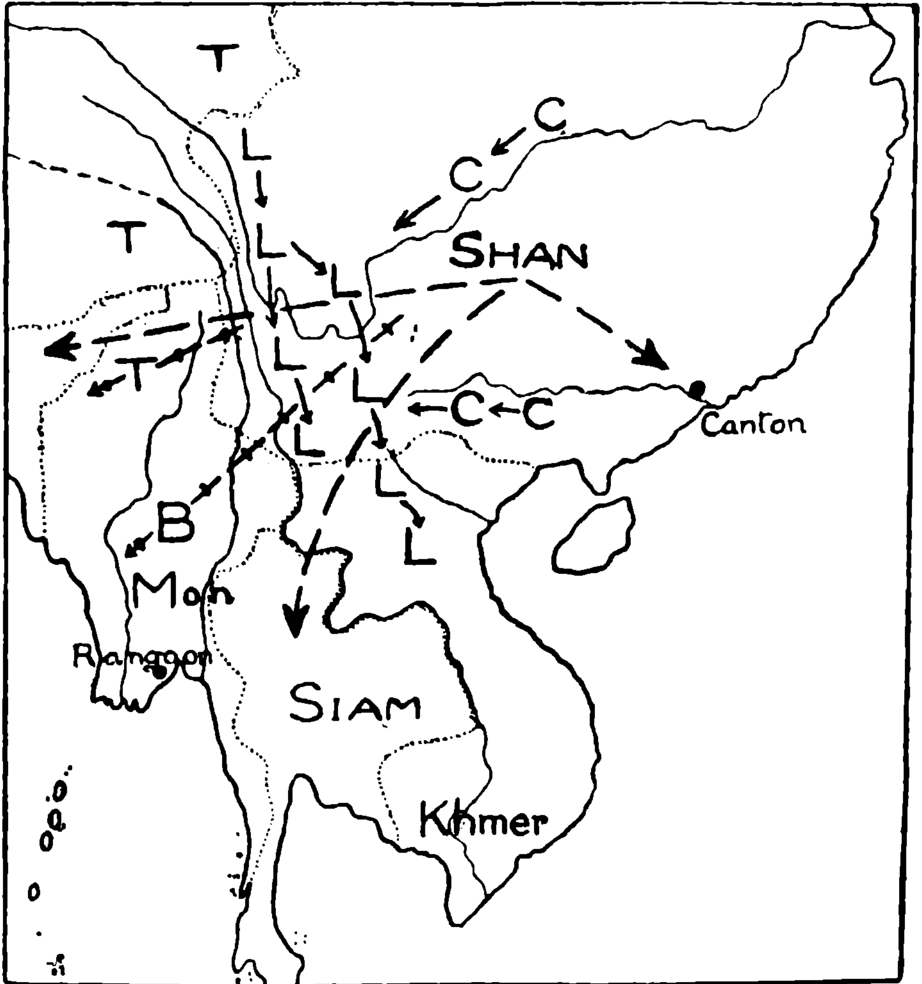

FIG. 5.—RACIAL MIGRATIONS OF SOUTH-WESTERN CHINA

←C—	Chinese	↞B+	Burmese
←— —	Shan	↞T+	Tibetan
←L—	Lolo		

district was probably overrun quietly by the same system as that by which China in later years annexed large areas of Chinese Tibet.

The formal annexation by China of the western borderlands has usually followed the establishment of Chinese supremacy by trade; and though the official expansion of China has received many set-backs, the encroachment of Chinese influence is continuous. The Mantze or border tribes in Chinese Tibet have taken advantage of the revolution of 1911 to regain their independence. The clearest lesson of Chinese history is that the success of such risings is only temporary. When order has been re-established in the eastern provinces Chinese dominion will doubtless be again imposed on the western borderlands. In spite of the military withdrawal the Chinese trader is still pressing westward. When Chinese Tibet has been fully assimilated, northern Burma will undergo the process of sinesization, which has indeed already begun. The Tibeto-Burmese people rightly regard the Chinese as the main danger to their national existence. There seems nothing that can permanently stop the advance of Chinese civilization until it reaches the frontier of Bengal. The political advance of China westward may be delayed for decades by the unrest that has followed the downfall of the Manchu Dynasty; but the continuous expansion of Chinese culture and influence is probably the most important and enduring movement now taking place in south eastern Asia.

NOTES

[1] In F. Garnier, *Voy. d'Explor. Indo-Chine*, 1873, vol. ii., pp. 290, 311, 321, 324-327.

[2] *Yunnan*, 1909, pp. 211, 389.

[3] d'Ollone, *In Forbidden China*, 1912, opp. p. 54.

[4] *Adventure, Sport and Travel on the Tibetan Steppes*, 1911, pp. 293, 321, 322.

[5] *Ibid.*, pp. 297, 301, 311, 317.

[6] *Languages of China before the Chinese*, 1887, p. 105.

[7] F. K. Ward, *The Land of the Blue Poppy*, 1913, p. 89.

[8] *Ibid.*, pp. 194-195.

[9] Their name, according to Sir Arthur Phayre, is a form of Telingana, a word applied to Indians.

[10] H. C. Sirr, *China and the Chinese*, 1849, vol. i., pp. 331-332.

CHAPTER XX

SOME GEOGRAPHICAL CONCLUSIONS

See the rolling river, brimming,
  Dashing, splashing down its bed,
See the soaring glede kite, hasting,
  Mounting up on wings outspread,
Pondering on these wayward courses,
  Restless I arise and stroll.

Early Chinese poem. *Tr. by* JENNINGS.

IN the luxury of a deck-chair on a comfortable Irawadi Flotilla steamer we had time to think over the results of our observations. Any conclusions can only be tentative until our collections have been investigated, and that work is still unfinished; but the field observations enable general answers to be given to the main questions asked in the introductory chapter. The first problem was as to the relation of the Himalayan to the Indo-Malayan Mountains. Were the Himalayan uplifts absolutely blocked to the east by the solid foundation of the ancient Indo-Malayan Mountains, and was the Himalayan fold-line forced southward by these ancient mountains as the waves of the rising tide may be kept back by a massive headland ? Is the only prolongation of the Himalaya that through the mountains of western Burma and the Eastern Archipelago ?

We found convincing evidence that the district we traversed has been disturbed by mountain-forming

movements of a date much later than the formation of the Indo-Malayan Mountains. In Plate IV.B the rocks below the western or right-hand pier of the Yun-lung bridge are seen to be highly tilted and those in the spur behind the bridge also slope steeply to the east; as that spur was in shadow when the photograph was taken, it shows the slope of the rocks less clearly than those on the river bank beside the bridge. These rocks at Yun-lung were not in existence at the date of the Indo-Malayan movements, which culminated in the epoch known to geologists as the Middle Permian. The earth movements which tilted the rocks at the Yun-lung bridge are therefore necessarily later than the formation of the Indo-Malayan Mountains, which, as remarked (p. 18), belong to the Hercynian mountain system. Unless there were an independent system of mountain movements between the Hercynian and Himalayan systems, the tilting and overturning of the red beds of the Yun-lung basin must be assigned to the Himalayan movements.

Equally clear evidence is given in other parts of Yunnan and in the adjacent province of Szechuan, where post-Hercynian rocks occur. Thus the red beds of the salt mines at Ya-ka-lo, near Ba-tang, have been crumpled and dislocated. Hence that area shared in the Himalayan movements.

The rocks at many localities visited during the journey have been bent into great overfolds like those characteristic of the Alpine Mountains. Such overfolds were seen in the glacial gorge of Li-kiang Peak, in the mountains on the eastern bank of the Yangtze above Shih-ku, and in the peaks on both sides of the

Si La. We saw, moreover, evidence at many places that the rocks had been broken by horizontal fractures, above which the rocks had been pushed eastward, and for some cases the evidence is clear that these overfolds and thrusts belong to a date much younger than the Hercynian. We conclude, therefore, that the principal later earth movements in Chinese Tibet were due to pressure from the north and west during the upheaval of the Himalaya.

The prolongation of these Himalayan movements farther into China is possible along three routes. According to Kropotkin, the Himalayan line bends northward and is continued as the Great Kinghan Mountains to the west of Peking and across Central Manchuria. One of us crossed the Kinghan Mountains in 1914; his observations were merely made during a railway journey, but as it was under war conditions the service was slow, and the long and frequent stoppages gave opportunity for observing the character of these mountains. The features then seen agree with the information available in geographical literature, and show that the structure of the Great Kinghan Mountains is so fundamentally different from that of the Himalaya that there is no reason to regard them as parts of one mountain line. Moreover, the structure of the mountainous area between the Great Kinghan Mountains and Yunnan does not support the view that the prolongation of the Himalayan line went Kropotkin's way.

The second possible route lay far to the south through what a French geologist, M. Déprat, called the Yunnan Arc. A line of high ground passes Ta-li and Yunnan-fu. It was interpreted by M. Déprat,

who visited the area in connection with his surveys in French Indo-China, as part of an arc of mountains upraised by folds at the same date as the Himalaya and due to great pressure from the north. This view was suggested owing to the apparently disorderly arrangement of some rocks in part of northern Yunnan, which he explained as due to what are called " thrust-planes."

These structures were found in the north-western Highlands of Scotland during the attempt to discover why the rocks there were apparently in their wrong order. The rocks were arranged like a pile of volumes in which the fifth lay between the second and the third. One school regarded this sequence as the true order of date. Another school insisted that the volumes must have been published in right numerical order and that volume five had been simply pushed in between volumes two and three. This controversy was the most famous and important in British geology. It was at length proved—adopting again the analogy of the pile of books—that volume five was the fifth in order of issue and had been thrust in between two earlier volumes. Déprat adopted such thrust-planes to account for the confusion of some rocks beside the Yangtze Kiang in north-eastern Yunnan. He attributed his Yunnan Arc to buckling of the crust, when the thrust-planes were being formed, by the rocks being pushed southward by earth movements belonging to the Himalayan System.

We crossed a critical part of the Yunnan Arc west of Yang-pi. The country is indeed rugged, but consists of a network of deep valleys between down-shaped hills. The rocks of which the hills are formed

have been greatly tilted and disturbed, but these earth movements did not make the existing hills and valleys The mountains due to them in this part of the Yunnan Arc were worn down into a plain, which has been since destroyed by the river-cut gorges (*cf.* Pl. XVI.A). The hills along the part of the Yunnan Arc that we visited are not due to earth movements, and there is no way along it for the eastern prolongation of the Himalaya.

So far as we can judge, though the information is woefully inadequate, the extension of the Himalayan line into southern China is through the Nan Shan, a mountain chain which stands between the Yangtze Kiang and the Si Kiang or West River of south-eastern China.

The uplift of the Himalaya necessarily affected the courses of the Tibetan rivers. The exceptional phenomenon presented by the convergence, parallelism and divergence of the three great rivers of Chinese Tibet is mentioned in the first chapter (p. 22). The behaviour of these rivers may be explained in two ways. Tibet is "the roof of the world," and extensive roofs usually consist of a series of ridges drained by parallel gutters which may discharge into different water-butts or on to different slopes around the building. The three canyons of Chinese Tibet may be either gutters cut out by the rivers that flow through them, or they may be depressions between the ridges and due to the original structure of the roof.

Each of these valleys has been made in two stages. Each consists of a broad shallow high-level trough, and through its floor has been excavated a younger trench which in some places remains as a deep narrow

canyon (Fig. 6B) and in others has been enlarged and widened (Fig. 6C). Remnants of the floors of the high-level valleys persist as the gently sloping upper parts of the mountain spurs, as shown in Plate VIII.B. The younger canyons, as illustrated by Plate VI.A, have been clearly cut by river action, for their courses are sinuous, and on looking along the valley the spurs from each side overlap. These "overlapping profiles" are characteristic of young river-cut valleys; and, as Mr Kingdon Ward has clearly pointed out, the canyons of the three valleys have been excavated by the rivers that flow through them.

The broad high-level valleys, on the other hand, have their sides roughly parallel and their courses were determined by earth movements which affected the country as a whole. Each of these valleys occurs along or near the former summit of an arch-shaped upfold of the rocks. The rocks on each bank of the Yangtze above its great bend at Shih-ku, of the Mekong, and of other main valleys of the district dip away from the valley. When hard rocks are bent into an arch the upper surface is torn with the formation of parallel-sided clefts (Fig. 6A). The rainfall naturally drains into these clefts and the rivers thus formed deepen them, and the streams that tumble down their steep sides tear out gullies which are worn back as valleys into the hills. Thus the rivers along the middle of the arch are enlarged by drainage which originally flowed away from them, down the slopes of the arch.

So many of the valleys of Chinese Tibet were formed along cracked arch-like upfolds that the original arrangement of the present rivers must have been due to earth

movements. The rivers have cut across the mountain lines made by the Himalayan movements and therefore date from the period when south-eastern Asia was settling down after the intense compression that caused the Himalayan uplifts.[1]

East Central Asia before the formation of the Himalaya was probably drained through great valleys that trended west and east. Remnants of ancient valleys trending in that direction still form some of the larger geographical features in various parts of the Old World, and through valleys belonging to this group most of Tibet drained eastward across China. As the Himalaya also trend west and east, their uplift confirmed some of these valleys, such as those of the Ganges on the south and of the upper part of the Brahmaputra on the north; but as the earth's crust is very varied in strength and structure the formation of a great chain of fold mountains is accompanied by irregular movements in the adjacent regions. Moreover, after the fold mountain chain is formed relief from compression generally forms cross fractures which are especially likely to occur where the uplifts have been greatest. Hence, as has been often remarked, the cross valleys of the Himalaya cut through the chain near its highest peaks. The movements after the Himalayan uplift therefore caused a series of basins by the buckling of the floor of the east-trending valleys. These basins were occupied by lakes. Their waters rose until they reached the summits of the valleys made by the fractures and then overflowed southward as the trans-Himalayan rivers of Chinese Tibet. In the period after the Himalayan movements the drainage from eastern Tibet

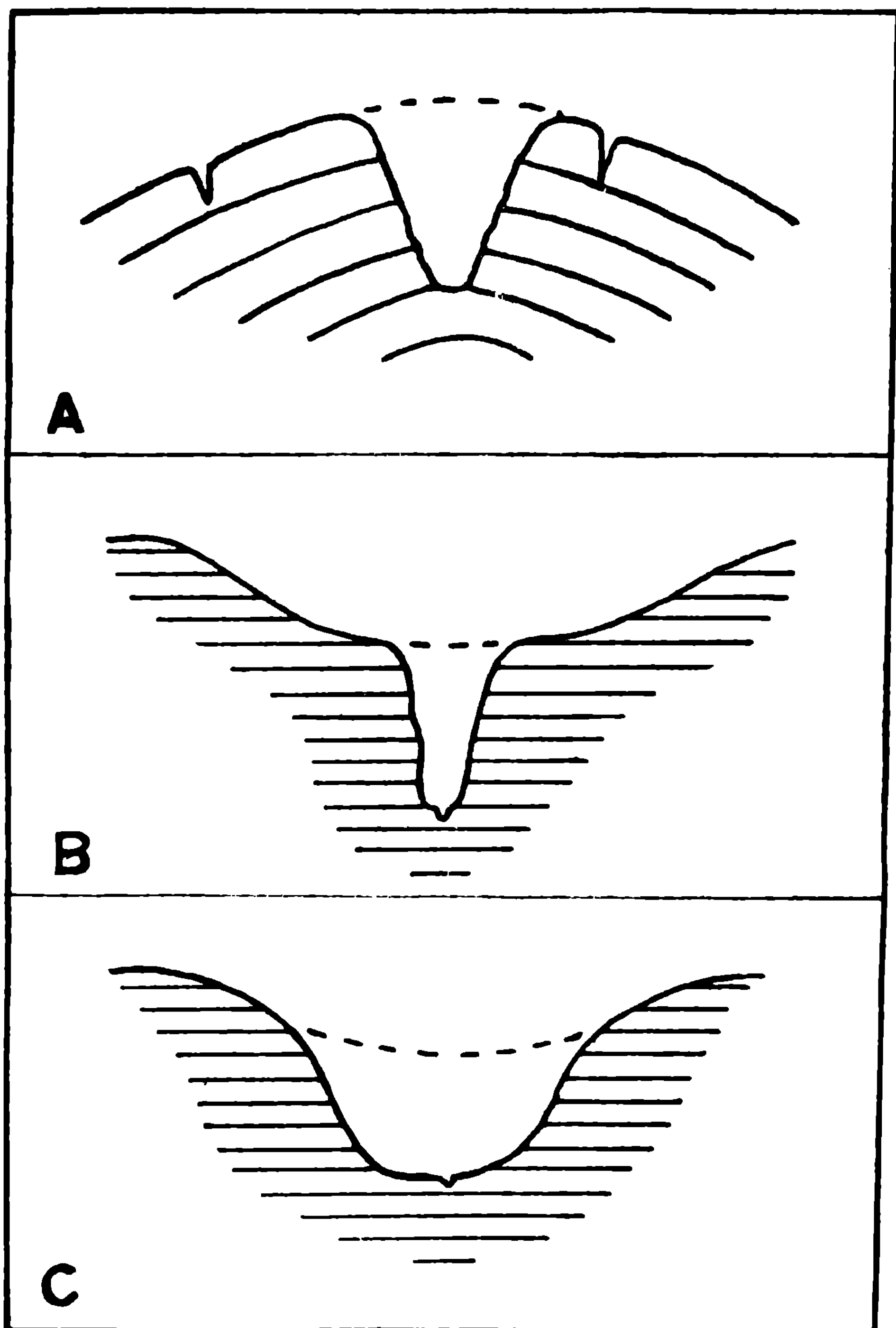

FIG. 6.—THE STRUCTURE OF THE MAJOR VALLEYS OF CHINESE TIBET

A shows the anticlinal structure with the valley formed where the rocks are cleft along the axis of the arch-like upfold; B the young valley excavated by the rivers on the floor of the high-level valley; and C, a section where the young valley has been widened.

was probably by five rivers. The westernmost may have collected the waters of western Tibet, including the Tsang-po, which is now the upper part of the Brahmaputra; this river passed through the Himalaya as the Dihang, which at present on reaching the valley of Assam turns abruptly westward, to cross Bengal as the Brahmaputra, and reaches the sea through a mouth common with the Ganges. Opposite the Dihang there is, however, a broad and comparatively low notch in the mountains of north-western Burma. Before the formation of the valley of Assam the Dihang doubtless continued through that gap, and thus passed southward through the Hukong valley to the Irawadi. The next river of the series is now represented by the Upper Irawadi, which flows south-south-eastward till, near Mandalay, it turns sharply west, cuts through the Sagaing range and joins the river from the Chindwin valley and they together form the present Lower Irawadi. In line with the Upper Irawadi is a broad depression near Mandalay through which that river must have formerly reached the sea east of Rangoon as the Sittang River.

East of this Upper Irawadi-Sittang River is the Salween. It probably once continued its main direction to the south-south-east and passing through the valley of the Meping and Menang rivers entered the Gulf of Siam at Bangkok.

The fourth of these parallel rivers is the Mekong, which has undergone less important changes in its course than the others and flows across Tonkin.

The fifth member of the series is the Yangtze Kiang, which flowed along its present course as far as its great

bend at Shih-ku; thence it continued south-south-east through a wide wind-gap to the basin of Kien-chwan. The local tribe has a tradition that the Yangtze once flowed through that gap. It is improbable that the river can have followed this course during any period known by tradition. The report is probably a sound inference from the existing structure of the country. From the Kien-chwan basin the Yangtze would have passed near Ta-li-fu and discharged through the Red River to the Gulf of Tonkin. The diversion of the Yangtze was due to the formation of a cross fracture which passes through Shih-ku down-stream along the Yangtze, and continues to the west-south-west up the valley of a tributary—the Hsi-ma Ho. This fracture diverted the Yangtze eastward into the next parallel river flowing to the south-south-east. It flooded that valley until it reached a pass to the north of Li-kiang snow-peak; it then overflowed into the next of the south-south-east valleys and so discharged east of Li-kiang and Ho-king into one of the east-trending valleys, which enabled it to adopt its present route across China to the Pacific.

Though the earth movements that produced this change extended far inland into south-eastern Asia, they were apparently formed in connection with the subsidence of the Indian Ocean. Yunnan is cut through by many north to south fractures of the earth's crust, to which are due some of its most conspicuous geographical features, including its lake basins, existing and extinct, its mountain ramparts, and the course of some of its main valleys and lines of communications. To these fractures are also due the earthquakes by which

the area is often shaken and devastated. These north to south fracture lines were contemporary, at least in part, with those that made the Rift Valley system of East Africa, the valley of Mesopotamia with the Persian Gulf, the rugged western front of the peninsula of India with the stupendous precipices of Mahabaleshwar, and the western edge of the plateau of Australia. In spite of the essential difference in structure between Equatorial Africa and south-western Asia, the ruptures of the crust in both regions are predominantly north and south, and independent of the arrangement of the rocks they traverse. They are therefore doubtless the result of one common cause due to changes in the last era in the earth's geological history. Their trend and distribution suggest that they were due to the rending of Africa and south-eastern Asia, when the foundering of the once intervening lands made the basin of the Indian Ocean.

NOTE

[1] One famous hypothesis claims that as the rivers cut across the Himalaya the rivers must be the older; the evidence, however, seems to us inconsistent with this view.

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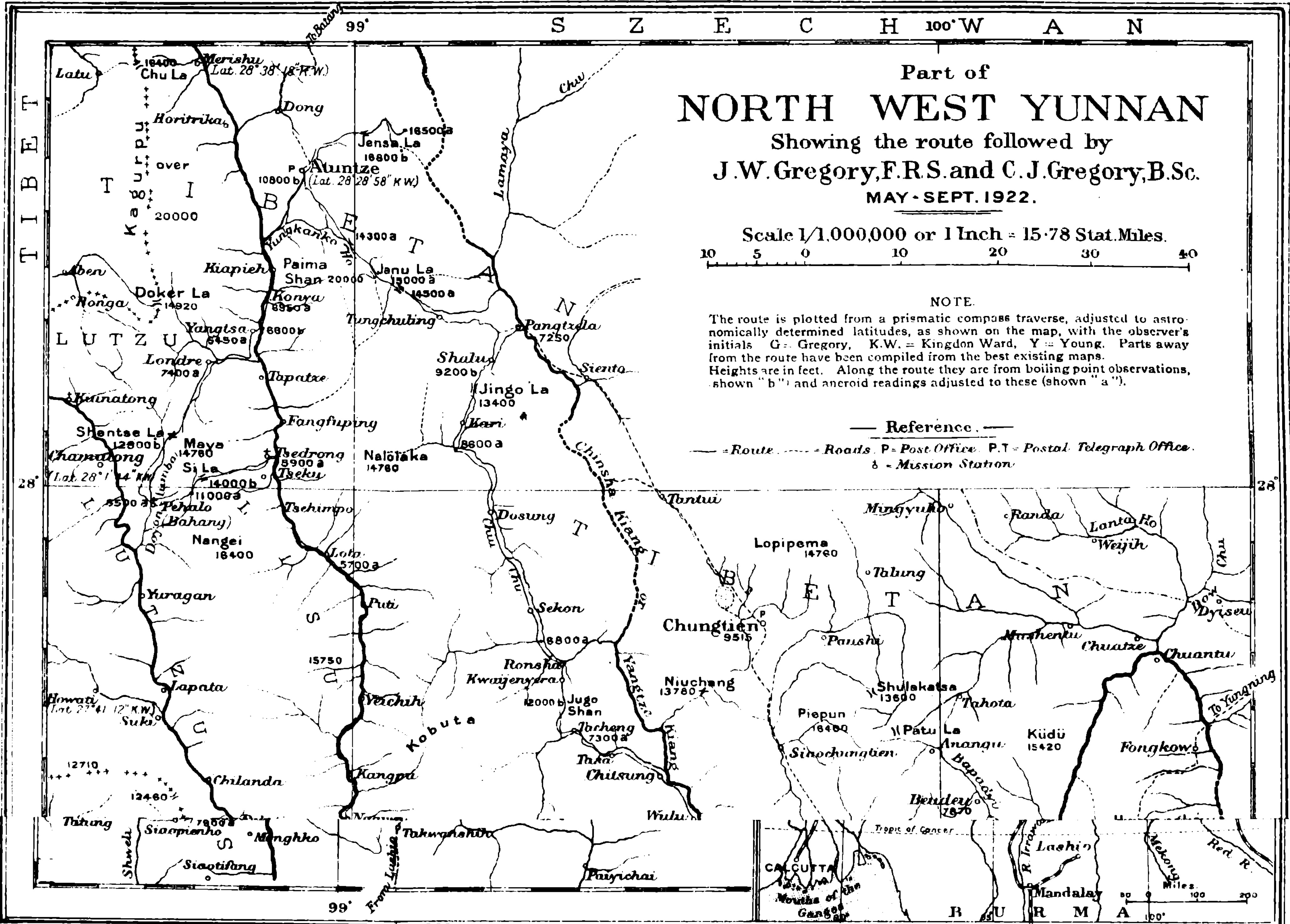
MAP FOR "TO THE ALPS OF CHINESE TIBET"



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MAP FOR "TO THE ALPS OF CHINESE TIBET"

Part of

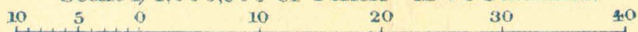
NORTH WEST YUNNAN

Showing the route followed by

J. W. Gregory, F.R.S. and C. J. Gregory, B.Sc.

MAY - SEPT. 1922.

Scale 1/1,000,000 or 1 Inch = 15·78 Stat. Miles.

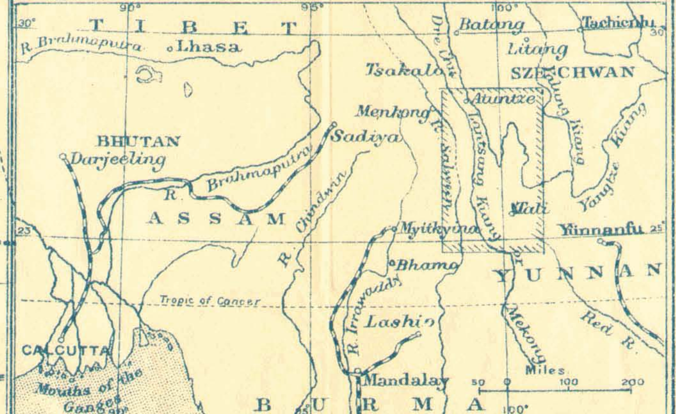


NOTE.

The route is plotted from a prismatic compass traverse, adjusted to astronomically determined latitudes, as shown on the map, with the observer's initials G = Gregory, K.W. = Kingdon Ward, Y = Young. Parts away from the route have been compiled from the best existing maps. Heights are in feet. Along the route they are from boiling point observations, shown "b") and aneroid readings adjusted to these (shown "a").

Reference.

—— = Route. ------ = Roads. P = Post Office. P.T. = Postal Telegraph Office. ♁ = Mission Station.



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