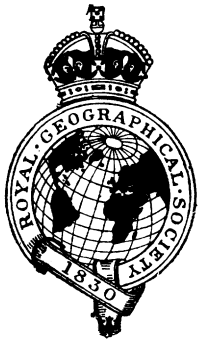
THE GEOGRAPHICAL JOURNAL



PUBLISHED UNDER THE AUTHORITY OF THE COUNCIL.
EDITED BY THE SECRETARY.

VOL. XXXIX.—JANUARY TO JUNE, 1912.

LONDON:
THE ROYAL GEOGRAPHICAL SOCIETY, 1, SAVILE ROW;
EDWARD STANFORD, 12, 13, AND 14, LONG ACRE, W.C.
1912.

PRINTED BY
WILLIAM CLOWES AND SONS, LIMITED
LONDON AND BECCLES.

CONTENTS.

Authors are alone responsible for their respective statements.

No. 1. *January.*

MAPS.

No. 2. *February.*

MAPS.

No. 3. *March.*

MAPS.

No. 4. *April.*

MAPS.

No. 5. *May.*

Maps.

No. 6. *June.*

Maps.

The

Geographical Journal.

No. 3. MARCH, 1912. Vol. XXXIX.

CHINESE FRONTIERS OF INDIA.*

By ARCHIBALD ROSE, C.I.E., F.R.G.S., British Consul, Têng-yüeh, Yun-nan.

The North-East Frontier.

In the course of the twenty-two centuries which have elapsed since the descent of Alexander the Great and his Macedonian levies to the Jehlum valley and the plains of the Punjab, the constant passing of armies, and the ceaseless advances of conquering man have made a moving place in history for the mountains and the passes of India's north-west borderland.

Of the North-East Frontier little has been written, and for many years this boundary has remained hazy in its geographical limits, peaceful in its policies, and happy in the dulness of its annals. The events of the past few years, however, have forced this section of the frontier into a new prominence. With the flight of the Dalai Lama from Lhasa in February, 1910, we were brought to a sudden realization of the fact that China desired to inaugurate a forward policy in Tibet, and that India had acquired a Chinese neighbour along the whole stretch of that 3000 miles of frontier from Kashmir, past Nepal, Sikkim, Bhutan, Assam, and Upper Burma, till we reach the Mekong and Tongking. Not that China is playing a new part in asserting her power in Central Asia or that Chinese ambitions and Chinese policies are an unknown factor on the Indian borderland. We see, however, these ambitions and policies recalled to life after a long sleep, and carried through with a new vitality. The Chinese colossus has moved in its extremities, its farthermost limbs, when the heart seemed to be failing and the centre of all its activities in Peking was over-burdened with troubles from within and from without, and seemed for the moment numbed and almost broken.

* Royal Geographical Society, January 15, 1912. Map, p. 312.

Since the conquest of Kashgaria by the Emperor Chienlung in 1759, the sway of China has been recognized as far as the Kashmir border with but a little break in the days of Yakub Beg and his Mohammedan rebellion. She has bounded our Indian Empire, too, along the whole of the Burma frontier for several centuries, though it is but in the last few years that she has attempted to carry her administrative frontier up to her political border line. She has exercised a shadowy and intangible suzerainty in Tibet since the eighteenth century, and now she has at last asserted claims which are more than those of a suzerain in that mysterious and distant dependency. She has carried her arms to the sacred city of Lhasa, has driven the Buddha incarnate with but little ceremony from his spiritual throne, and has even asserted claims over Nepal, Bhutan and Sikkim which have attracted the attention of the world.

China has excited but little general interest in western Europe until recent years. We have known of those industrious millions leading laborious lives in their ricefields, packing their tea and their bales of silk in the great yellow plains of the Pacific coast, or importing the cottons of Manchester and sending them in heavy-sailed junks far into the Chinese hinterland from which the Yangtse flows. China, however, has been little more than a name, a market, an unaggressive people slowly rising from the apathy of centuries of sleep. It is impossible to live amongst these industrious law-abiding people without learning for them a liking and respect, as one watches their humorous acceptance of the endless round of monotonous days, days of little sorrow and little joy, a dull and uneventful sojourn to the inevitable end. We have had to fight in China in the past for fair trade and for such relations as may exist with dignity between the nations of the earth, but we have been little worried by Chinese beliefs in their world-wide Empire or in the claim that there can be but one "Son of Heaven" on an earthly throne. We are told that China is the Middle Kingdom, a happy isle rising above the floods of circumambient barbarism; and we are not particularly agitated when reading that, so late as 1793, the Ambassador of His Majesty King George III. was conveyed to Peking in a barge, which bore aloft the legend that His Excellency came bearing tribute from the English King. Such incidents have been accepted as quaint but immaterial side-lights on a country whose soldiers wore targets embroidered on their breasts, but whose merchants were honest purveyors of good teas and regular purchasers of unlimited cotton goods from Manchester. We will trust that they may long remain so, and that the commercial genius of Great Britain and China may serve to link the two nations with a tie that shall be strong enough to withstand the frictions of political controversy, of impulsive boycotts and international strife.

It is inevitable, however, that we should feel for China a new and stronger interest since she has forced upon us the recognition of her neighbourly claims. There are few countries which should prove so satisfactory in this relationship as China, with her peace-loving, slow-moving people,

and her administrative genius. India will be happy indeed on her north-east frontier if China proves true to her tradition, and if she will consent to learn and to fulfil the duties which civilization demands from the nations whose borders march with those of sister powers. Signs are not wanting that this will be a hard lesson for her to learn ; she has grown so accustomed to a tribal fringe, to the barbarian hordes to the north and south and west of her broad domains, that she is slow to realize the rapidity with which her modern advance is bringing her to new and undreamed of frontier conditions. Opposite Kashgaria and Chinese Turkestan lies India ; administrative advances in Yun-nan bring her to the Indian line in Burma too ; her military activity in Tibet brings her again to Assam and to India, and lastly we cannot but regard with interest the political significance of the move, which has installed her as a military power behind the mountains of Bhutan, Sikkim, and Nepal.

I have been asked whether the past few years have shown signs of any real change in Chinese affairs. My own experience prompts me to answer, yes ; the changes are very apparent, but their actual value cannot yet be safely gauged. There was a very general and very obvious stir throughout the country after the occupation of Peking by the allied forces, at the time of the Boxer troubles. That, I think, was the first real stimulant to the awakening of China, the first realization of her needs and her possibilities. Before that crisis there was much talk of the break-up of China, but China would not easily break up now ; even in the midst of the present eruption we cannot but recognize that her position has been consolidated in some intangible way, and that the eighteen provinces have been brought to some realization of their common interest. The next decisive influence was the outcome of the Russo-Japanese war, which awoke a new ambition throughout the East, whilst losses of Chinese territory have brought to a head the lack of confidence which had gradually been gathering among the people for the past three years.

Whatever may be the visible outcome of the present revolution there is little doubt that the will of the people will triumph, and that China will embark on a new career of progress and national unity, which should be as welcome to the civilized world as to the most enthusiastic members of an awakened China. In dealing with the frontier question we cannot but consider this new factor on our borders. Both geographically and politically China comes closer as a neighbour, and awakes an ever-increasing interest in her weakness or her strength. She has the nucleus of a fine army, and she has an abundance of good fighting material in her sturdy millions, if we may judge from those few occasions when Chinese troops have been led by British officers. If the Government is able to keep the new troops free from the peculation which has sapped the energy and effectiveness of the old military system, they may one day be capable of great things. They have the tradition of that Chinese army which, little more than a century ago, performed the military feat of

overrunning Tibet, and trying conclusions with no less redoubtable a foe than the Gurkhas of Nepal.

It is impossible to see far ahead or to weigh with accuracy the outcome of the next few years. China is now passing through her most difficult and most critical phase. She will probably be too much absorbed in her internal affairs, too much concerned with her social and political reformation, to venture into any external complications. At the same time she will find herself in the difficult position of a country which, although potentially rich, is actually poor; which is hampered by long-recognized corruption among the official classes; and which is nevertheless obliged to support a growing army, and all the expense and strain of reshaping her political and economic machinery.

And so the new progress of China cannot fail to interest, and interest deeply, those countries which are her closest neighbours. During the next few years we shall watch the spread of a national spirit, springing to life with the extension of railways, posts, and general communications. We shall see, too, the far-reaching effects of this new-born experiment in constitutional Government, which should break down provincial prejudices and weld the scattered dominions of the Middle Kingdom into a homogeneous whole. China is so vast, so strong in her own individuality, yet so inscrutable to the western mind, that one hesitates to indulge in generalities as to her present or her future. The more that I see of China, however, especially from the provinces of the interior, the stronger grows the conviction that her greatest strength lies in the intense vitality of her people. Old as they are in history, their spirit is still young and virile. Corrupt as is their official life, they are yet the most honest of peoples. Loving their homes and their families with a love that amounts to a religion, they have yet this genius of spreading across the world, founding prosperous and respected colonies wherever they go, and giving proof of a sterling worth and a persistency of purpose that is worthy of the youngest of nations.

Our oldest frontier relations with the Chinese lie along the Burma-Yun-nan border, and it may help to the realization of our Chinese neighbours, of their border country and their new interest to our Indian Empire, if we consider for a little that wild borderland which marches with Burma for 800 miles, where Yun-nan forms the western boundary of China from the Mekong northwards to Tibet. It is difficult to imagine a country which is still within the boundaries of the Middle Kingdom, yet bearing less resemblance to the long yellow plains of the loess-covered northern provinces, or the densely populated rice-lands of the Pacific coast, than this wild mountain tract among the Central Asian plateaux.

Starting our journey by way of Rangoon and Bhamo, it is but a three days' march to the frontier, and five more on to Têng-yüeh, the first of the Chinese cities. The road is passable only for pack-animals, and one settles down to long daily stages at the head of a caravan of mules, swinging

steadily along over the mountain roads to the rhythm of a pair of sweet-toned gongs, which ding-dong through the silence of the forest. They are pleasant marches, those first few stages through the dense green jungle, the road now overshadowed by great trees, now sweeping up to reveal broad prospects of mountain peaks that fade into the distant haze, now winding along the banks of rocky, orchid-bordered torrents.

Hidden in the mountains on both sides of the frontier-road, are villages of Kachins, a wild and warlike race which causes much anxiety to the Chinese and to the peaceful Shans inhabiting the neighbouring valleys. The men are keen-looking fellows, who spend their days in sharpening their *dhas*, or long two-handed swords, their nights in drinking and in harrying the marches. The burdens of life are literally borne by their women folk, long trains of whom are met along the roads, carrying on their backs great baskets of grain depending from a strap across their foreheads, whilst their hands are busy spinning strands of cotton yarn, or weaving a straw bracelet for their sweethearts, as they toil up the mountain slopes. They wear a short kilt, supported by numbers of loose rattan girdles, the lobes of their ears are pierced and distended to carry long tubes of silver or rolls of red cloth, and their faces are coarsened by hard times. They are hospitable people, these Kachins, offering a welcome to any passing traveller without question or hope of reward. This spirit of hospitality, indeed, is carried to a point which might almost be considered extravagant. I remember a case at a recent frontier meeting in which a trans-frontier Kachin appeared as the complainant. He had accepted an invitation to dinner, dined not wisely, but too well, and fallen down a precipice on his way home. The result was a broken leg, and, in consequence, he now appeared in Court to sue his host for damages. The erring host paid up quite cheerfully, and the international incident was thus amicably settled over the body of a sacrificial pig. These Kachins showed a fierce resistance to the first British columns which entered the country, but they have not been slow to learn the pride of race, and the clean and prosperous administration, which follows British rule. The work of the handful of officers who have been entrusted with the pacification of these hill tracts for the past fifteen or sixteen years, has indeed borne abundant fruit, for the Kachin is a very human fellow, a lazy, superstitious, brave and devoted highlander, and he has been well won.

There is a physical reality about the frontier, which impresses one very clearly as the caravan emerges from the last shady miles of the Burma road and looks down from a commanding peak over the two great Empires, stretching far away to the East and the West. On the one side lies Burma, green and forest-clad as far as the eye can reach, the hills raising their wooded summits from a sea of white and billowing mists, whilst on the other side China stretches away to the sunrise, with hills that are bare of trees, rugged and weather-worn, with every crevice standing clear in the still sparkling air of the winter morning.

And then, as the day advances, we wander down into the northernmost of the Shan States that form the western boundary of China along much of this frontier line, and take our course by the waters of the Taping, that "River of Peace" which is so well named in its quiet sojourn through the country of the Shans.

The Chinese Shan States run in a series of well-watered valleys between the frontier and the great Yunnanese plateau, with roads winding along broad, grassy stretches, above which magnificent banyan trees spread their giant arms and their deep shade. In an avenue of these trees at the little village of Manwyne, Augustus Raymond Margary, the first Consul to visit Têng-yüeh, was murdered thirty-five years ago, winning by his brave march and his fearless death a freedom for all time to foreign travel and foreign commerce in the distant regions of western China. But a few miles farther on, and under just such another clump of trees, George Litton, a noble successor to Margary, was found dead in his sedan chair in 1906. He had spent six years as our Consul in Yun-nan, and all his British enthusiasm and his keen, scholarly mind, had been devoted to the lifting of the veil which then covered so much of far western China. His journeys into Yunnanese Tibet and into the unknown valley of the Upper Salween, added a rich store to our geographical knowledge of the border provinces, and the name of Litton is immortalized among the tribesmen and the Chinese merchants of Yun-nan, who found in this British Consul an unexpected tower of strength in the good cause of fair trade and political freedom.

From the semi-tropical Shan valleys it is but a day's journey to an entirely new world, a long, steep climb through beds of lava and volcanic peaks to the great Yun-nan plateau, at the edge of which, at an altitude of 5400 feet, stand the battlements and towers of Têng-yüeh, the western outpost of Chinese administration. Here there is a Commissioner of the Imperial Chinese Customs Service; for Têng-yüeh—in spite of the fact that it is a journey of eight days from the nearest navigable water—is an "Open Port" under Treaty, and all merchandise on the trans-frontier road is free of *likin* and local tolls, and subject only to a regular Customs due. There is also a member of the China Inland Mission, that wonderful organization which has penetrated into every corner of the Chinese Empire, and which finds a never-failing supply of enthusiastic men and women to lay aside the calls of their native land and devote themselves wholeheartedly to the work in the interior of China. They are to be found in the most miserable cities and in the most obscure corners of the country, working quietly and unostentatiously always, but with unflagging courage. There seems to me little doubt that the cheery homes and self-sacrificing lives of our missionaries have been a very real object-lesson to the people among whom their lot is cast, and they have rendered very solid service to China by their efforts to direct her new educational adventures into clean and honest lines.

Têng-yüeh is the headquarters of a Taotai, who is responsible for peace and good order over the broad regions of the Western Marches, and his position is strengthened by a garrison both of the old Green Banner troops of China, and also of those new troops who have been drilled and armed in accordance with the most modern ideas of Europe or Japan. The Chinese officials live in Yamens within the city walls, and their lives are vastly dull—a veritable banishment from the lines of ordinary official life, with none of the music and theatricals, or the dainty and extraordinary dishes which are the heart's delight of Chinese epicures. For the white man, however, the Yun-nan country is full of attraction. The highland air is crisp and cold throughout the year, even during the rainy days of summer. One can gallop over the downs, shoot pheasants, partridges and quail on the bracken-covered hills, bringing down an occasional Lady Amherst or a silver pheasant to crown the bag. Woodcock, snipe, and wild-fowl lure one through the woods and marshes in the evening light, and the clear mountain torrents yield up the *Barbus tor*.

In spite of its far-away position, Têng-yüeh is the great market of Western Yun-nan, the distributing centre for foreign goods, the collecting centre for all the native produce coming down from Ta-li Fu. It is busy with Burma Caravans, its market thronged with tribesmen, and its streets gay with passing officials and their picturesque retinues, for it is in Têng-yüeh that the political and commercial life of the Yun-nan frontier finds its focus and its centre.

Frontier Tribes.—Let us consider for a little while the Chinese marches, the physical characteristics of the country around our north-east frontier; and the strange and little-known tribes which have been driven to the refuge of these border mountains, or have chosen the intervening valleys in the southerly march of humanity, since the Tibetan highlands and the Central Asian plains have grown less hospitable to man. Taking Sadiya as our first centre, we find to the north-west the Brahmaputra basin of Assam, with its line of tribes shut in among the rugged mountain country which is watered by the Bohroli, the Dihang, the Zayul, and the Lohit, and cut off from the probable line of Chinese progress from Rima towards Lhasa by the easterly arms of the Himalayan system. Of these tribes the Abors, the most northerly of all, have forced themselves most recently upon our attention by the murder of Noel Williamson and Dr. Gregorson, officers who had travelled widely in the tribal country and had met with a friendly reception on all sides. The Abors and Akas have long been known as warlike and independent peoples, with their own tribal organization and a plentiful supply of dhas and bows and arrows, but they have admitted our claims of suzerainty for many years, and their homes lie on the Indian side of Asia's greatest mountain boundary. The Daphlas, the Miris, the Mishmis, the Singphos or Kachins, and the Nagas all live within this Brahmaputra basin of Assam, and, though little touched by the direct administrative agencies of the Indian Government, they have been visited

from time to time by British officers and have acknowledged their Indian allegiance, whilst the difficult nature of their country and the lack of natural communications cut them off from the Chinese sphere in Tibet.

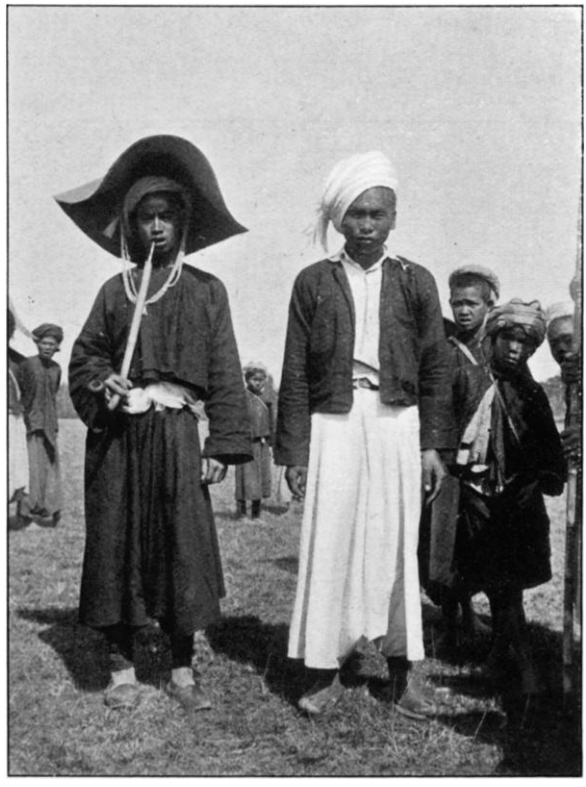
Leaving the Assam basin and moving further east, we find a different belt of country, where the easterly trend of the Himalayan system gives way to a series of parallel ranges cutting across it at right angles, and running in a regular grid-iron formation directly north and south. In the angle formed by these two mountain systems we find the actual geographical limits of India's north-east frontier.

High in the uplands of Central Asia rise three great rivers, the Salween, the Mekong, and the Yangtse, and, near the south-east corner of Tibet they run side by side within a belt of 50 miles, fed by few tributaries and divided by the great mountain masses which here and for many miles to the south have made the geography and history of the little-known and deeply interesting region marked out by nature as the Burma-China frontier.

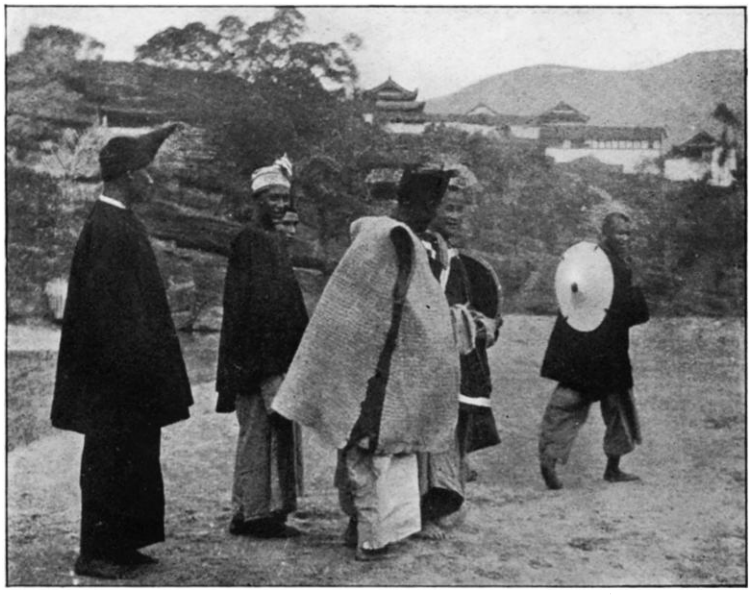
In about lat. 28°, where the most easterly branch of the Himalayan system sweeps down towards the basins of the three rivers, we find that mysterious corner of the world where Tibet, India, and China meet. The line of snow-capped Himalayan peaks runs from the west towards the Salween, leaving Assam and Upper Burma to the south and Tibet to the north of the range. Then comes the right angle, while the unbroken limestone ridges of the Irrawady-Salween watershed divide the Chinese province of Yun-nan from the British outposts of Upper Burma. It is at this point, too, that China merges into Tibet, a line of semi-independent States with their hereditary princes and kings holding the balance between the rival powers of Lhasa and Peking, but gradually inclining to the Chinese dominion as the military and administrative forces of the Empire are pressed steadily westward.

The most northerly corner of Yun-nan, generally known as Yunnanese-Tibet, is actually a portion of the Tibetan province of Kham, long famous for its fighting men, and the race which inhabits the country is called Ku-tsung—men of Tibetan type and language, who have nevertheless abandoned to some extent their nomadic lives and now occupy themselves mainly with agriculture and cattle rearing. In the high plateaux of this district, lying at an altitude of some 11,000 feet, the Ku-tsung pass their lives in some prosperity, raising good crops and sturdy ponies and cattle that command a ready market both in Burma and Yun-nan. They are frank, cheery people, keen sportsmen and hunters, and they own a devout allegiance to those great Lamaseries, which, until the recent Chinese advance, have held the whole spiritual and most of the temporal power in the Tibetan borderlands.

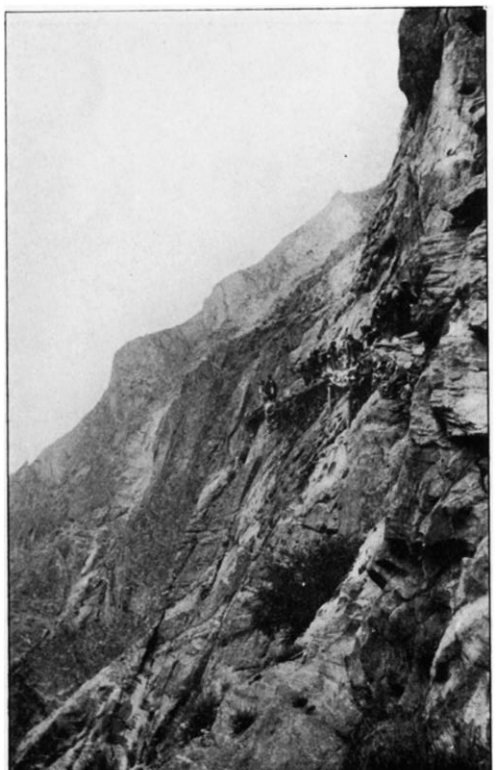
For the moment that power is broken, and China has stepped in with beautifully worded edicts declaring the fostering love of the Emperor for his border peoples, whilst the presence of the Imperial forces gives a very



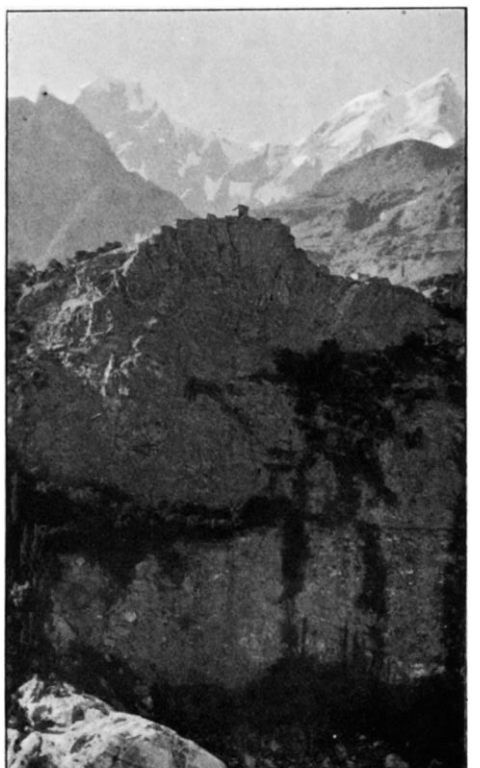
SHANS.



INDEPENDENT OR BLACK-BONED LOLOS.



THE TRANSFRONTIER WAY, INDIA TO TURKESTAN.



CASTLE OF TRIBAL PRINCE BETWEEN KASHMIR AND TURKESTAN.

solid backing to these expressions of benevolent intent. Many of the lamaseries now lie in ruins, their monks fled, their treasures scattered, and the tribesmen are exhorted to a new way of life, admonitions being even devoted to the advantages of wearing breeches by those who have omitted that simple expedient in the past. In the meanwhile Chinese settlers are being lured into the broad plateaux with promises of strong and handsome wives, of broad acres and countless yaks, thus repeating once more the process which has constantly carried the customs, the language, and the blood of the Chinese a little deeper into the country of the frontier tribes.

Whilst the purely Tibetan peoples still make their home in the most fertile and prosperous corner of the country, the basins of the three great rivers have each sheltered kindred though widely divergent tribes, and their inhospitable country and mountain fastnesses have enabled them to withstand the westerly progress of Chinese administration. Among these tribes the Lolos probably hold the strongest place, and though their scattered communities which have wandered south into Yun-nan tend to become absorbed in the Chinese cosmos, they still retain an unquestioned independence in the country of the upper Yangtse. Little is known of their history, and their own traditions speak of an ancestral nidus in the south-east corner of Tibet, where Burma and China meet. They are unusually tall and handsome, with well-marked noses and pointed chins, a higher type than is usual among the frontier tribes. It has been suggested to me by one who is an authority that they bear marked resemblances to the North American Indian, but though I can bear testimony to a striking physical likeness between the two types, I have had no opportunity of taking anthropometric measurements in Lolo-land, and can throw no light upon a question which might serve to link the plateaux of Central Asia with the plains of North America in the great book of the world's history.

The Lolos shave their heads, leaving one lock, which is bound into a turban and then twisted into a long horn projecting over their forehead, a very striking head-gear. The women are graceful in their carriage, independent and shy, but not unfriendly to foreigners ; and I have travelled with a Lolo girl for guide, an experience which seemed strange after living among the pent-up women of China. Both men and women are often seen with a rough coat of untanned skins thrown over their shoulders, but the national dress is a long felt cloak, the women wearing a skirt beneath it, and ornaments of silver and shells. I remember once seeing an old chief in a long shapeless garment which was woven from asbestos strands. He was evidently pleased that his costume should meet with envious admiration, but he stoutly resisted all allurements of exchange, even though a much-coveted pair of corduroy breeches were thrown into the balance for him. I am inclined to think that the advantages of asbestos suitings have been somewhat overlooked in these days of expensive laundries.

It requires no washing, and is thoroughly cleaned by the simple process of throwing it into the fire.

Unlike the Kachins and Lisus, the Lolos have a written language. They have also a more definite idea in their religious aspirations, and have risen a step beyond the simple animism or nat-worship of the surrounding tribes in their conceptions of immortality and the life beyond the grave. They look to the starry heavens as the shadow of the life to come, and see in its shining constellations the souls of those happy comrades who have already passed beyond the veil.

Whilst thinking of the legends in which these young and half savage frontier tribes seek to explain the mysteries of nature and the secrets of the supernatural world, one is reminded of the old flood story, which, with little variation, finds a place in the folklore of them all. It is based always on the escape from the waters of a brother and a sister, who became the father and mother of the world, and recalls to us Ovid's "*O soror, o conjunx, o femina sola superstes*," though the Deucalion and Pyrrha of the frontier lands were not wedded until after the flood days were past. In the Lolo story the brother and sister were carried over the face of the waters in a wooden casket, and the first sign of the receding flood was a spray of bamboo, which sprang from a rocky crevice as the first sign of hope, and became for them the emblem of regeneration for all time. The Kachin couple were saved in a drum, the Lisus in a gourd, whilst in each case they bore sons, to whom are traced the families and tribes and nations which people the earth to-day.

Of all the tribes the Lolos have given the most trouble to the Chinese officials and people on their marches, for, not confining themselves to a steady opposition to administration or absorption, they make regular raids on their peaceful neighbours for their supplies of salt, and they seldom return without booty and cattle and prisoners; nor is it often that these men can be redeemed from slavery. A line of Chinese garrisons now encircles the independent Lolo country, but they do not penetrate or interfere, and are mainly occupied with hemming in the tribesmen within their own borders. In one city they have arranged a system of Lolo hostages, who are changed year by year, but whose lives would pay the forfeit in the event of aggression on the part of their unruly kinsmen.

There is another tribe, the Lisus, who are as wild and independent as the Lolos, but who are so shut in by their encircling mountains that the Chinese have made little effort to interfere in their affairs, and have left them unmolested in the inhospitable defiles of the upper Salween. Though of a lower type and lower in the scale of civilization than the Lolos, these Lisu peoples have a great interest for us, holding as they do an undisputed sway along the stretch of our north-eastern frontier between lats. 26° 30′, and 27° 30′, with the mountains of the Salween-Mekong divide shutting them off from Chinese power, and the ridges of the Salween-Irrawady watershed making a formidable barrier between them and the

Maru and Kachin tribes, who inhabit the Nmai Kha and Mali Hka valleys of Upper Burma among the upper waters of the Irrawady basin.*

To the south of the Tibetans, the Lolos, and the Lisus a chain of rice-growing valleys stretches down as far as the Mekong and the French frontiers of Tonking. The wild Was, the Lahu or Lohei, the Palaungs, and the Akkas are all found in the mountains which fringe them, but the valley population is almost entirely Shan. They are to be found in every stage of political evolution, from those of Chen-kang near the Kunlong Ferry, which has been entirely absorbed by the Chinese, to the Sip Song Panna or Twelve Shan States in the extreme south of the province. Until about a year ago these little states enjoyed an absolute and very riotous independence, but they have suddenly been occupied by Chinese troops, and taught a severe lesson. In spite of the tropical heat and the fever-stricken valleys, the Chinese troops have remained throughout the summer, and there seems little doubt that the Yun-nan authorities are earnest in their resolve to carry their administration up to the very border-line where they are bounded by foreign frontiers.

It will be realized, then, that along the whole of our North-East Frontier we march with country over which a suzerainty is claimed by China. The Chinese are separated from us only by a fringe of aboriginal races, sometimes with a history of actual independence as in the case of Tibet, sometimes with little more than the tradition of it as amongst the Shans, or again with the independence only of inhospitable mountain homes such as those of the Kachins, the Lolos, the Was, and the Lisu. The Chinese policy in dealing with these tribesmen is one of peaceful absorption, and they spread their influence a little year by year, first robing the chiefs in Chinese official dress with its accompanying hat and peacock feather, bestowing on them an hereditary title and a Chinese seal, then insisting on a slight knowledge of the Chinese tongue. Their influence is light, intangible, and unostentatious, but none the less real, and an erring Sawbwa or chief soon realizes the weight of displeasure which his superintending officer can wield. When disorders or disobedience go beyond the recognized limit soldiers appear and annexation takes place, a fate which has already befallen two of the Shan States, and which may be anticipated for others in the near future. From the north to the south of Yunnan the Chinese have shown a definite progress during the past two years, both in the Shan States and in the tribal country. An Imperial Commissioner of viceregal rank has been appointed "Warden of the Marches" for Yun-nan and Se-chuan; civil and military officers are being posted throughout the States, a census is being taken, a basis of taxation laid down, schools are being established, and the Chinese language enforced. They

* "The Reaches of the Upper Salween," by Archibald Rose, F.R.G.S., *Geographical Journal*, 1909, vol. **34**, p. 608. "Lisu (Yawyin) Tribes of the Burma-China Frontier," by Archibald Rose, F.R.G.S., and J. Coggin-Brown, in the *Memoirs of the Asiatic Society of Bengal*, vol. **3**, No. 4, 1910.

have tried, too, the difficult experiment of introducing the cold-blooded and stereotyped marriage customs of China amongst these highland peoples, who, though far from immodest, are attracted by hot-blooded adventure as much in their loves as in their wars. It is clear indeed that the Chinese are determined to extend their administrative area, until they are met by the outposts of their neighbours along the whole of their Central Asian border-line.

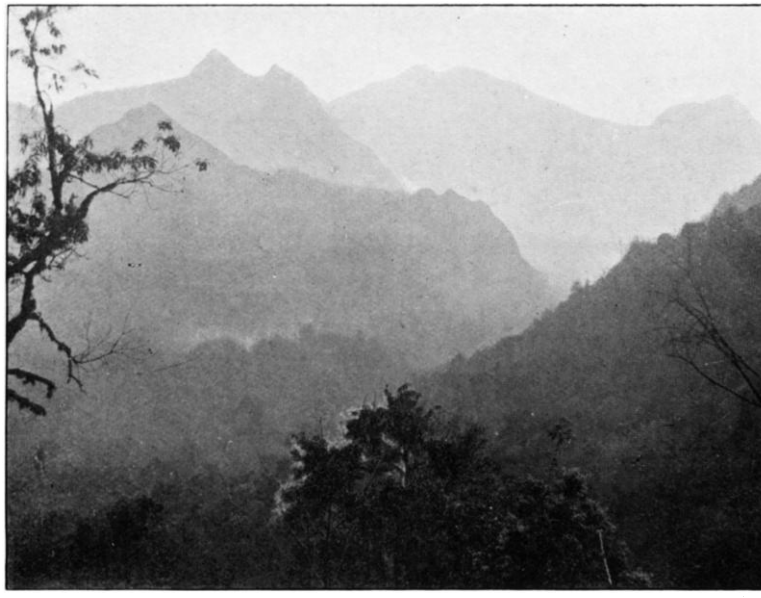
Frontier Camps and Frontier Journeys.

For those who are able to follow the main trade routes of the empire it is possible to travel throughout the length and breadth of China without even carrying a tent, and needing but little baggage save a camp bed and such stores as may be necessary to relieve the monotony of local chickens and rice. Every stage has an inn, a dirty, fly-infested place, with a table and two chairs, bitterly cold in the winter, and as unbearably hot in the summer months. In the thinly populated lands of Yun-nan, however, there are few inns and few supplies, and it is only during the last year that rest-houses have been erected even on the main highway from Bhamo up to Têng-yüeh. Frontier journeys are therefore a slow progress, with a long caravan of mules and a camp at night by the waters of some clear mountain stream.

We have followed the tribes and the line of country from north to south on the Chinese side of the Burma-China frontier, and I would ask you to come with me now across to the British side. Within that mountain angle at the extreme north-east corner of our Indian Empire lies a tract of country which both Great Britain and China have been content to leave almost unknown in the past, but to which attention has recently been attracted in consequence of the steady advance of Chinese colonists into the basin of the Irrawady. The Hpimaw expedition, a small column from the Burma post at Myitkyina, has visited the territory during the past few months for purposes of exploration and administration, and they found themselves in extraordinarily difficult country. They tell of marches from dawn till dark when only 2 to 3 miles were covered, and on one occasion it took eleven days to cover 23 miles. In spite of the natural difficulties, however, the expedition did some excellent work, and a road has been pushed northward for 140 miles from Myitkyina, thus carrying our administrative belt right up to the Chinese frontier.

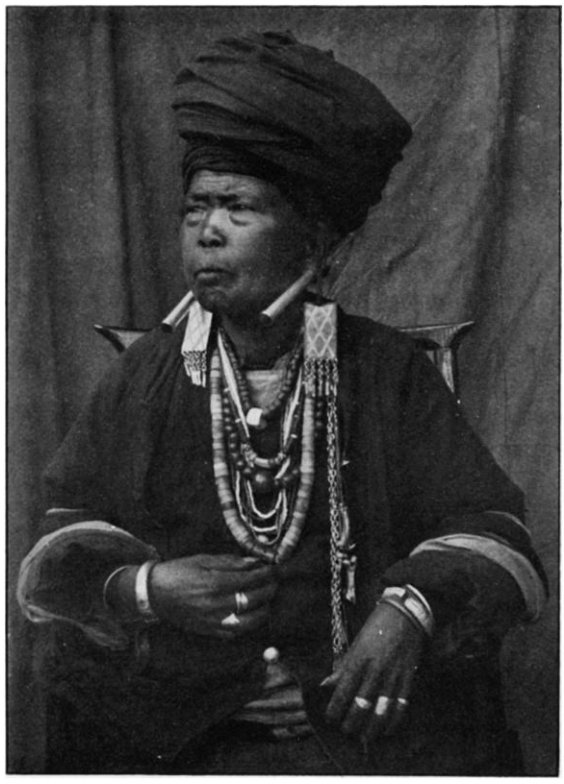
About a year ago I made a hurried march into this country as far as Hpimaw, or Pien-ma as the Chinese call it, and it may interest you to trace for a few minutes the course of my journey in the border country.

From Têng-yüeh the road runs north along one of the little parallel valleys that lead to the dividing range between the river systems of the Chinese Salween and the Burma Irrawady. We are soon beyond the belt of cultivation and bare, treeless hills into the land of the Lisu cross-bowmen, where the masses of limestone cliff rise from the pines and evergreens



THE FRONTIER MOUNTAINS, IRRAWADY-SALWEEN DIVIDE.

LISUS OF UPPER SALWEEN.



LASHI KACHIN.

WILD MARUS.

of forest-clad slopes, the foaming torrent of the Mingkuang stream winds a white course through the bracken, the calls of pheasant, sambur, and barking deer break the silence of the morning, and rhododendrons, briar roses, and pyrus japonica gleam out with a wonderful brilliancy of colour from the grey mists that herald the coming rains. Even the Chinese escort, and the phlegmatic muleteers are moved to wonder at the beauty of the land. They are good fellows, these Chinese soldiers of the Green Banner troops or old army, always cheery and uncomplaining even on the hardest days, dressed in serviceable blue nankeen with turbans and straw sandals, and able to do long and continuous marches of from 25 to 30 miles a day over those rough mountain tracks. They manage to live, too, on the resources of the country, and scarcely ever need any transport or commissariat beyond the one blanket which a generous Government provides. The Chinese have borrowed from us the fashion of recruiting a percentage of tribesmen for the regiments stationed on the border, and on this journey I had one Kachin lad, on whom descended the dignity of carrying my gun in addition to his dha and his embroidered bag, with its bamboo tube of liquor.

I asked him one day how much spirit was considered a proper daily allowance among the Lashi tribe, to which he had the honour to belong. "That," he replied, "is regulated entirely by the amount which we are able to obtain." "Tell me," I said, "what is the song you sing?" "That," he answered, "varies with the occasion. I sing now that the dawn is greying in the sky, and we must take the road; from the mountains comes the cry of the deer, seeking their mates in the spring; the flowers are beckoning to the bees, all the world is glad, and only I lament, for in my tube there is no wine to cheer my heart."

The fifth day's march brought us to the end of the valley at Ta-chu-pa, where a scattered population of eighty Lisu families eke out a scanty subsistence, and five strongly stockaded Chinese houses form the headquarters of a thriving trade in coffin planks that come from the forests beyond the range. Here we were at the foot of one of those wild passes that would lead us from Yun-nan into the unadministered territory of Burma, and we halted for a day to make some preparation for the crossing of the range. The account of the road given by the tribesmen was not very encouraging, and there was no alternative but to jettison the escort and the mule-caravan, and to send them round to meet us when we emerged again into open country. I managed, however, to enlist a few young Lisus as porters, and they undertook to carry enough kit for ten days for myself and my personal servants. There was little enthusiasm for the journey, and it was difficult to decide who felt the more aggrieved, the escort, who were "being deserted" and left to face the terrors of the road alone, or the men who were to accompany me into the "inner land," relying on the protection of a shot-gun and varied samples of the British and foreign pharmacopœia. For future travellers on the North-East

Frontier, I can recommend a medicine chest as an unfailing passport to the affections of the tribesmen. There is a steady demand for remedies, and, even if physical relief does not always follow the direct line indicated in the book of the words, the application of draughts and pills and lotions ensures a mental gratification which is nobly independent of results. I remember one old chieftainess who was totally blind, but who felt that she ought to be cured. Needless to say, my efforts were all in vain, but her heart was completely captured by a liberal application of scented hazeline to her eyes and nose and face! The cotton-wool with which the applications were made grew noticeably blacker, and at the end of the treatment her complexion and general appearance presented such a marked improvement that every feminine member of the encampment developed an affection of the eyes; nor was there any rest until my stock of hazeline had been exhausted.

And so we commenced the ascent of the watershed range, the track lying through miles of tangled bamboo brake and dense forest jungle, through which an advance-guard of Lisus and Lashis hewed a way with their dhas, whilst the ponies struggled and slipped on the steep mountain paths, scrambling over the trunks of great fallen trees, and wading through the rocky torrents. This track is regularly used for a few months of the year by the tribesmen who come carrying coffin planks down to Mingkuang and the Chinese markets; but their path was scarcely discernible in the jungle, and the heavy rains which had fallen for several weeks had made of the low-lying portions a hopeless morass. After a long climb we reached the pass of Fen-shui Ling, the "Dividing of the Waters," and it was very reassuring to learn how thoroughly the tribesmen had mastered the principles of physical geography. Pointing to two little streams which trickled in opposite directions down the mountain-sides, they explained that the water-parting formed the border-line between Great Britain and China. They gave me, indeed, such an insight into the practical meaning of a "divide" as might have proved a liberal education to those distinguished officers of a friendly Government, who once gravely stated that a disputed frontier watershed would be found upon investigation to lie at the *foot*, and not along the top of the neighbouring mountain range. And then, with a courtesy that went to the heart of the situation, the Lisus from the Chinese side handed me over to the Lashis as their guest, and we continued our journey down into the valley of the Ngawchang Kha. On arrival at the next camp the weather broke, and for five days and nights the rain poured down in ceaseless torrents. The little single-fly tents could not resist the storm, clothes and bedding were sodden, the weight of the porters' loads was terribly increased, and the poor fellows spent the night squeezed within the narrow limits of the tents as far as was physically possible, or out in the open with no protection from the wet ground or the beating rain and snow save a layer of palm fibre. After seeing the hard lives that these tribesmen lead, and the triumph of the elements in their

mountain homes, one wonders little at the animism forming the basis of all their faith, or at the fact that the rain and thunder, the lightning, the wind, the forest, and the mountains are all held by demons of malice, whose wrath can only be appeased by offerings and sacrifice. On one day we were obliged to march from dawn to dark without a halt for rest or food, as we found no clearing in the jungle, and the country was reported by the natives to be full of poisonous herbs, which the ponies would eat if we halted, with fatal results. It was with some relief, then, that we at last saw a cluster of homesteads on a distant hillside, and knew that Pien-ma was near, and the worst of the journey past.

We were now in that broad stretch of territory to the extreme north of Burma and beyond the Myitkyina outposts, which until the last year has been practically unadministered by Great Britain, as large neighbouring tracts on the other side of the range, including the whole of the Black Lisu country in the valley of the Salween, remain unadministered by China. It is the old story, however, of the white man's burden, and these outlying peoples are gradually being brought under control by the extension of that orderly government and honest administration which has already found a practical justification in the health and prosperity and general well-being which it has brought to the tribes farther south.

Before leaving this country, it may be interesting to seek for some general idea of this extreme north-east corner of our Indian frontier, as it has been revealed by those few travellers who have penetrated into the unadministered territory. They include Errol Gray, in 1892, Woodthorpe and Macgregor, in 1895, Pottinger in 1897, and Noel Williamson in 1907, all of whom entered the country from the Indian side. Prince Henry of Orleans in 1895, and Young in 1905, made remarkable journeys in the opposite direction through from China into Assam. Mr. H. F. Hertz, C.I.E., and Mr. W. A. Hertz, C.S.I., now Deputy Commissioner at Myitkyina, have also penetrated far into the territory; but their attention has been devoted to the administrative problems and the future of the people, and their work is too broad to be touched upon in this light geographical summary.

The country is drained in its eastern corner by the headwaters of the Irrawady, which, at the confluence above Myitkyina, splits into two streams, the Nmai Hka and the Mali Hka. On the west the Chindwin—another tributary of the Irrawady—flows down from the Naga hills of Assam and through the Hukong valley, eventually joining the parent stream not far from Mandalay. Then on the north, the Lohit and Dihing branches of the Brahmaputra run from the isolated Shan State of Hkamti Long westward to Assam and Sadiya. On the eastern boundary of this country lies one of the world's great ranges, the Irrawady-Salween water-shed, which divides the territory from the Chinese province of Yun-nan. On the north rises a range which shuts it off from Tibet, and which appears to be one of the most easterly arms of the Himalayan system.

The fact remains that this distant and partially administered corner

of the old Burmese kingdom is closed from China to the north and east by a great mountain wall, which compares not unfavourably with the barriers of India's North-West Frontier. Its rivers are a part of the Indian system. Its people belong to the tribes of Assam and Burma already under direct British administration, and ethnologically distinct from the Tibetan and Lisu tribes who inhabit the Chinese slopes of the surrounding mountain systems.

The northern belt of the territory, stretching away from the Mishmi or Taroan country of Assam, is a huge stretch of uninhabited jungle, subject to a heavy rainfall, and marked only by the ruins of ancient villages, showing the existence of some old-time trade-route between Assam and the Shan State of Hkamti Long, which still flourishes around the sources of the Mali Hka river under a number of princes or chiefs, who hold the title of Sawbwa common to all the Shan States.

For centuries past the Sawbwas have been subject to Burma, holding their rank and titles from the Court at Mandalay and retaining to this day their ancient insignia of office. Some twenty years ago, when Upper Burma was definitely enrolled as part of the British Empire, they applied for, and received, a renewal of their appointments from the nearest centre of British administration, and communications have constantly been maintained between Hkamti and the district headquarters at Myitkyina. Forming as it does a political, historical, and commercial link between the administrative areas of Upper Burma and Assam, and guarding as it does the sources of the Irrawady, it would be impossible to allow any interference with the Burma traditions of this Hkamti State, or to permit any Chinese aggression from the side of Yunnan or Tibet. The gradual improvement of the roads and communications in the country north of Myitkyina will now give opportunities for a fuller development of the fertile Hkamti valleys. There can be little doubt indeed that the inclusion within the administrative area of these temperate highlands, their tea hills, and their open grazing country will prove of very material value as a hinterland to the tropical river valleys of lower Burma.

Away east of Hkamti and between it and China is the rugged country known as the Kiu valley, which was traversed by Prince Henry of Orleans in 1895. It is inhabited by Kiu-Tzu or Khunnongs, who are in a low state of civilization and who add to their scanty resources by acting as labourers and porters for their wealthier neighbours of Hkamti. There seems to be evidence, too, of a wilder, fiercer race known as Chenungs, with homes in the corner between the upper Nmai Hka and the Salween.

Descending the Mali Hka river we find the early home of the Kachins and the path by which they found their way south. A number of them, known as Khakus, still dwell on the river banks and pass their lives in considerable comfort and prosperity. Unlike the turbulent streams to the east, the Mali Hka runs placidly over its sandy bed, bordered by a rich tropical vegetation similar to that of Assam, out of which rise numerous

villages with a flourishing agriculture and united by good roads. The Kachins inhabiting the Hukong valley to the west of the Mali Hka are also wealthier and more prosperous than their highland cousins in the south. They have driven out the early Shan inhabitants, as their kinsmen now threaten to do in their more southerly settlements, and they have settled here to a regular lowland life, producing quantities of rubber and amber, which find an exit through the markets of Myitkyina.

The Nmai Hka valley to the east belongs to the wilder section of the frontier lands, and formed the route by which the Marus descended in their march towards a land of promise, when emigrating from their northern homes. In the upper reaches of the river they still remain the dominant race, and Pottinger has described them as the "Black Marus" on account of their dark complexions, an attribute which may be traced in all probability to their disregard of personal cleanliness. The independent Lisus are also classed as "Black" by their neighbours, and they probably deserve the name both by virtue of their appearance and their deeds. A lad who had been in captivity among them for some months told me after his escape that "they have no lamps or candles, and at night the men sit round the fires, smearing their faces with lard and ashes, drinking deeply of their rice spirit, and for ever plotting robbery and murder." In the lower reaches of the Nmai Hka and in the valleys of its affluent the Ngawchang Hka, the inhabitants call themselves Lashis, though they are undoubtedly related not only to the Marus of the upper river, but also to the Szi tribes, who are found farther south along the Burma-China border. They are wild-looking fellows in their long, unbleached hempen robes and gaiters, and they are never seen without their dhas and spears. The women have generally adopted blue Chinese cloth for their clothes, with short skirts and turbans, and coils of cowries and beads round their waists and necks, their ears being pierced in three places for large brass or silver hoops. The Lashis attend no market, and depend on Chinese pedlars for their clothes. They are indomitable traders, these Chinese, reaching into the farthest corners of all that tract of country, bringing in their cotton stuffs and their ornaments, opium, beads, buttons, needles, and oxen, and carrying out in exchange gold, musk, bears' galls, a drug called huang-lien, bees'-wax and coffin planks. The imports nowadays are entirely of Chinese origin, but the roads now being pushed out into the country should succeed in carrying British cotton goods all through this district. It is sufficiently populous and prosperous to absorb a considerable quantity of such goods, for the natives can produce no local garments beyond the rough hemp of their village looms.

For some days I was hemmed into this remote corner of Upper Burma by violent storms. The wind howled over the bare hills, the ground became a regular quagmire, and the passes were all blocked by snow. Towards the end of April, however, I managed to get away, and struck eastwards over a pass, which crosses the Salween-Irrawady divide and enters China

near the little hamlet of Teng-keng on the Salween, the capital of one of those hereditary Tussu or chiefs, who are charged by the Chinese with the care of the Lisu country, but who dare not show their face anywhere near the villages of the independent tribesmen. The top of the pass (10,500 feet) was covered in whirling mist-wreaths, and at intervals could be seen miles of snow-clad peaks stretching far away in a long unbroken line, as the great mass of the Irrawady-Salween watershed vanished into the white clouds towards the north. All round the pass were masses of primulas, great blooms of a brilliant azure blue, and to the east the valley of the Kutan Ho ran steeply down in sunshine to Teng-keng and the Salween river, backed by the great mountain range dividing it from the Mekong, which is almost as perfect and symmetrical as are the peaks on its western bank.

The weather fortunately cleared for my march back to Têng-yüeh along the Salween. The river valley was in its full glory of early summer, and, although intensely hot, was a pleasant change after the hard journey in the mountains. These upper reaches of the Salween are the home of the Lisu tribesmen, who have up to the present successfully resisted every attempt at administrative advances on the part of the Chinese. As far as lat. 26° 15′ they are comparatively quiet, passing lean and hungry lives in their mountain villages and attracting little attention. Beyond that point, however, and as far north as about lat. 27° 40′, where the river opens out and the Lisus are replaced by the milder Lutzu tribe, they hold undisputed possession of jungle-covered gorges, recognizing no form of law or government, and maintaining a seclusion which has only been broken by the late Mr. Litton and his companion, Mr. Forrest, in 1905. Further explorations of the Salween have been discouraged by the murder of Dr. Brunhuber and Mr. Schmitz in 1909. Looking up that rocky gorge, one could well imagine the scenes so vividly described by Litton, the filthy villages where every man's hand is against his neighbour; the poverty, the hunger, the cross-bows, and the poisoned arrows, the single-rope bridges across the torrent, and the diet of wild honey that proved at last so nauseating to the weary travellers.

The Kashmir-Kashgar Frontier.

In the extreme North of India and far removed from the jungles of Burma and Assam there stretches another section of our Chinese frontier, where Kashmir marches with Turkestan, or the New Dominion, and the district generally known as Kashgaria. Here, among the untrodden snows of the Himalayas and the Hindu Kush, runs the boundary line which divides India from the Pamirs and the Central Asian deserts, and here lies the point where Great Britain and Russia and China, the three forces of the Asiatic continent, find their common meeting-place.

The military road which runs from the Wular lake in Kashmir to Gilgit, through thirteen stages of wild and beautiful scenery, is well

known and has been frequently traversed and described. It is continued for four marches beyond Gilgit, and leads as far as the little states of Hunza and Nagar, the centre of a tribal organization no less interesting than that of the north-east frontier, though entirely different in character. The Kanjutis of Hunza and Nagar made a desperate struggle for independence when we advanced into their country twenty years ago, but their career of lawlessness and bloodshed became at last unbearable.

It became evident that there would be no peace in northern Kashmir till we had dominated the whole country as far as the Hindu Kush, and carried the Pax Britannica right up to Nature's frontier. The whole history of Central Asia indeed is an object-lesson in that strange fate which presses nations forward, often against their will, and imposes upon them ever-increasing burdens. Civilization has no place for the lawless tribal fringe, and it must sooner or later be broken or dominated, a task which has occupied the energies and moulded the policies not only of England, but of Russia also and China. They have met now in a common goal with the best and surest of frontiers, the watershed that sweeps across a continent and has bounded the ambitions of man from the beginnings of time. It is difficult to realize what it all means until one wanders through Central Asia, alone and unarmed, in places where within the memory of living men, defenceless travellers had learned to expect a cruel and certain death. One realizes then that though old conditions may have fostered a bolder spirit in many a gallant tribesman, yet for the world at large the change has been all gain. England and Russia and China have worked hand in hand in this towards the greatest good of all, and now at last that old trade route which led from Rome across to China is once more open to peaceful caravans, once more protected by great imperial powers, and free at last from its long eclipse under the hands of nomad hordes and lawless mountain princes.

But even when we have reached the fastnesses of Hunza and Nagar, we are still seven days from the actual frontier, and the most difficult and dangerous marches of all this journey lie ahead. During these last marches to the frontier ridge all but the slightest kit must be abandoned. It is a slow and anxious progress along the cliffside, scaling precipitous rock-faces with but a few inches of foothold, crossing logs which are balanced in the crevices, so frail and so inconsequent that an unsteady stone, a slipping plank, or a false step would throw one hundreds of feet to the rocks of the river-bed below. The way lies, too, across a glacier, which, with its ice-peaks separated by deep cracks and chasms, made the most formidable obstacle of all under the heat of the August sun. Such is the road which leads from India to Chinese Turkestan and the Russian outposts in Central Asia, a road which divides our Indian Empire from its northern neighbours rather than links it with them. And so one comes to the great watershed, the meeting of the Himalayas and the Hindu Kush, and the Kilik and Mintaka passes lead across to Chinese Turkestan.

There is another road from Kashmir into Chinese territory—a longer but less difficult one—from Leh northward across the Karakorum. It is the loftiest trade-route in the world, the pass itself being over 18,000 feet; but caravans labour across it year by year, sacrificing vast numbers of transport animals to the strain of the high altitude, the storms, the cold, and those 200 miles of desolation that mark the Karakorum plateau, "The Desert of Black Gravel."

But to return to the Kilik pass, the climb leading up to the roof of the world at a point where, in the words of Sir Thomas Holdich, "a rugged and inaccessible spur of the Sarikol range carries the boundary into regions of perpetual ice and snow to its junction with the main range. Here, amidst a solitary wilderness, 20,000 feet above sea-level, absolutely inaccessible to man, and within the ken of no living creature except the Pamir eagles, the three empires actually meet." From the frontier as far as Tashkurgan, stretches the Tagdumbash Pamir, a part of Sarikol, and its people are believed to be of Aryan origin. In the broken mountain country north of Tashkurgan one finds the Kirghiz, nomads too, but of a more Mongolian type, with little hair upon their faces and long narrow eyes. These races of Central Asia, however, are greatly mixed in blood, and one may find in the same tent a black bushy beard alongside a smooth-faced lad with flaxen hair and well-opened grey eyes. Kirghiz, or Sarikoli, or Turkoman, however, all bear the distinctive marks of the nomad above all difference of locality or race or creed. The guest is received into the tents of the Kirghiz Mohammedans, welcomed as warmly at their fireside, and waited on as freely by their unveiled women as among the Buddhist Mongols of Northern Asia. They are a picturesque crowd as they sit round the argol fire waiting for their evening meal; the nomads in robes of every brilliant hue, orange, and purple, and crimson, and green; my Kanjutis from over the border in their white cloaks and caps, with bunches of yellow poppies or mauve primulas above their curls. All round us are the flocks and herds, shaggy black yaks and two-humped camels, the men and children rounding up the cattle, the women milking or cooking or weaving, and the sun throwing its last gleams over the brown tents and the broad russet pastures in their setting of eternal snows. One is carried back to the days of Father Abraham and Father Isaac, to those far-off centuries when these central Asian plateaux swarmed with countless wanderers, who were driven out at last by the resistless forces of drought and famine, and went forth to conquer the known world, to overwhelm the nations with the Tartar wave of the Dark Ages, and to leave their mark upon their peoples from Russia to Japan.

China's hold upon her nomad population is of the lightest and, although a handful of men is maintained on the Pamirs at Tashkurgan, there is little sign of Chinese authority until one drops into the great plain of Central Asia, and finds at Kashgar a Chinese Taotai, a garrison, and a walled city

on the regular Chinese model, set in that green ribbon where the line of irrigation brings wealth and prosperity and the most luscious of fruits to a dense Mohammedan population, on the very borders of the deserts of Takla Makan. Here we find the Chinese in their furthest outpost, their westernmost extremity, a position which they have lost and won time after time throughout the ages. Here they are installed as rulers of an alien race, surrounded by Mohammedans, a five months' journey from Peking, yet utterly unaffected by their strange surroundings and unusual conditions. They do not even attempt to learn the language of the people, and remain entirely dependent upon their Turki and Persian interpreters. They have even a separate city for themselves, a Chinese Kashgar lying several miles from the Mohammedan town, both of them provided with fine walls and guard towers and moats.

From Kashgar lines of cultivation and traffic stretch eastward to China proper on either side of the great desert, the northern ones leading past Urumchi into Mongolia and Kansuh, that to the south passing by the ancient civilizations of Kotan and the Lob basin. Changes of climate have deflected the line of the road since classic days, and even since the time of Marco Polo, but the great trade route is still open, the long lines of camels still swing through the dusk on their night marches through the desert, bearing their distant cargoes from Peking or Samarkand, from the oil wells of Baku and the Moscow cotton factories. Here in Kashgar one realizes what the central Asian markets meant to the ancient world and what they mean to-day. Here are still the nomads of the high plateaux, the thronging Turkomans of the fertile oases, the old means of transport, the richly laden caravans, the mud-walled caravanserais, the very heart of Asia. And here at last one turns one's face westward, following that old path of conquest and progress and commerce across the desert and over the Alai snows, through Samarkand and Bokhara, over the waters of the Oxus, through country still rich in memories of Alexander and Genghiz Khan and Tamerlane, and then at last to Geok Tepe marking the last wave of conquest, Russia's final and decisive victory, till one reaches the Caspian, the Caucasus and Constantinople, and the long, slow marches of Asia give place at last to Europe.

The Chinese as Frontiersmen.

Throughout all those earliest centuries of the Christian era, when China was struggling to consolidate an empire around the Yellow river and Yangtse basins, her statesmen and her soldiers never ceased to dream Imperial dreams and to carry the fame of the dragon throne ever further toward the west. So early as B.C. 110 the Han dynasty had pushed Chinese influence as far as Kashgar, where a flourishing market sprang up for the exchange of commodities between China and the Roman Empire of the East. They had even built the Great Wall westward from Peking, which protected the whole of their northern frontier and kept open that road

into the Tarim basin, of which we have lately heard such interesting detail from the researches of Dr. Aurel Stein. The two thousand years which have passed, and which have seen such fluctuations in the decline and fall of China's glory, have left that old wall standing in the desert, its line still clearly marked, many of its watch-towers still standing, the manuscripts of the soldiers who guarded it preserved in the still dry soil, and the very foot-marks of its sentinels still outlined on the desert sand.

But Chinese influence in Central Asia was destined to no uninterrupted or peaceful career. In the eighth century the power of Islam swept over the land with its fierce struggles and hot religious passions, leaving to this day a Mohammadan faith throughout the country as far east as the Chinese province of Kansuh. For some two hundred years the Tang dynasty (618 to 908 A.D.) again brought to China a period of life and prosperity, one of the best eras indeed in her whole chequered history, and the more noticeable from the fact that it coincided with those dreary days of the Middle Ages, when Europe was passing through its darkest phase. The Tangs spread out their influence once more over the vast stretches of Central Asia, carrying their arms and their policies in a temporary triumph as far as the city of Kashgar. From that period there was a regular swing in the pendulum of Asiatic power, the influence of China rising and waning as the power on the throne proved vigorous or feeble. In the thirteenth century Genghiz Khan and his son the great Kublai not only conquered China, but brought to the Imperial throne a Mongol dominion stretching westward to Bokhara and Samarcand. Tamerlane followed him in 1333 A.D. with a series of Asiatic conquests, of which the fame rang through the western world, and left him with a reputation second only to that of Alexander the Great. With their usual foresight in such matters the Chinese laid claim to this young Turki conqueror and invested him with a fabulous Mongol descent. And so they continued the tradition of their Central Asian sway for many years after they had ceased to hold any power beyond the limits of the Middle Kingdom, at a time, indeed, when they were busy strengthening their barriers and shutting out the barbarian tribes which menaced their seclusion.

It was left to Chien Lung, the great Emperor of the Manchu dynasty, to consolidate the real hold of China over her outlying western dominions. In 1759 he definitely annexed Turkestan; invested many of the tribal chiefs along the Yun-nan and Se-chuan borders with Chinese seals and office; asserted a claim over Tibet, and appointed an Amban at Lhasa, after assisting the Tibetans against the inroads of their Gurkha neighbours. He even entered into relations with the neighbouring States of Bhutan and Nepal. His ambitions led him at last to attempt the conquest of Burma, but his armies were defeated, and neither he nor any other Chinese emperor has ever succeeded in extending their influence over that fertile land. Since Chien Lung's reign the power of China on these frontiers has been twice shattered by Mohammedan rebellions, that of Yakub Beg in

Turkestan lasting for fifteen years (from 1863 until 1877), whilst some forty years ago a similar rising generally known as the "Panthay Rebellion" devastated the province of Yun-nan during the eighteen years from 1855 to 1873. The suppression of these Mohammedan movements, however, left China more vigorous than before, and she spared no pains to consolidate her forces, and to bring her outlying dominions under direct and definite administration. In 1878 the whole of Turkestan was enrolled as a regular Chinese province, governed by Chinese officials from the capital of Urumtsi (Ti-Hua Fu), and her civil power is backed by a force of 8000 men, some of whom are drilled and armed on the lines of modern European armies.

It is, then, to the days of Chien Lung that China's modern land frontier can generally be traced. During the hundred years which elapsed after the death of this emperor there was little activity in these regions. The energies of her Government were being devoted then to the suppression of internal risings, and to the new questions which were arising on her seaboard in consequence of the breaking down of her old seclusive barriers and the opening of her shores to a world-wide trade. During the last decade, however, those landward frontier problems have again been forced to the front, and we have not been allowed to forget the presence of our Chinese neighbour on India's north-east frontier. The history of our relations with China in Tibet, and of the causes which led to the expedition to Lhasa of 1904, have been fully told in Sir Francis Younghusband's latest book, and there will be no need for me to dwell upon this section of the North-East Frontier.

Along the whole western border of Se-chuan and Yun-nan runs a line of tribal country, to parts of which reference has already been made, and which now constitutes one of China's most difficult frontier problems. Starting from the north of Se-chuan and running well down into Yun-nan, we find the plateaux of the Tibetan nomads. The most northerly of them constitute the Chia-rung States, lying to the west of Sung-pan and Kuan-hsien in Se-chuan; then come the fighting Horba States, Chantui and Chagla, west of Ta-chien-lu; then Derge, Chamdo, and Draya, to the west of Batang, and Litang and Mili farther south, the three last being part of the province of Kham.

For some years the Chinese authorities of Se-chuan and Yun-nan have been working towards the subjugation of these little principalities, and recent events have forced their hands and compelled decisive action. Early in 1904 the Assistant Amban Feng, who had been appointed to Tibet, was murdered on his way when near Batang, and the whole of the Lama country was soon up in arms. The disturbances spread over a broad stretch of country, and even as far south as Tze-ku on the Mekong, where the Lamas burned the French Mission and murdered Father Dubernard, one of those brave French pioneers who had devoted the whole of his long life and high intellectual gifts to the service of the frontier

tribes, having left France when Napoleon III. was at the height of his power, and never returned. George Forrest, a young Englishman, nearly fell a victim to the fanatic followers of the Lamas at the same time, and he was hunted for a month over the Mekong-Salween divide, eventually escaping through Wei-hsi, where he arrived almost dead from starvation and exposure. The serious nature of this Lama rebellion, and the murder of so high an official as the Amban Feng, finally stirred the Chinese into action. Chao Erh-feng, a man of good repute for energy and honest service, was entrusted with the task, and in 1906 he set out for Ta-chien-lu, commencing the great work on the Tibetan border which is still being carried on. In 1908 the Chinese showed their appreciation of the importance of his work by bestowing on him a rank and title equal to that of the Resident at Lhasa, at the same time giving him the fullest powers for the entire subjugation of the Marches. The native rulers of Batang, Litang, and Hsiangcheng have all been deposed, and their offices abolished, the State of Derge has been absorbed, Chinese officials and troops are stationed at every important centre, and, whilst the power of the Lamas is practically broken, a regular system of Chinese administration is being introduced, with schools, roads, and telegraphs. In the meanwhile, the increasing prestige of the Government has brought a new confidence to the people and the traders, who are now freed from the old lamaist oppressions, the *ula* or supply of transport animals for officials by the people, the forced service, and all the evils attendant on a powerful and unprincipled priesthood.

From Batang the Amban Chao has constructed a military road as far as Derge, and thence he pressed on with his modern-drilled troops to Chamdo, the great market of eastern Tibet, and the most important place between Ta-chien-lu and Lhasa. The past three years, indeed, have shown a tireless energy on these Marches. The powers of the independent states have been broken one after the other. Chinese officials have replaced the kings, who have generally been pensioned off with a small military title. The influence of the Lamas is dead, their greatest Lamaseries destroyed, and, for the first time in history, Chinese power is effectually established on this road, which forms the great highway between Lhasa and the thoroughly administered province of Se-chuan. The importance of the subjugation of these states cannot be overlooked. They formed the great barrier between China and Lhasa, both from a strategic and political point of view, and the effectual absorption of Tibet would have been impossible as long as the road was blocked by these tribesmen, who belong to an obstinate fighting race, and among whom the Lamas could be trusted to maintain a steady opposition to Chinese interference. No sooner was the way clear to Lhasa than another road was pushed south to Yun-nan and A-tun-tze, thence west to Chamutong and Rima, where the latest of China's military posts has recently been established within two or three days' march from our territory in Assam. And so we are brought face to

face with the realities of the Chinese advance to the very limits of their political boundaries in this little-known corner of the Chinese-Indian borderland.

The Future of the Frontier.

Such then are the long land frontiers which divide the territories of China from our Indian Empire, and before closing my paper I will endeavour in a few words to sum up the present position on the frontier. On all sides are broad problems of exploration, the unknown reaches of the Brahmaputra, and the white patch on the map through which the Upper Salween flows. There are unclimbed mountain peaks with eternal snows within but a few miles of semi-tropical valleys, great rivers and broad deserts, grassy treeless plateaux and evergreen forests. And then there is the fringe of tribesmen from the Hunza Nagars to the Abors, the Tibetans to the Shans, sounding every note in the gamut of human development. Some can boast proud and ancient civilizations, some still remain in a state of primitive barbarism, yet all are merging into the two Empires to whom Fate has entrusted their welfare, and in whose hands lie their future government and administration; for there can be no stopping of the clock; the process of absorption is as inevitable and as unresting as the sun in its course. Perhaps it is this relentless force of Nature which has brought the question of the frontier so forcibly to our notice in the course of the past few years. China is awakening to her responsibilities as much as to her rights; she is founding an army, a representative government, a modern learning and a new press, and sometimes the times seem out of joint, the internal situation will not balance itself, the external situation becomes top-heavy, and then clouds gather on the frontier horizons. She has shown a wonderful skill in the peaceful absorption of some races, Marus and Lisus, Kachins and Shans having all been gathered at times without too much trouble into the family of the sons of Han. Now she is engaged with a new problem, with the absorption of the Tibetan peoples, and it may be that this will prove a more difficult task, for in the past there has been a tendency for Nature to assert herself in the opposite direction, and for the stronger personality of the Tibetan to engulf the emigrant Chinese. Perhaps this will prove an insuperable difficulty to China's new ambitions in Tibet. If so, it is difficult to know what will happen, for it is hardly possible that she can maintain a heavy expenditure for her military and administrative machinery on the Tibetan border for an indefinite time, and we have yet to learn if the bold spirit of the Tibetans will consent to a purely Chinese rule not backed by overwhelming forces. Be that as it may, the border problem remains the same. India and China must meet along some thousands of miles of frontier, and meet as neighbours, willing to work hand in hand towards the solution of those difficult border problems which beset them both, the administration of the tribes, the substitution

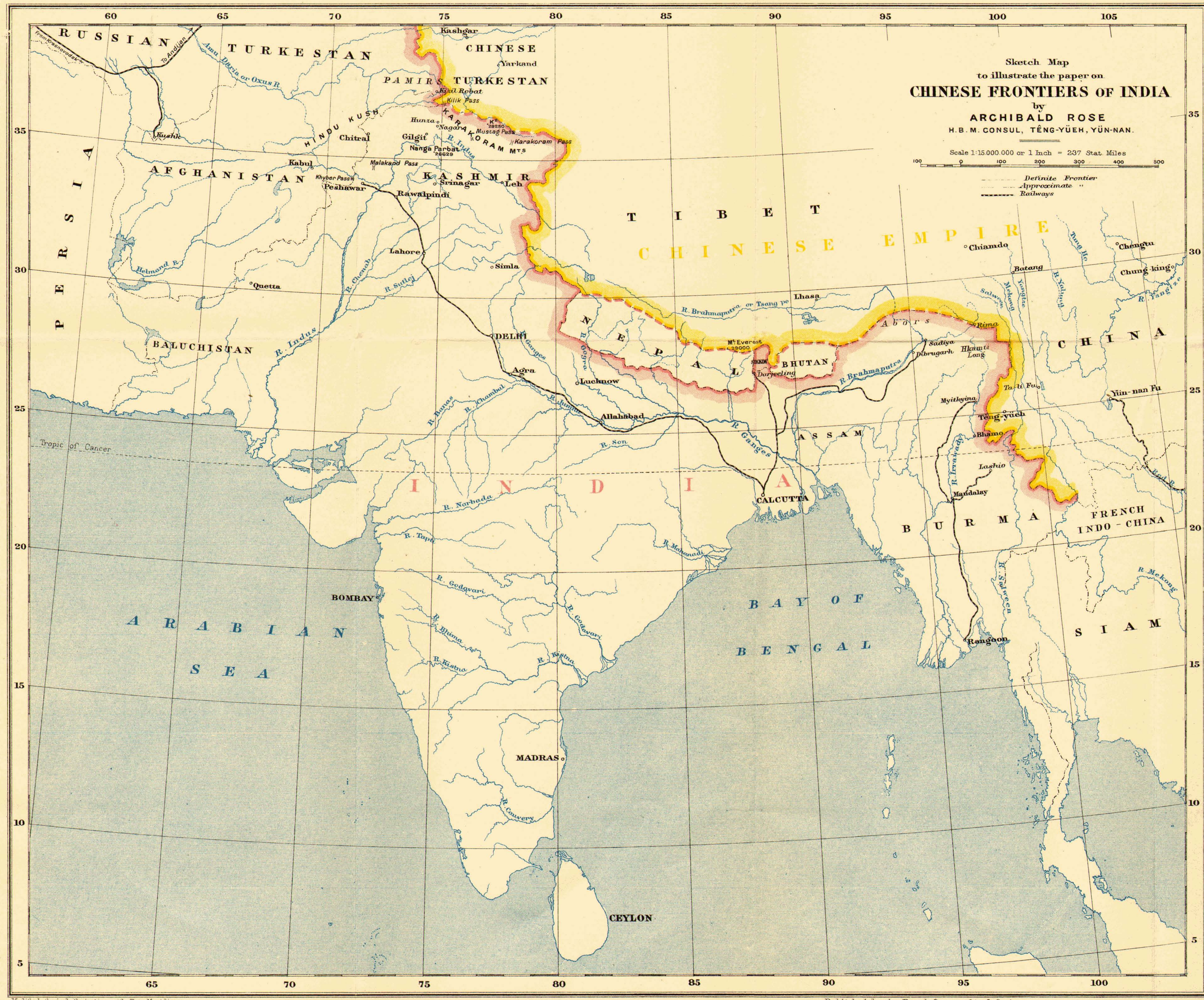
of justice, and law, and order, of well-protected trade and agricultural prosperity, for the feuds and individualism and poverty that have marked the tribal belt in the past.

India has held out the hand of friendship on all sides, has tried to carry into her Chinese relations that broad reasonableness without which nothing can be accomplished. The Chinese should prove the best of neighbours for us, and there is, I think, every reason to welcome their administrative advance, so long as it continues in a spirit of neighbourliness and good accord, laying aside small prejudices and striving for the greater good of all the frontier peoples. These Chinese have an undoubted liking for us, be they tribesmen or the real sons of Han, for they know that they may expect from the English fair treatment and just dealings, and in travelling through many provinces of China I have never once been met by a discourteous word or an unfriendly action from the people.

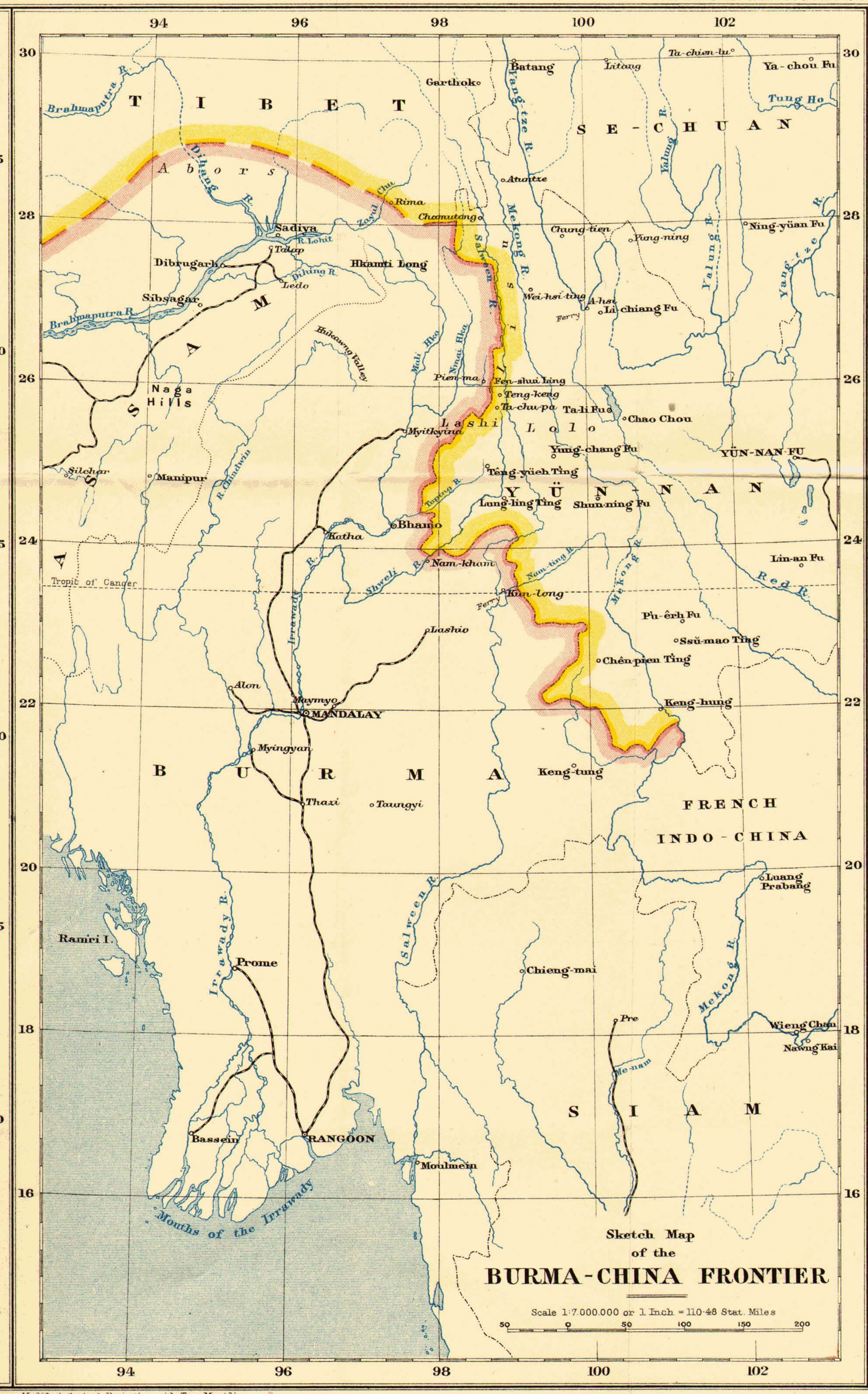
As there is no dream of aggression from the direction of India, so I believe that there need be no danger to us in the recent Chinese advance, no yellow peril on the Indian borderland. Events, however, are moving apace, and we are reminded of Lord Curzon's warning that "Frontiers are the razor's edge on which hang suspended the modern issues of peace or war, of life or death to nations." It may be hoped that China will realize the value of British friendship in her future ambitions as in her past sorrows, and that she will be willing to meet us in a fair and reasonable spirit on the far-reaching Indian frontiers of Yun-nan and Tibet.

The PRESIDENT (before the paper): The reader of the paper to-night, Mr. Archibald Rose, is going to lecture to us about the frontiers of China and Great Britain in Asia. Mr. Archibald Rose has spent the last twelve years in the Consular Service of Great Britain and China. He was in the siege of the Peking Legations, from which he emerged, I am glad to say, unscathed. He subsequently travelled in Mongolia, and then marched across China from Peking to Sechuan in 1902. He spent two years there, in the course of which he travelled over a great deal of Western China, and came in touch with the frontier problems of China and her relations with her far-Western dependencies. For the last three years Mr. Rose has been stationed as Consul at Tengyueh, on the Burma-China frontier, at a time when the expansion of China in a westerly direction has brought her administrative border to the natural but largely undelimited line which is actually the north-eastern frontier of India. He has had many opportunities of moving about, and of establishing friendly relations with the tribesmen who are wedged into the corner where Tibet and China meet. He has just returned home to this country, having travelled by way of India and Central Asia. Finally, I may add that he received a C.I.E. among the recent honours that were bestowed at the Durbar.

The PRESIDENT (after the paper): I might feel tempted to follow our lecturer this evening in his description of the interesting countries which he has visited, as illustrated by the admirable slides that he threw upon the screen, and which recall incidents that are indelibly fixed in my own memory. But I prefer to say a few words to you on the vastly more important subject which has been raised by his paper, and which he has treated not only with knowledge, but with discretion.



Sketch Map
to illustrate the paper on
CHINESE FRONTIERS OF INDIA
by
ARCHIBALD ROSE
H.B.M. CONSUL, TÊNG-YÜEH, YÜN-NAN.
Scale 1:15.000.000 or 1 Inch = 237 Stat. Miles
Definite Frontier
Approximate "
Railways
RUSSIAN TURKESTAN
CHINESE TURKESTAN
PAMIRS
PERSIA
AFGHANISTAN
BALUCHISTAN
KASHMIR
HINDU KUSH
KARAKORAM MTS
TIBET
CHINESE EMPIRE
NEPAL
BHUTAN
SIKKIM
ASSAM
INDIA
BURMA
CHINA
FRENCH INDO-CHINA
SIAM
ARABIAN SEA
BAY OF BENGAL
CEYLON
Kashgar
Yarkand
Kizil Robat
Kilik Pass
Hunza
Nagar
Mustag Pass
Karakoram Pass
Chitral
Gilgit
Nanga Parbat 26629
Kabul
Malakand Pass
Khyber Pass
Peshawar
Rawalpindi
Srinagar
Leh
Kushk
Lahore
Simla
Quetta
DELHI
Agra
Lucknow
Allahabad
Mt. Everest 29000
Darjeeling
Lhasa
Chiamdo
Batang
Chengtu
Chung-king
Rima
Sadiya
Dibrugarh
Hkamti Long
Ta-li Fu
Yün-nan Fu
Myitkyina
Têng-yüeh
Bhamo
Lashio
Mandalay
Rangoon
CALCUTTA
BOMBAY
MADRAS
Tropic of Cancer
From Krasnovodsk
To Andijan
Amu Daria or Oxus R.
Helmond R.
R. Indus
R. Chenab
R. Sutlej
R. Ganges
R. Jumna
R. Gogra
R. Banas
R. Chambal
R. Son
R. Narbada
R. Tapti
R. Godavari
R. Bhima
R. Kistna
R. Cauvery
R. Mahanadi
R. Brahmaputra or Tsang po
R. Brahmaputra
Abors
Salween
Mekong
Yangtze
R. Yalung
Tung Ho
R. Yangtze
R. Irrawady
R. Salween
R. Mekong
Red R.
60 65 70 75 80 85 90 95 100 105
35 30 25 20 15 10 5



Sketch Map
of the
BURMA-CHINA FRONTIER
Scale 1:7.000.000 or 1 Inch = 110·48 Stat. Miles
TIBET
SE-CHUAN
ASSAM
YÜN-NAN
BURMA
FRENCH INDO-CHINA
SIAM
Abors
Lashi
Lolo
Naga Hills
Batang
Litang
Ta-chien-lu
Ya-chou Fu
Garthok
Atuntze
Rima
Chamutong
Sadiya
Talap
Dibrugarh
Ledo
Hkamti Long
Sibsagar
Chung-tien
Yung-ning
Ning-yüan Fu
Wei-hsi-ting
A-hsi
Li-chiang Fu
Ferry
Pien-ma
Fen-shui Ling
Teng-keng
Ta-chu-pa
Ta-li Fu
Chao Chou
Myitkyina
Yung-chang Fu
YÜN-NAN-FU
Silchar
Manipur
Têng-yüeh Ting
Lung-ling Ting
Shun-ning Fu
Bhamo
Katha
Nam-kham
Kun-long
Lin-an Fu
Pu-êrh Fu
Ssŭ-mao Ting
Chên-pien Ting
Lashio
Alon
Maymyo
MANDALAY
Keng-hung
Myingyan
Thazi
Taungyi
Keng-tung
Luang Prabang
Ramri I.
Prome
Chieng-mai
Pre
Wieng Chan
Nawng Kai
Bassein
RANGOON
Moulmein
Mouths of the Irrawady
Tropic of Cancer
Brahmaputra R.
Dihang R.
Zayul Chu
R. Lohit
Dihing R.
Hukawng Valley
Mali Hka
Nmai Hka
Salween R.
Mekong R.
Yang-tze R.
Yalung R.
Yalung
Yang-tze R.
Tung Ho
R. Chindwin
Taping R.
Shweli R.
Nam-ting R.
Irrawady R.
Red R.
Me-nam
94 96 98 100 102
30 28 26 24 22 20 18 16

Modified Conical Projection with True Meridians and Errorless Parallels 10° & 34° 15'

Published by the Royal Geographical Society.

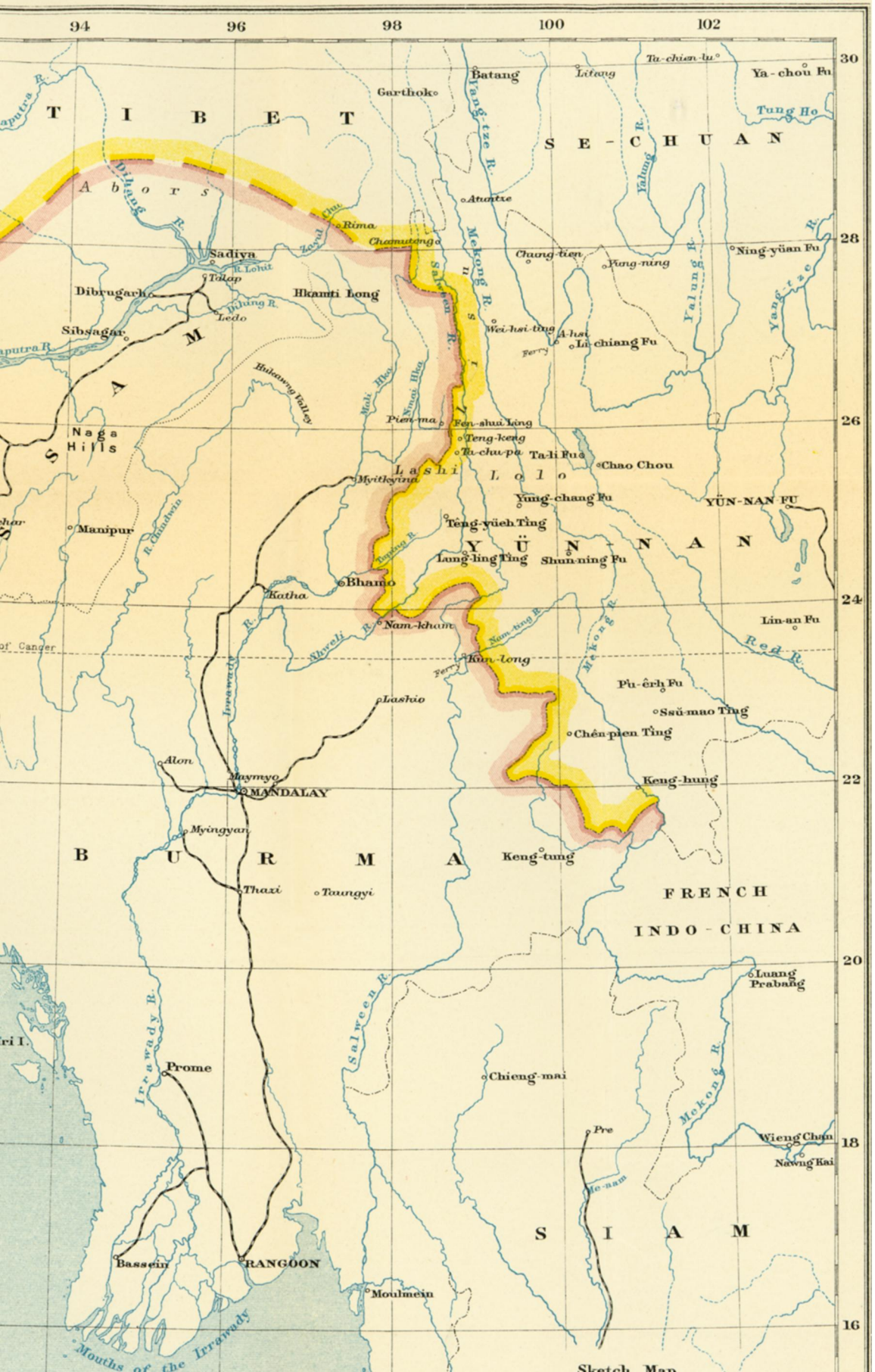
Modified Conical Projection with True Meridians and Errorless Parallels 16° 20' & 27° 40'

INDIA
Rose

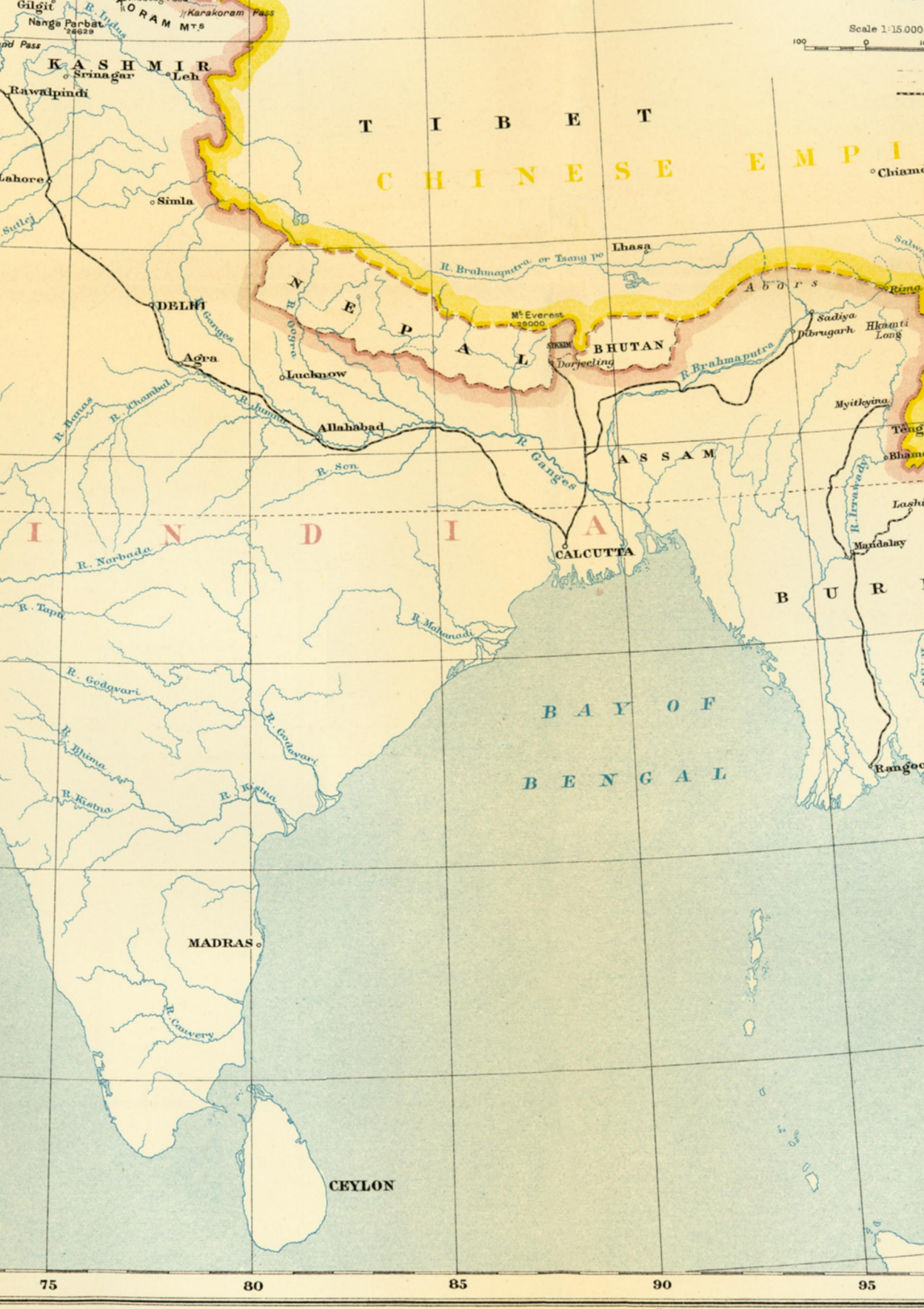

60
65
70
75
80
35
30
25
20
15
10
RUSSIAN TURKESTAN
From Krasnovodsk
To Andijan
Amu Daria or Oxus R.
Kashgar
CHINESE
Yarkand
PAMIRS
TURKESTAN
Kizil Robat
Kilik Pass
HINDU KUSH
KARAKORAM MTS
Hunza
Nagara
K 22250
Mustag Pass
Karakoram Pa
Kushk
Chitral
Gilgit
R. Indus
Nanga Parbat
26629
PERSIA
AFGHANISTAN
Kabul
Malakand Pass
Khyber Pass
Peshawar
KASHMIR
Srinagar
Leh
Rawalpindi
Lahore
Simla
Helmand R.
Quetta
R. Chenab
R. Sutlej
DELHI
Ganges
BALUCHISTAN
R. Indus
Agra
R. Banas
R. Chambal
Tropic of Cancer
I N
R. Narbada
R. Tapti
R. Godavari
BOMBAY
ARABIAN
SEA
R. Bhima
R. Kistna
MADRAS
R. Cauvery


75
80
85
90
95
Kashgar
CHINESE
Yarkand
AMIRS TURKESTAN
Kizil Robat
Kilik Pass
Hunza
Nagara
K 28250
Mustag Pass
Gilgit
R. Indus
Karakoram Pass
KARAKORAM MTS
Nanga Parbat 26629
Pass
KASHMIR
Srinagar
Leh
Rawalpindi
TIBET
CHINESE EMPI
Lahore
Simla
Sutlej
Lhasa
R. Brahmaputra or Tsangpo
NEPAL
Mt. Everest 29000
SIKKIM
BHUTAN
Darjeeling
Abors
Sadiya
Dibrugarh
Hkamti Long
R. Brahmaputra
DELHI
R. Ganges
Agra
Lucknow
R. Banas
R. Chambal
R. Jumna
Allahabad
R. Son
R. Ganges
ASSAM
Myitkyina
INDIA
CALCUTTA
R. Narbada
R. Tapti
R. Mahanadi
R. Irrawady
Mandalay
BUR
R. Godavari
R. Godavari
R. Bhima
R. Kistna
R. Kistna
BAY OF
BENGAL
MADRAS
R. Cauvery


Sketch Map
to illustrate the paper on
CHINESE FRONTIERS OF INDIA
by
ARCHIBALD ROSE
H.B.M. CONSUL, TÊNG-YÜEH, YÜN-NAN.
Scale 1:15.000.000 or 1 Inch = 237 Stat. Miles
100 0 100 200 300 400 500
Definite Frontier
Approximate "
Railways
95
100
105
94
96
30
28
26
24
22
20
18
16
35
30
25
20
15
10
Chiamdo
Batang
Chengtu
Chung king
Rima
Sadiya
Dibrugarh
Hkamti Long
Myitkyina
Ta-li Fu
Yün-nan Fu
Têng-yüeh
Bhamo
Lashio
Mandalay
Rangoon
Sibsagar
Naga Hills
Silchar
Manipur
Tropic of Cancer
Alon
Myingyan
Ramri I.
Prome
Bassein
Mouths of the Irrawady
Brahmaputra R.
R. Brahmaputra
R. Irrawady
R. Salween
R. Mekong
R. Yangtze
Yang Tze
Mekong
Salween
Irrawady R.
A b o r s
C H I N A
B U R M A
FRENCH INDO-CHINA
S I A M
E M P I R E


94
96
98
100
102
30
28
26
24
22
20
18
16
T I B E T
S E - C H U A N
Ta-chien-lu
Ya-chou Fu
Batang
Litang
Garthok
Tung Ho
Yang-tze R.
Yalung R.
Abors
Dihang R.
Zayul Chu
Rima
Chamutong
Atuntze
Mekong R.
Salween R.
Sadiya
R. Lohit
Tilap
Dibrugarh
Hkamti long
Ledo
Hpung R.
Sibsagar
Changtien
Yung-ning
Ning-yüan Fu
Yang-tze R.
Wei-hsi-ting
A-hsi
Li-chiang Fu
Ferry
Hukawng Valley
Mali Hka
Nmai Hka
Pien-ma
Fen-shui Ling
Teng-keng
Ta-chu-pa
Ta-li Fu
Chao Chou
Naga Hills
Myitkyina
L a s h i
L o l o
Yung-chang Fu
YÜN-NAN FU
Manipur
R. Chindwin
Teng-yüeh Ting
Y Ü N - N A N
Lung-ling Ting
Shun-ning Fu
Tapeng R.
Katha
Bhamo
Nam-kham
Nam-ting R.
Mekong R.
Lin-an Fu
Shweli R.
Kun-long
Red R.
Pu-êrh Fu
Lashio
Ssŭ-mao Ting
Chên-pien Ting
Alon
Maymyo
MANDALAY
Keng-hung
Myingyan
B U R M A
Keng-tung
Thaxi
Taungyi
FRENCH
INDO-CHINA
Irrawady R.
Luang Prabang
Salween R.
Prome
Chieng-mai
Mekong R.
Pre
Wieng Chun
Nawng Kai
Me-nam
S I A M
Bassein
RANGOON
Moulmein
Mouths of the Irrawady
Sketch Map

Modified Conical Projection with True Meridians and Errorless Parrallels 10° & 34° 15'



Published by the Royal Geographical So

Published by the Royal Geographical Society.

Modified Conical Projection with True Meridians and Errorless Parallels 16° 20' & 27° 40'

Sketch Map
of the
BURMA-CHINA FRONTIER

Scale 1:7,000,000 or 1 Inch = 110·48 Stat. Miles

50 0 50 100 150 200

cal Projection with True Meridians
Parallels 16° 20' & 27° 40'

INDIA
Rose

The most remarkable politico-geographical fact of the modern world is the degree to which, in Asia, and much more in Africa, frontiers are growing together, and parts of the world which have hitherto been remote and regarded as unapproachable, are falling under the influence of this or that great Power. "No man's lands" are rapidly disappearing. Independence is giving way to protectorates and spheres of influence. Boundaries which a few years ago were fluctuating, or traditional, or in some cases non-existent, are becoming fixed, regular, and defined. Probably within the lifetime of most of us within this room there will scarcely be a portion of the globe over which the flag of some substantial Power will not fly. Hitherto this process has been in the main due to the advance of great European Powers. In Asia, they have been Great Britain, Russia, and France. But the lecturer this evening has taken us, so to speak, into another world, and has exhibited to us for the first time, at any rate during the past century, China as a growing, a pushing, an advancing, even an aggressive Power. Now although, as he pointed out to us, there may have been evidences of such an inclination on the part of China at times in her past history, broadly speaking this is a new phenomenon that he has described. It is one which it is desirable that we in this country who are interested in our Eastern possessions should regard with a watchful, although certainly not with a jealous eye. Mr. Rose, in his paper as he has read it, and still more in the form in which it will be published, has taken us round the Indian frontier and shown us the different points at which we are already or presently will be in actual touch with China. On the west there is the common frontier of the Pamirs. Then there is the frontier beyond the Karakoram. Proceeding eastwards, we come to the points where Chinese territory abuts very closely upon the states of Nepal, Sikkim, and Bhutan. This brings us in contact with the Tibetan problem. Further east we come to the Chinese frontiers on the borders of Assam, and finally to the frontier of Burma and China in Yunnan. A few years ago over the whole of this stretch of territory there was a belt of petty states or wild tribesmen between these two great Powers. In the majority of places it still exists, but it is becoming contracted, and we have to face the fact that in a very short time it will in all probability disappear.

The two most conspicuous scenes of China's advance are in the first place Tibet, and secondly the Yunnan frontier. This is not the occasion on which it would be proper for me to make a speech about Tibet. But I greatly regret that China has been encouraged by our action or inaction to resume and tighten, I may even say to re-create, what was only a nominal suzerainty over Tibet; and I think it an unfortunate thing that when, owing to the success of Sir Francis Younghusband, the Tibetans had been left with so friendly a disposition towards ourselves, they should have been allowed once again to fall into a position of subjection, if not of servitude, to another Power. I pass on from that to the boundaries of Burma.

This is no new question, for during the whole time I was in India one of the minor problems that occupied my attention was the frontier question of China on the borders of Burma. Attempts at delimitation were proceeding throughout that period. There were, however, difficulties, because we had to deal with Chinese officials who were left to act much as they pleased—and who were usually aggressive and sometimes impossible. Again, troublesome incidents used to occur in the course of contact with the wild tribes, and I remember that two of our own officers were murdered. The Government of India always set before themselves that which I am sure they are pursuing at the present moment, namely, the desirability of fixing a boundary which should be identical with the physical watershed.

There is a third point on this frontier of which I will only say this, that I hope

that at no time will there be any misunderstanding about the fact that Nepal, Sikkim, and Bhutan are states which fall within the political frontier of India, and that in no circumstances whatsoever would any other Power be allowed to tamper with them.

In the concluding parts of his paper Mr. Rose spoke of the future that lies before us in those regions, and he employed terms with which I find myself in entire concurrence. I venture to lay down as a general proposition to guide us that it will be wise for our Government, wherever we can, to fix definite frontiers with China, and, as a necessary corollary, not to allow those frontiers when determined to be encroached upon or impaired. It does not necessarily follow, if you fix a frontier, that you need carry your administrative functions right up to it. It follows no more in the extreme north-east than in the extreme north-west, where, as you know, our administration in some cases stops far short of the boundary which is the line of political influence. Although I have often heard British and Indian Governments accused of aggressive designs, I have never yet myself met a Government which was anxious to extend its rule over turbulent mountain tribes, and I should say that all that we want in fixing a frontier is that it should be recognized and kept by the Power that is upon the other side, and that the tribes which lie upon our side, while recognizing our political influence, should refrain from intriguing across the border or from harrying those who are within our political boundary. Those are the general conditions that we endeavour to create upon the frontier, and I hope that a steady policy of delimitation will be pursued by those responsible during the years that lie before us.

I agree with the lecturer in saying there is no reason why there should be any quarrel between ourselves and the Chinese over these matters. The general temper of that people is affable. Their respect for the English is greater than that of any other foreign power. The surest way, however, to avoid a quarrel is to show decision and firmness in the early stages; to fix your frontier and make it quite clear that you will not allow it to be infringed.

Finally, Mr. Rose spoke in language of enthusiasm and also of some pathos about that band of young officers of whom he is one, and who have done and are doing such magnificent work on the borders of the Indian Empire. My spirit also thrills within me whenever I think of those men, and certainly I have never been more proud in my life than when in any capacity I have felt that I was leading or inspiring them to good work. Mr. Rose mentioned among them Mr. George Litton —a great loss to the Indian Empire—a man of fine character and eminent public service. I would go as far as to say that if I were asked at the present moment where is the finest work being done by Englishmen, I would not point to the British House of Commons, nor even to the cricket-field at Adelaide (although pretty good work is being done there), but I would look to the frontiers of the Indian Empire, and to the work that is being accomplished by Mr. Rose and people like him.

The last point that occurs to me is this—Can there be a greater mistake than to suppose that the work of exploration is over? Is it not quite clear, when you follow Mr. Rose's journeys, and still more when you study the map, that there are in those parts of Asia alone hundreds of thousands of square miles of interesting and unknown territory still waiting to be visited and explored? It is my conviction that there is enough work for travellers and explorers for the next hundred years to come. I believe myself that successive Presidents of the Geographical Society will, for the next fifty years at any rate, have the pleasure of handing our Medals to geographers whose services will be at least as great, if not perhaps as showy, as those who have received them in the past. And when these fifty years of

geographical exploration have come to an end, I think it will take the geographers of those days at least another hundred years to digest all that this country will have swallowed in the preceding century.

I will now ask Sir Francis Younghusband to say a few words, and before he rises may I take the opportunity of congratulating him on what I hope is a complete recovery from a very dangerous accident and a very serious operation.

Sir FRANCIS YOUNGHUSBAND: Mr. Rose, in the extremely interesting and valuable paper only a portion of which he has been able to read to us this evening, dwelt upon the great and impressive personality and vitality of the Chinese, and the whole of his paper was a practical illustration of the effects of the personality and vitality of this remarkable people. Wherever you see a Chinaman, you are always deeply impressed by the strength of his individuality. If you meet him on the far borders of his empire, in Turkestan, Mongolia, or Tibet, he is always precisely the same as he is at the heart of his empire, and with that strength of personality he impresses to a very remarkable extent those tribesmen and frontier people with whom he is brought in contact. The vitality of the race is equally remarkable. When I used to look at those thousands of Chinamen amongst whom I travelled, I was always noting to myself that there appeared to be a regular sea of latent possibilities in them. For years and years they remain perfectly calm, and not a ripple appears on the surface; yet you feel all the time that underneath this calm there are immense vital forces ready to break into operation at a moment's notice, and I think at the present time we are in the face of one of these convulsions which occasionally break forth from the Chinese millions. At these times they throw up some great personality, and in the case of Tibet in the few recent years we have seen that very remarkable man, Chao-erh-feng (who, I believe, has recently unfortunately been murdered), who certainly showed a very conspicuous ability, force of character, and energy, first in reasserting whatever Chinese influence there used to be over those semi-independent tribes between China and Tibet, and eventually in asserting a regular Chinese domination over Tibet itself.

Well, when there is on one side of this magnificent natural barrier of the Himalayas 400 millions of Chinese with all these latent possibilities in them, we on the other side who have in our charge 300 millions of another type of Asiatics must necessarily take the profoundest interest in that most conspicuous natural feature on the globe, the Himalayas, and the watershed which roughly forms the frontier, from where the three empires of Russia, China, and India meet for 3000 miles down to Burma. For myself personally I have always taken a very special interest in this frontier, firstly because I happen to have been born on it, and secondly because I have spent the best years of my life, first of all in exploring, and afterwards in conducting our relations with the various peoples who inhabit it on both sides. We have, I think, now acquired a very fair knowledge, from the political, military, and business point of view, of this frontier. We know pretty well the portions across which no human being can possibly pass; we know those other parts over which it is just possible to scramble; and we know those others, of which some very remarkable pictures were given by Mr. Rose, and where small forces can, with difficulty, pass along. We know also the caravan tracks. The barrier, though a great one, is not absolutely impregnable. From the Chinese side there has been from time to time incursions to the Indian side, and from the Indian side into the Chinese. But while we have this information on the military and political aspect, there is, as Lord Curzon has very justly remarked, a very great scope still for geographical exploration. Only last year Dr. Longstaff related to us how he had discovered a mountain which has proved to be 24,000 feet in height. All the tract

round the mountain, on the far side of the Karakoram range, at the source of the Oprang and Yarkand rivers, has still to be explored. There is also the great geographical problem of the junction of the Sangpo river and the Brahmaputra to be solved, and there is the further problem of the sources of the Salwin. For many years there is ample field for geographical exploration on the far frontiers of India.

Sir HERBERT THIRKELL WHITE: I am very glad to have your permission to say a few words this evening, for of the important part of the frontiers which Mr. Rose has so admirably described I have some recent knowledge. I was familiar with the Burmese frontier of China both before and after the establishment of the Consul-Generalship at Yunnan-fu and the Consulate at Tengyueh. And I gladly bear testimony to the great improvement that has been effected in our frontier relations, and to the loyal and capable assistance which we in Burma have always received from Mr. Rose and his distinguished predecessors, among whom I may mention Mr. Litton, whose premature death was a loss to the Empire, Mr. Wilton, Mr. Sly, and Mr. Ottewill. Although, of course, in no sense under the Government of India or the Government of Burma, advice and assistance have always been voluntarily and most readily given to us, and many measures of value to Burma have been initiated by the Consular officers. It is by their help that frontier disputes are now settled amicably at periodical meetings with Chinese officials. It was owing to their good offices that we were able to survey the projected line of railway from Bhamô to Tengyueh. And I venture to hazard the prophecy that this is the route by which some day Burma will be linked with China by rail. It is mainly due to the hearty co-operation with the Chinese frontier officers that our relations with the Chinese have of late years been exceedingly cordial and satisfactory. I am sure that this good tradition is being and will be maintained. Mr. Rose has given us a characteristically modest account of his journey to Pienma. It was a very hazardous and difficult journey, and it was of extreme value in connection with the settlement of our frontier on the north-east of Burma, which it is not desirable that I should more than mention. On the whole, during the twenty-six years that have elapsed since our occupation of Upper Burma we have found the Chinese good neighbours. Yunnanese particularly we welcome as settlers and traders. There is need, if I may discreetly say so, of constant and watchful care against attempts at encroachment, but so long as that care is duly exercised, so far as the Burmese portion is concerned the order and peace of our frontier will be maintained.

The PRESIDENT: We have here present one whom I think you would like to hear, Mr. Claude White, who is our greatest authority on that part of the Indian frontier which embraces Bhutan and Sikkim. He was in charge of our political dealings with those states at the time of the Tibetan campaign, and did more than anybody else to secure the happy relations that now unite us with the rulers of those states.

Mr. CLAUDE WHITE: I have not much to say on this subject. The only part of the frontier I know anything about is that of Sikkim and Bhutan, and in those two countries I had very few communications with Chinese officials, and had very little to do with the Chinese generally. As Lord Curzon said, these two countries must be, and always will be, I hope, quite distinct, and always be under the protection of the British Government, and not under that of China. I am also sorry that the Tibetans have been brought so much under the influence of the Chinese. Personally I should have liked to have seen them more independent, and, as Lord Curzon has said, more of a "buffer" state. The Bhutanese have taken up our side entirely, and there is no question of the Sikkimese. I believe the Chinese have made some

overtures to Bhutan and Nepal, which have been rejected by these states, and I am very glad they have been. The Chinese should not be allowed on the Indian side of the Himalayas.

The PRESIDENT: We will conclude with a vote of thanks to Mr. Rose for his excellent paper.

EXPLORATION IN THE ROCKY MOUNTAINS NORTH OF THE YELLOWHEAD PASS.*

By J. NORMAN COLLIE, Ph.D., LL.D., F.R.S., F.R.G.S., etc.

THE part of the Rocky mountains, that run north through what is now the Dominion of Canada, have only in the last twenty-five years been made accessible to the ordinary traveller. In 1886 the trans-continental railway, the Canadian Pacific Railway, was opened. Before that time it would have taken many months journeying across the prairie to reach even the outlying foothills, whilst from Vancouver on the Pacific it is impossible to say how long would have been spent fighting with the canyons of the West, that are filled often with the densest forest, and down which the waters of countless rivers run.

The history of this "Great Lone Land" is practically the history of the fur trade; of late years the prospector has wandered through many of the valleys leading up to the main chain, but still most of the country lying within 20 miles of the watershed is almost unknown. No human beings live there, Indians seldom penetrate into these mountain fastnesses, the land is deserted. It is not a country that appeals to the settler; narrow valleys filled with pine forests, with swamps or muskegs; rapid rivers, and not too much arable land; it would yield no crops, neither is there grass except in a few isolated spots. The snow, too, begins to lie in October, and it is not till the following May or June that it clears away.

The first man who crossed the continent in these latitudes was Sir Alexander Mackenzie in 1793; he crossed the mountains at the head-waters of the Peace river. From 1799–1814, Alexander Henry, one of the hunters of the North-West Company, kept a diary of his journeys in Western Canada; † in it one can find much information of the wild life of the pioneers of those days. During the same period David Thompson collected an immense amount of knowledge about the same districts. He discovered the source of the Columbia river; he was the first to cross the mountains by more than one pass; but his greatest achievement was "a Map of the North-West Territory of the Province of Canada." In 1809 Simon Fraser and Jules Quesnel explored the Fraser river to its mouth.

* Royal Geographical Society, January 29, 1912. Map, p. 312.

† 'The Manuscript Journals of Alexander Henry, Fur-trader of the North-West Company, and of David Thompson, Official Geographer of the Same Company.' Edited by Elliott Coues. 3 vols. 1897.

otherwise, must feel themselves under a debt of gratitude to Mr. Smith for work he has done.

Major DARWIN: I know nothing about New Guinea myself, but, as you know, I have been to many lectures in this building. There are three qualities every explorer must have: he must have personal courage, he must have forethought, and he must have the aptitude of making friends with the natives. I think our lecturer has been conspicuous in all these three qualities. Only one other thing is necessary, and that is a bit of good luck. Whether to say he had good luck or bad luck, I do not know; he had extremely bad luck in certain respects, but he had the good luck that he was not drowned, and on that I think we all congratulate him. He evidently ran very great risks. I am sure I may, in the name of everybody present, congratulate him on his success, and thank him for his most interesting lecture.

JOURNEY THROUGH A PORTION OF SOUTH-EASTERN TIBET AND THE MISHMI HILLS.*

By Captain F. M. BAILEY.

THE following account of a journey through a small unsurveyed portion of south-eastern Tibet and the Mishmi hills may be of interest in view of the military and political measures recently taken in consequence of the murder of Mr. Williamson and Dr. Gregorson by the Abors.

I travelled out by the Siberian railway, and after being detained for a week in quarantine, on account of the plague which was raging in Manchuria, reached Peking on March 8, 1911. Having spent a week in the capital and obtained a passport, I took the train to Hankau, where it was necessary to wait for some days before an up-river steamer left for Ichang. From Ichang I passed up through the Yangtse gorges, about which so much has been written, in company with Mr. Hill of the Chinese Customs, who shared a house-boat with me for this part of the journey; unfortunately, we were wrecked in one of the rapids, and obliged to pass the night in the open. On reaching Wan-Hsien, I spent two days with Mr. and Mrs. Ortolani, of the Imperial Post Office, while making preparations for my 400-mile journey to Chengtu. At Chengtu I enjoyed the hospitality of Mr. Wilkinson, H.B.M.'s Consul-General, for a few days before continuing my journey. At Ya-chou Fu I called on one of the large firms engaged in the Tibetan tea trade, and saw coarse tea-bricks being made. At Ta-chien-lu, where the first Tibetans were met with, I sent back a useless Chinese servant who had accompanied me from Peking, and took in his place a Tibetan, who remained with me until I was about to enter the Mishmi country.

From Ta-chien-lu I made an excursion in search of Takin (*Budorcas taxicolor*) to a place some 15 miles to the south, crossing a pass called Boi La (13,240 feet), which on May 14 was covered with snow about a foot deep. From here some very distant snow mountains were visible to the

* Map, p. 420.

south and to the south-west, the latter range being somewhat the nearer of the two. Below the pass I saw some magnificent yellow poppies, one of which measured 6½ inches in diameter. I was unsuccessful in my search for Takin, though many tracks some months old were visible. On this trip I saw game birds of many kinds: snipe, woodcock, and pheasants of five varieties, as well as partridges and two varieties of snowcock;* there was also a large bird, called *Cha na* in Tibetan and *Huo tan chi* in Chinese, which lives at the snow-line, but I was unable to get a view of it and could not shoot a specimen. Besides tracks of Takin, I found those of serow and musk-deer, and close to Ta-chien-lu I saw three stags which had been taken in the neighbourhood and were kept in captivity. It was said that there were burhel (*Ovis nahura*) on the Boi La To (pass), but, though I spent a day in the search, I did not succeed in finding them. I left Ta-chien-lu finally on May 19, and in five marches reached Ho-kou, or Nyachuka as it is called in Tibetan, where I found a French engineer, M. Kerihuel, engaged in building a suspension bridge over the Yalung river. The next place of importance on the road was Litang, where, by invitation, I stayed in the large lamasery. On June 2 I arrived at Batang, where I was the guest of Mr. and Mrs. Edgar, of the China Inland Mission; and here I was able to obtain cash from a merchant for a cheque on Shanghai.

In company with Mr. Edgar I left Batang on June 6, and was fortunate in having as a companion a man who is not only a keen traveller and observer but has a thorough knowledge of both the Chinese and the Tibetan languages, and whose familiarity with the conditions on this frontier is unsurpassed.

Our first objective was Yen-ching on the Mekong. In some villages on the road we visited schools in which Tibetan children were being taught by Chinese schoolmasters. Such schools have been opened wherever twenty pupils can be collected, and attendance is compulsory for children living near them. Outside the school-house were some simple gymnastic appliances, and a time-table with a list of rules was posted on the door. The subjects taught were geography, history, literature, reading, Chinese, recitation, arithmetic, hygiene, drawing, singing, drill, and science; while the rules for conduct in school were the following: "Don't whisper; don't eat; don't fight; don't speak Tibetan; don't recite '*om mani padme hum*' or other prayers; don't carry knives; don't be dirty; don't dirty the desks." Boys and girls were in separate class-rooms, and the ages of the pupils, who were all doing the same work, varied between four years and twenty; they worked for five hours a day on six days a week.

Chinese influence is making itself felt to a considerable extent in the borderland, as is evidenced by these schools. An attempt is also being made to change the Tibetan names of places and to substitute Chinese names; these latter are in some cases a translation of the Tibetan word,

* See footnote (*) at the end.

but sometimes they are merely a rough transliteration. The people are bound to take Chinese personal names, which so far are only being used by the Chinese in the law courts, but it is hoped that, eventually, they may entirely supplant the Tibetan ones. A list of suitable Chinese names has been drawn up, and each Tibetan can choose whichever of them takes his fancy.

On passing Pamutang a few days after leaving Batang, we made a slight *détour* and crossed the Tibetan frontier by the Ning Ching Shan or Po La, a pass where the Tibetans used to maintain a guard of soldiers. From this pass we saw three distant snow-peaks to the south-west. The pass being unoccupied, we went down to the village of Lanteng (or Lhamdun), where we found a party of Chinese soldiers on the march from Chiamdo. We boiled a thermometer here, and obtained an altitude of 12,727 feet. We recrossed the frontier into China the same day. On June 10 we crossed the Kia La (14,894 feet), from which pass we had a view of the hills across the Mekong, but the top of the range was in cloud. Opposite to us we could see the lamasery of La Gong, approached by the very steep zigzag path up which we were to travel the next day. It was late when we reached Yen-ching, and as we were anxious to cross the bridge at once, we passed the town on our left hand, and descended through the steep valley which separates the plateau of Yen-ching from that of Yerkalo, where there is a French mission station. On reaching the bank of the Mekong, we went a few hundred yards down stream to the rope bridge, which we crossed, and then put up in the village of Jada close to the salt wells. The river was swift, very muddy, and of a reddish colour. As the result of a hypsometrical observation, we found the altitude of the Mekong at the bridge to be 7300 feet. Yen-ching is known in Tibetan as Tsaka, both names indicating that salt is found here. The next morning we went to see the wells. The brine is collected in circular pools about 2 feet deep and 3 or 4 yards in diameter. From these it is taken in birch bark buckets and poured into other and shallower pools underneath drying pans made of earth spread on wooden platforms, which in the distance look like the flat roofs of a large village. Here it is left till, some of the water having evaporated, it becomes stronger. This brine is then poured into the drying pans. The sun beating upon these evaporates all the water, leaving a thin layer of white salt, which is then swept up with a broom; but a good deal of red earth from the pans is mixed with it, and this gives the salt a dirty reddish appearance. It was at this bridge that Major Davis and his companions were turned back in 1900; the lamas fired on the party and eventually cut the rope bridge. These hostile monks came from the lamasery of La Gong, which we passed through the next day. It had been sacked by the Chinese in 1907, and at the time of our visit was in charge of a small guard of Chinese soldiers.

Having successfully passed Yen-ching, we decided to make for Menkong, on the Salween. We left the Mekong on June 11. On our second

day's march we crossed the watershed between the Mekong and the Salween at the Beda La (15,209 feet). There was aconite on the pass, and our transport ponies were therefore muzzled, but we passed an unfortunate man whose pony had eaten the poisonous plant and was dying. He begged us to help him, but we could do nothing, and later in the day he overtook us, his animal having died.

There are said to be stags in the forest near here, but I saw only two gooral. The road up the Beda La was through a forest of fir and pine in which were many beautiful rhododendrons, the lower ones had mauve flowers, while higher up the flowers were white; there were also apricot trees bearing unripe fruit. After crossing the pass, we stopped in the large village of Petu, which M. Bacot had previously visited. This village, with a few outlying farms, has about one hundred inhabitants, besides a lamasery of fifty monks. Our small room was invaded by a friendly crowd of both monks and laymen, to whom Mr. Edgar gave tracts which those able to read devoured with great interest; they frequently tie them along with Tibetan prayers to bridges, or to trees near water or their houses. The women wear a quantity of cheap jewellery. The houses in this neighbourhood are roofed with pine shingles kept in position by heavy stones, while the houses at Yen-ching, those at Wabo further down the Drayul Chu, and also those in the Salween valley at Menkong, have the usual flat Tibetan terraced roofs. The Drayul Chu flows past the Yenchin village; it was crossed by A. K. at Drayul Gompa, some three days' journey further north, and he describes it as being 60 paces wide and 3 feet deep. At Petu it cannot be more than 30 yards wide, and this is also the width at a bridge 3 miles further down-stream, but the depth must be considerably more than 3 feet. This river, as we shall see, performs some wonderful geographical gymnastics before it finally falls into the Salween. Like all rivers of any size in this part of the world, it receives a different name every few miles. At Petu the soil yields two crops a year.

After leaving Petu, we crossed a pass, the Tong La (10,797 feet), only to find ourselves again in the valley of the Drayul Chu, which makes a long bend to the south, and again a smaller loop which we could see in front of us. From the Tong La, distant snows were visible to the south and south-west. Before reaching the village of Wabo, we could see the junction of the Drayul Chu with that of the Salween, though we could not see the actual streams at the bottom of the deep valleys. The country here has a bare, arid appearance, but the tops of the hills show signs of a damper climate, being covered with fir and pine forest; lower down is a thick belt of prickly oak, and below that again a small thorny scrub. There are many villages in which crops of barley were being cut, water being brought from the hills in log troughs. The hills are very steep. At the point where we left the Drayul Chu the river issues from a precipitous gorge, and turns sharply to the north. At the village of Ke, a few miles from this bend, it is about 30 yards wide, and 7480 feet above

sea-level. I obtained a specimen of a snake* near the village of Ke. On leaving the Drayul Chu we crossed the Tondu La (11,240 feet). As we ascended, we passed through the damper zone, where we found the dry-looking shrubs giving place to firs, pines, birches, and rhododendrons, while the ground below them was carpeted with ferns. Our view from the pass to the north was interrupted by the forest through which we had just passed, but that to the south was very striking. The Salween could be seen flowing almost due south, hemmed in by high hills, bare at the base but with a belt of forest higher up, while on the summits were patches of snow with an occasional upstanding snow peak. Spurs came down from the ranges on either side, and the river twisted among these. A few villages could be seen on the banks of the Salween, and the valley running to the river from the pass on which we were standing was well cultivated. After descending steeply from the pass, we reached the village of Lonbo, where we spent the night. The people here were thrashing corn with flails. The next day we were obliged to make a small diversion from the main road to Menkong in order to change our transport animals at the village of Trana. At this point the Salween flows west, but at Trana it takes a turn to the south. The hills are precipitous, with scanty dry vegetation, among which a cactus-like plant, with an orange-coloured flower, was conspicuous.† The Salween is a swift, muddy river, very similar to the Mekong at Yen-ching. We crossed by a rope bridge, and found the altitude of the river-bed to be 6056 feet. It is here called the Gyamo Ngo Chu. A steep climb of 1000 feet from the bridge brought us to the village of Menkong, where we found a small garrison of Chinese soldiers. Apricot and pomegranate trees were growing in the village. Here we found the Tibetans keeping slaves of some race of very small stature (men about 4 feet 8 inches; women about 4 feet 4 inches); they were said to have come from a country which the Tibetans call Tsong, seven days to the south of Menkong. They did not know anything of their own history, they could speak no language but Tibetan, and wore Tibetan dress. They were well treated by their masters. One of the female slaves had a tattoed face. On first reaching Menkong, the Chinese found among the slaves some Chinese whom they liberated, but they allowed the Tibetans to retain slaves who were not Chinese. A mile from Menkong there is a lamasery with about sixty monks, but we were unable to spare time to see it. I was anxious to take an observation for latitude at Menkong, but cloudy weather prevented my doing so. From here Mr. Edgar returned to Batang by the route we had followed thus far together, and I was not to see a white face again until I reached Sadiya. I was sorry to lose my companion, whose experience of travel in the country and knowledge of Chinese were invaluable.

My road lay up the bank of a tributary which joins the Salween at Menkong. There were extraordinarily large numbers of butterflies here,

* Identified by Mr. G. A. Boulenger as *Coluber tæniurus*, Cope.

† Prof. Balfour thinks that this is probably a Euphorbia, perhaps *E. antiquorum*.

almost all of one species, *Neope agrestis*. A steep ascent brought me to a pass, the No La (14,128 feet). The weather was very cloudy, and I could not see much of the surrounding country, but caught a glimpse of snow-mountains to the east. After crossing the range, I found that the streams flowed to a river in a valley lying north-east and south-west. I was unable to determine with accuracy in which direction this river flows; but I think it most probable that it is towards the south-west to join the Irrawady, and that it does not flow into the Salween. The next day, June 17, I had to cross a higher pass, the Tsema La (15,676 feet). On this there was a good deal of soft snow, which caused some trouble to my ponies. The hills around the pass are steep and rocky, the hollows being filled with snow. The weather was cloudy, but I got a brief view of distant snows to the north-west. This pass is closed in winter for animals, but men can always cross it over the snow. After descending from this pass, and following a stream for some miles, I reached a river some 20 yards wide; this is an upper branch of the Irrawady. I asked whether the water did not flow into the Salween, and was told that it did not, but that it went to a country called Lhoka or Tsong. Here the valley of the Irrawady is about 11,500 feet above sea-level. The tops of the hills are grassy, with outcrop of rock, below which is a belt of fir forest, while the bottom of the valley is open grass, on which many ponies and cattle were grazing. There were a few belts of firs or junipers across the grassy valley. I noticed clematis in flower on these trees, and I collected some specimens of Cypripedium orchids (*C. lutea* and *C. tibeticum*). The few habitations are very poor rough huts with roofs of pine shingles, and a few fields are occasionally met with, but the crops are uncertain. I heard the call of the large white pheasant (*Crossoptilon*), but did not see the bird. The saddle-cloth commonly used here is a burhel skin, these animals being found on the surrounding hills. On June 18 I stopped at the village of La Gyap, whence I noticed a snow-peak at the head of a valley to the north. I was told that a place called Gula is situated in this valley. After marching for two days up the Irrawady, I came to the foot of a pass, the Tsong La, where I found a circular lake about 150 yards in diameter, to which a border of rhododendrons gave quite an artificial appearance; I shot a partridge, and noticed both blue and yellow poppies. The main branch of the river I had followed for the last two days was here only about a yard wide, and took its rise in the snow-covered hills to the north of the pass. The Tsong La, which was found by hypsometer to be 14,913 feet high, was clear of snow, though there were some drifts on the roadside. The water west of the Tsong La joins with a stream which flows due south, and must be the headwaters of the Tarawan, which passing through Kamti Long joins the Irrawady.

At the Zhasha La, a pass 15,711 feet above the sea, which I crossed on June 20, I left the Irrawady basin and entered that of the Zayul Chu. On the pass there was very little snow actually on the road. After crossing

it, the road follows down the open valley of a stream which, after about 8 miles, enters a gorge and eventually joins a larger stream at a village called Michi (11,937 feet). This is the place which A. K. visited on April 21, 1882, giving it the name of Rika, which is the name of one of the houses; the village is sometimes called Michi-Rika, but Michi is the commoner name, and I did not hear A. K.'s name for the place until I had made inquiries about it. There are some hot springs here, in one of which I bathed, the temperature being 115° where the water issued from the ground. My next day's march to Drowa Gompa was along the road followed by A. K. twenty-nine years previously. At about 6 miles from Michi I noticed a considerable stream bursting from the hillside on the left bank of the river. Drowa Gompa (8746 feet) is a large village of log huts with roofs of shingles held down by stones. The people about here, and to some extent at Menkong, wear an under-jacket of blue cloth edged with red, which gives it the appearance of a kind of uniform. They carry knives in sheaths of wood, one side being open and the knife held in leather thongs, much as do several of the tribes in the Eastern Himalayas; I once bought a sword in a sheath like this from a Mohammedan who was passing through Tibet on his way from Central Asia to Mecca. The people of south-eastern Tibet carry primitive chopsticks formed of a single splinter of bamboo bent double and kept in the sheath with the knife. These people are great snuff-takers. The snuff-box of south-eastern Tibet is of a peculiar kind; a small circular wooden box has a piece of cloth stretched tightly across the mouth, on the top of which the lid fits; the box is turned upside down and given several sharp taps, which force some of the snuff through the cloth into the lid; this is then removed and the snuff is taken from it. In his table of population A. K. states that there is one lamasery of fifty monks, and twenty-five houses with only five inhabitants; I quite expected that this last statement had been made in error, but I found that, as usual, he was right, and that there were many empty houses. The lamasery now only supports fifteen monks. Finding the people here very friendly, I proposed going to Sanga Chu Dzong, and to this they raised no objection. In this and several other villages I was asked if it was a fact that we were ruled by a woman, and whether it was true that in my country women had much more power than men, who were always obliged to walk, while women were allowed to ride horses.

The road to Sanga Chu Dzong passes up the Zayul Chu in a northerly direction. At Drowa Gompa the river was about 30 yards wide, the water being muddy and of a grey colour. After going up for some miles, I reached a place where the stream narrowed to about 7 yards and flowed partly under the overhanging rocky bank. Here the road crossed to the right bank of the river by a single-span log bridge. At one point a road up a branch of the river leads to a place called Trong-yu. On the left bank, at about 13 miles from Drowa Gompa, there is a fine precipice with a sheer drop of about 1500 feet. The river was a foaming mass of dirty water

the whole way from Drowa Gompa. There are very few villages. The regular stage, at which I stopped on my return journey, is Loma, famous for the wooden bowls which its inhabitants make. Here I saw potatoes growing, and a kind of *dal*, called in Tibetan *Sanchu*, besides barley and peas. The people wished me to go to a place four days' journey to the east, where they said that stags and burhel, with other kinds of game, were very plentiful, but I had not time to do this. As one approaches Sanga Chu Dzong, the road passes through thin forests of fine pine trees in which parroquets * were nesting. Near Sanga Chu Dzong the valley opens out, and there are many scattered farm-houses with much cultivation. This place is called Goschen; and Sanga Chu Dzong, a large group of houses, can be seen on a spur 4 miles to the west. Goschen must be a healthy place, to judge by the number of old people who sit on the roofs of the houses turning prayer-wheels; one intelligent old man told me that he was eighty-two, and had made a pilgrimage to Lhasa sixty years ago. I noticed the horn of a burhel on the roof of a house—the first tangible evidence of the presence of this animal that I had seen for some time. On June 24, at the invitation of the monks, I moved over to Sanga Chu Dzong, traversing the intervening four miles over a plateau covered with scrub, through which two branches of the Zayul Chu cut ravines 500 feet deep. On arrival at Sanga Chu Dzong, I found a crowd of monks, all anxious to get their first sight of a white man. I was housed in a fine brick building close to the monastery. The dzong was deserted and in ruins, as were most of the other houses, but the lamasery was in good repair. There were about seventy monks. In the absence of the abbot, the head monk sent some of the monastery officials to me with a teapot of buttered tea and some boiled rice. I paid a visit to the lamasery, where I was given a meal. There were some fine images in the temple, and a particularly striking row of *chortens* beautifully ornamented. I also saw two copies of the *Tan Jur* and one of the *Kan Jur*, which had been printed at Netang, near Shigatse. In return for their politeness I sent them a photograph of the Dalai Lama, and on my return journey I added one of the Tashi Lama. The valley to the west of Sanga Chu Dzong is well cultivated, and many brick-built farm-houses with roofs of shingles are seen dotted about; the population within a radius of 5 miles cannot number less than five hundred. The river which flows at the base of the spur on which the houses are situated is called the Tsilung Chu. On the most recent maps Sanga Chu Dzong, of which I found the altitude to be 11,693 feet, is placed on a tributary of the Salween, but this is incorrect. The Tibetan Jongpen, who rules this part of the country under the Lhasa Government, had left on account of the arrival of the Chinese. Some months previously he had sent one of his stewards to meet the late Mr. Williamson at Rima; and Mr. Williamson had given this man some Indian tea, which was not used, but was being kept by the monks as a curiosity,

* See footnote (*) at the end.

and some advertisement sheets of the *Pioneer* in which it had been wrapt formed treasures which I was asked to explain. The distance from Sanga Chu Dzong to Lhasa is covered in from twenty to thirty-two days.

On June 26 I left Sanga Chu Dzong. The road passed up the valley of the Tsilung Chu. The bottom of this valley is cultivated for about five miles up-stream, while the hills are covered with a forest of firs, birches and poplars. Opposite the village of Dendon, up a valley to the south-west, I saw a glacier with, as I thought, a stream flowing from it, but I was afterwards to find out that this stream breaks through the range in a surprising manner. The day after leaving Sanga Chu Dzong I crossed the Jo La, a pass 16,307 feet above the sea. This was the first day of clear weather since my departure from Batang. For about half a mile there was deep, soft snow, over which my ponies struggled with great difficulty. Looking back from the pass, I could clearly see Sanga Chu Dzong and the farm-houses of Goschen, and I also had a view for many miles down the valley of the Zayul Chu up which I had travelled. The valleys were all thickly wooded, and the tops of the more distant hills were rocky, with some snow, while those which were nearer to me, and from which several small glaciers emerged, were covered with snow, except where the rocks were too steep to retain it. Owing to the lie of the ground, I could not see anything to the north-west, but after crossing the snow I had a good view. In that direction the country presented an appearance very different from that of the country which I had left; and it was at once evident that its climate is much drier, as the hills were bare of all vegetation except grass and very small shrubs. A stream was seen flowing in a broad open valley. As I was on the top of a high snowy range, I naturally thought that this stream rose in the range and was flowing away from me to the N.W.; but, on reaching it, I was surprised to find it flowing towards me, and was told that it breaks through the range and comes out at the village of Dendon, where I had previously seen it. On leaving the pass I observed some large snowfields and peaks, quite near, to the south and south-west, and saw the stream flowing into a gorge among rocks, snows, and glaciers. It would be interesting to follow its course through the hills, where some remarkable scenery would be met with, but there is no road. The altitude of the point where the stream enters the gorge must be about 15,000 feet. Some miles from the pass another surprise greeted me, for I came on a small sluggish stream flowing north-west. There is a very flat watershed between the Nagong Chu, which flows past Shiuden Gompa, and the Tsailung Chu branch of the Zayul Chu, which flows past Sanga Chu Dzong. After following this small stream for a short distance, I found that it was reinforced by water from a valley to the south in which there are three glaciers. I camped in a cave which can be recognized by the smoke-blackened entrance. Just before this, a valley from the north leads to the Dama La, over which lies an alternative route from Sanga Chu Dzong, used only when the Jo La is closed by snow. The bottom of the valley here was two miles

wide and covered with brushwood, in which there were a great many hares and partridges; I also caught many butterflies, including three species of *Coleas*, and saw a pair of ruddy sheldrakes and some redshanks, which were breeding. Near the Jo La there were also many marmots, one of which was caught by a dog which had attached itself to me. Here I noticed a blue poppy, since identified as *Meconopsis rudis*, Prain, var. *Prattii*. I continued on down this valley, which gradually got wider and more broken until I was descending through low hills with a few scattered firs and juniper trees, among which hares swarmed. Finally, I came in sight of the Ngam Tso. This is a lake about four miles long by one mile wide, narrowing at one part, over which the bridge described by A. K. has been built. The lake is very shallow at the southern end. On the flats which border it are many fields and some farm-houses, while Shiuden Gompa, a cluster of buildings, is on a hill 400 feet above the water and 13,685 feet above sea-level. I went up to the gompa, and was met by a dirty goitre-stricken monk, who combined the duties of head of the lamasery with those of the civil officer of the district of Nagong. From the gompa a large and dirty glacier can be seen descending to the southern end of the lake. The road to the Ata Gang La passes the glacier, and it was by this road that A. K. travelled when he came to Shiuden Gompa after turning back from Rima. Above the lake is a high rocky conical peak. The river which leaves the lake here flows to the west, but I was unable to find out for certain whether it joins the Tsang Po or turns southward to India before reaching that river. In fact, the country between Shiuden Gompa and the Tsang Po is so wild and disturbed that the people of Nagong, the district of which Shiuden Gompa is the capital, never visit it. The women in this part of the country wear a single large turquoise set in silver on the hair, which is plaited in a queue.

I visited the monastery, which holds about seventy monks. It is similar to that at Sanga Chu Dzong, but not quite so fine. The official would only allow me to go in one of two specified directions: I could either go to Chiamdo or return by the way I had come; and I decided to return, as I wished to be back in India by the end of July. Here I succeeded in taking an observation for latitude, and found it to be 29° 28′ 7″. On reaching a stream on my return journey, I was dismayed to find one of my mule drivers above his waist in glacier water, trying to recover a crumpled mass which I recognized as the water-tight tin box containing my small collection of bird skins. There was another box lying in the water, which did not concern me so much. For several days I did my best to dry the skins which, though rather bedraggled, I hoped were not altogether spoilt; the accident was caused by a pony falling off a rickety bridge. Passing Drowa Gompa again on July 3, I arrived the same evening at Chikung, where I found a Chinese garrison of soldiers under an officer. We exchanged visits, and he was most friendly, treating me to a bottle of champagne. The soldiers besieged me for medicine, of which I distributed some

quantity, treating each case according to the instructions in 'Hints to Travellers'; I sincerely hope that no harm resulted.

The road I followed on this and the two following days down to Rima was that along which A. K. had travelled in 1882. I found an Indian slave with the Chinese at Chikung. He had been captured by the Mishmis, who sold him to the Tibetans, but the Chinese had released him; I offered to take him with me to India, but he would not come. The road from Drowa Gompa to Rima follows the Zayul Chu. There is very little cultivation, though the soil appears to be adapted for it. At one point, opposite to the village of Dabla, there is a fine, almost sheer face of rock, standing up about 1000 feet above the left bank of the stream. The roadway is very bad; in places galleries are built round the cliffs, and in others sticks have been fixed horizontally across the smooth rocks to give ponies a foothold. Near Rima the valley widens out considerably, and a large river, the Rong To Chu, joins the Zayul Chu from the north-west. The combined river is called the Ngo Chu by the Tibetans. About a mile north of Rima is the village of Shika. This used to be the headquarters of the Tibetan officials, while Rima was the village in which the local peasants lived. I saw many rice-fields here, and also maize, while apricot trees were bearing unripe fruit; there were a few Chinese soldiers who had grown various Chinese vegetables successfully.

I reached Rima on July 5. I was much disappointed to find that boots were unknown here, as I had hoped to be able to replace mine, which were quite worn out. I took two observations for altitude with the hypsometer, and found it to be 4839 feet; A. K. made it 4650 feet. Snow falls here in winter; the temperature in the shade was 91° at 4 p.m., and in a very open room by a window the minimum was 71° at night.

The inhabitants of Rima are different from those of the other parts of south-eastern Tibet through which I had just passed. They cut their hair short and do not wear a queue; elsewhere in south-eastern Tibet the people never smoke, though they take quantities of snuff, but at Rima tobacco is both grown and smoked. The inhabitants of Rima are very much cut off from the rest of Tibet; they never make the usual pilgrimage to Lhasa or other holy places, and, although professedly Buddhists, are very lax in their religion; when I was in pursuit of Takin I saw a man sacrificing a fowl in order to bring him luck. The form of marriage among them is that "by capture"; the bridegroom goes with his friends to the house of the bride, where the men of both parties quarrel and fight for a time; the quarrel is then made up, all feast together, and the couple are considered to be man and wife. I had noticed that the people of Sanga Chu Dzong and at several other places wore coats made of the skins of gooral of a foxy-red colour, which were said to come from the neighbourhood of Rima. I made inquiries about this, and was told that these animals were plentiful in the hills down-stream from Rima.

One day's march down the river brought me to Kahap, which is called

Kanau on the R.G.S. map of Tibet. Mosquitoes and biting flies were troublesome here. Ponies cannot travel on the road down from Rima, as in many places the track climbs over cliffs and up notched logs, near which a rope of creepers is usually fastened to help the traveller. From Kahap I went two days' journey into the hills to the east over awful roads, and here found a hot spring where a herd of about three hundred Takin (*Budorcas taxicolor*) come every night and morning to drink. I returned to Kahap after having shot six of them. At one place in this valley I crossed drifts of old dirty snow at an altitude of less than 10,000 feet. A pass at the head of this valley, between 30 and 40 miles from Kahap, leads to a country which the Tibetans call Cho, where a people similar to the Mishmis live. From Kahap I marched to Tinne, where a rope bridge spans the Lohit river. The river was about 80 yards wide, and very rapid and muddy. At Tinne I met some Mishmis, from whom I heard for the first time of the murder of Mr. Williamson and Dr. Gregorson. Plantains and tobacco were grown at this village.

From Tinne I travelled down the Lohit, passing through the Mishmi country. At a village called Krang, about 22 miles below the great bend in the river, I lost my compass, and was therefore obliged to discontinue the route survey which I had kept up since leaving Yen-ching on the Mekong river. The Mishmis are great smokers; their pipes are of bamboo, the tobacco being grown locally and dried in the sun; they also smoke a great deal of opium, which is mixed with sacking and smoked in a roughly made bamboo pipe. The Mishmi carries a flint and steel somewhat similar to that used by the Tibetans; pine torches afford his only artificial light, and towards the end of our marches my coolies used to search among the drift-wood on the river-bank for a log of resinous pine from which to make them. The chief article of food in the country is maize, but I also got a few sweet potatoes and unripe plantains, which, when cooked, are quite an eatable vegetable. Every evening a mist about fifty feet thick used to hang above the water, and when the road dropped into this, I noticed a fall in temperature, while on rising out of it I felt as though entering a hot-house. I reached Tashalun, the Mishmi village nearest to the Indian frontier, on July 29. Here, to my disappointment, I found that the usual road to Sadiya was impassable owing to the swollen condition of the river, and that I should be obliged to cut my way through the jungle at the foot of the hills where the streams were smaller. I spent a day in this village, as the coolies had to prepare food for several days in advance. The chief house of the village was a very long narrow bamboo building, raised about four feet from the ground, and divided into cubicles, in each of which one family lived. A fire was lit in the middle of each cubicle, and three long logs, which met in the fire, were gradually moved in as they burnt away, the parts of them lying across the room being used as pillows. Some of the Mishmi villages further into the hills were surrounded by a bamboo palisade with sharpened spikes on the door. The Mishmis cover the walls of their houses with the skulls of cattle and other animals; the house in which I stopped at Tashalun

showed over seventy such skulls, all, with one exception—a deer—being those of domestic animals. Eight days' travelling from Tashalun brought me to Sadiya. I was obliged to cut through a virgin forest for most of the way, and to ford many rivers; but sometimes my Mishmi coolies would fell a tree to bridge a small deep river. At one place I only made a quarter of a mile after cutting through the jungle for an hour and a half. Leeches were very troublesome; I have never seen them worse. I saw tracks of many varieties of game, including elephant and buffalo, and at one of my camps in the hills the coolies asked me to sleep with my rifle at hand, as they had heard a tiger prowling round. On my last day's journey into Sadiya, I voyaged down the river in a narrow dug-out canoe. At Sadiya I was the guest of Mr. Dundas and Captain and Mrs. Robertson.

Goitre is a very common disease all over south-eastern Tibet, and is not uncommon among the Mishmis. At the time of year at which I was travelling, the weather was most unfavourable for survey work. Clouds nearly always obscured the higher hilltops, and rain fell frequently, while in winter many of the passes are closed by snow. Consequently, this must always be a difficult country to survey. In July and August the minimum temperatures at night in the Mishmi country varied between 61° and 76°. I found the Mishmis difficult to manage, but, luckily, had some opium with me, for which drug a Mishmi will do a great deal. I carried no tent, but in Tibet I usually slept in a house, and in the Mishmi hills the people rigged me up shelters of plantain leaves. A word in praise is due to my Tibetan servant, Putamdu, who, having on my summons gone down to Calcutta, had been shipped out to China by Thomas Cook, and accompanied me throughout my journey from Peking to Sadiya. I brought back a small collection of about sixty skins of birds,* with the eggs of several species, and the skins of a few small mammals.† I had also about two thousand specimens of butterflies,‡ besides two hundred moths and a few other insects.

The latitude of Shiuden Gompa was determined with a 6-inch sextant, and all heights were taken by hypsometer. I am indebted to the Royal Geographical Society for the loan of these instruments, and to the Survey of India for their kindness in working out the results of my observations.

* Mr. Ogilvie Grant says that special mention may be made of the rare Koslow's Scimitar-babbler (*Babax koslowi*) and a small brownish warbler or chiff-chaff, believed to be *Phylloscopus homeyeri*, neither of which species was represented in the Natural History Museum. Other rare species are Lord Derby's parroquet (*Palæormis derbyensis*) and Széchenyi's pheasant grouse (*Petroophasis szechenyii*), with other game birds. Among these last he has identified five pheasants (*Crossoptilon thibetanum, Thaumalea amherstiæ, Phasianus elegans, Ithagenes geoffroyi*), and a Tragopan; a partridge (*Perdix sifanica*); and a snowcock (*Tetraogallus tibetanus*).

† Mr. Oldfield Thomas states that two of the mammals proved to be new—a mole-rat (*Myospalax*) and a mouse-hare (*Ochotona*). These have been named, respectively, *M. baileyi* and *O. roylii chinensis*.

‡ The working out of the collection of butterflies is not yet completed, but it seems probable that it comprises from 150 to 170 different species, of which perhaps a dozen or so may prove to be new.

I add an itinerary of my march from Wan-Hsien, on the Yangtse, to Sadiya:—

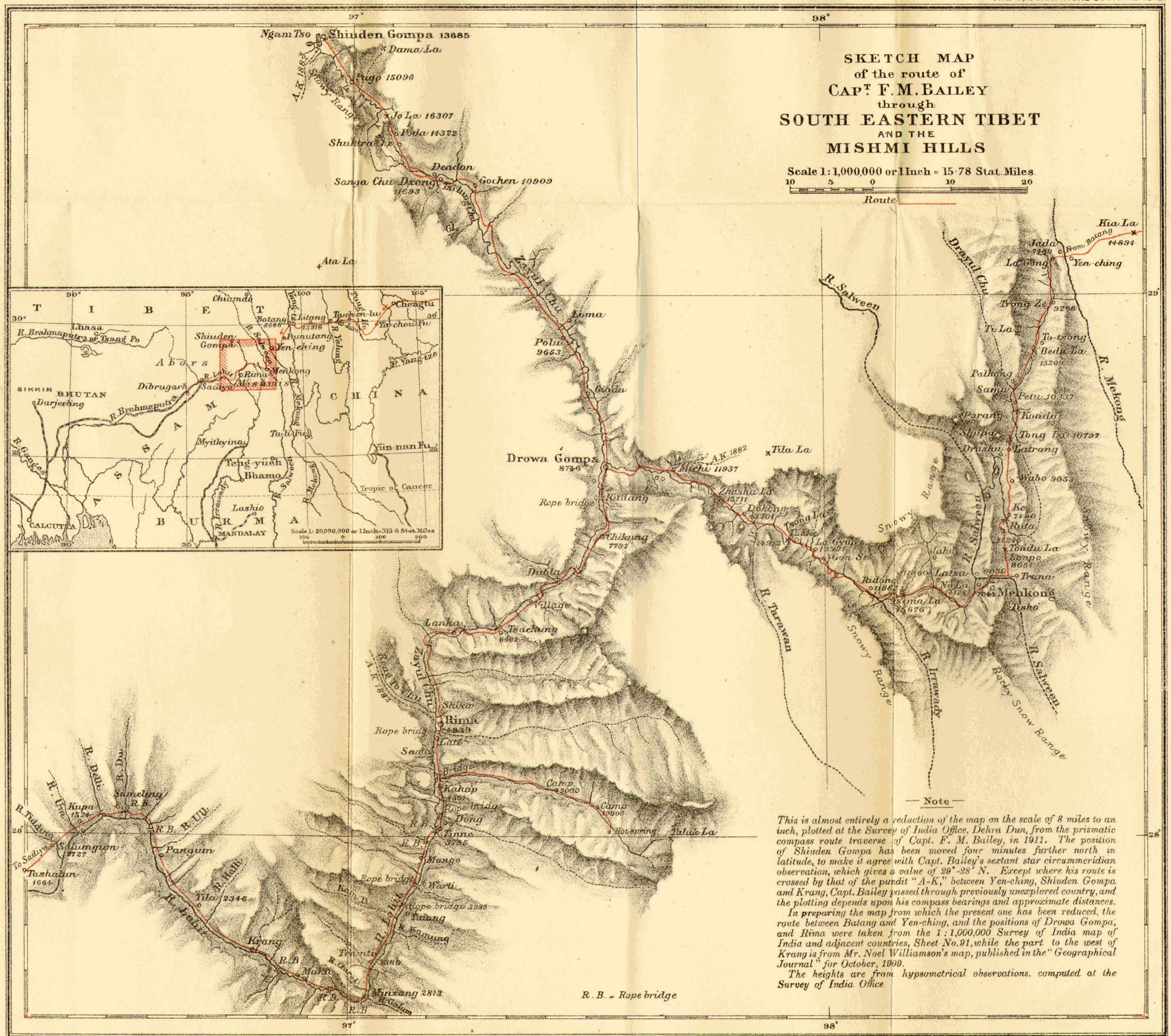
Marches.	Dates.	Days.		Miles.
		Marching.	Halting.	
Wan-Hsien to Chengtu	April 9–22	14	—	400
Halt at Chengtu	,, 23–26	—	4	—
Chengtu to Tachienlu	April 27 to May 9	13	—	255
Halt at or near Tachienlu	May 10–18	—	9	—
Tachienlu to Ho-kou (or Nyachuka) ...	,, 19–23	5	—	80
Halt at Ho-kou	,, 24	—	1	—
Ho-kou to Litang	,, 25–28	4	—	80
Litang to Batang	May 29 to June 2	5	—	145
Total—Wan-Hsien to Batang	April 9 to June 2	41	14	960
Halt at Batang	June 3– 5	—	3	—
Batang to Menkong	,, 6–15	10	—	174
Menkong to Drowa Gompa	,, 16–21	6	—	93
Drowa Gompa to Shiuden Gompa ...	,, 22–27	6	—	80
Halt at Shiuden Gompa	,, 28	—	1	—
Shiuden Gompa to Rima	June 29 to July 5	7	—	123
Halt at Rima	July 6	—	1	—
Rima to Sadiya	July 7 to August 7	28	4	285
Total—Batang to Sadiya ...	June 3 to August 7	57	9	755
Grand total—Wan-Hsien to Sadiya ...	April 9 to August 7	98	23	1715

THE CLIMATIC LIMITS OF WHEAT CULTIVATION, WITH SPECIAL REFERENCE TO NORTH AMERICA.*

By J. F. UNSTEAD.

THE object of this inquiry is to determine the limits of wheat cultivation which are set by climatic conditions, and to apply the conclusions obtained to the special case of North America. At the present time the actual limits are seldom set by physical controls. For example, such economic factors as facilities for transport and the supply of labour are the chief determining factors in the north-west of Canada, and the construction of railways and the increase of settlers will at once be followed by an extension of the wheat area. Such extensions, however, tend to make the actual and ultimate limits coincide, and the latter are determined by physical controls. The ultimate limits cannot be estimated in any definite and final manner, for they are subject to change as man obtains a greater knowledge of agricultural methods, including not only management of the soil and selection of the best times for farming operations, but also the breeding of new varieties of plants specially adapted to conditions found

* Thesis approved for the degree of Doctor of Science (Economics) in the University of London. Research Meeting, March 21, 1912. Map, p. 420.



Published by the Royal Geographical Society

SOUTH EASTERN TIBET
AND THE MISHMI HILLS

BAILEY.

Published by the Royal Geographical Society

— Note —

This is almost entirely a reduction of the map on the scale of 8 miles to an inch, plotted at the Survey of India Office, Dehra Dun, from the prismatic compass route traverse of Capt. F. M. Bailey, in 1911. The position of Shiuden Gompa has been moved four minutes further north in latitude, to make it agree with Capt. Bailey's sextant star circummeridian observation, which gives a value of 29°·28′ N. Except where his route is crossed by that of the pundit "A-K," between Yen-ching, Shiuden Gompa and Krang, Capt. Bailey passed through previously unexplored country, and the plotting depends upon his compass bearings and approximate distances.

In preparing the map from which the present one has been reduced, the route between Batang and Yen-ching, and the positions of Drowa Gompa, and Rima were taken from the 1:1,000,000 Survey of India map of India and adjacent countries, Sheet No. 91, while the part to the west of Krang is from Mr. Noel Williamson's map, published in the "Geographical Journal" for October, 1909.

The heights are from hypsometrical observations, computed at the Survey of India Office

Published by the Royal Geographical Society

SOUTH EASTERN TIBET
AND THE MISHMI HILLS

BAILEY.

Published by the Royal Geographical Society


SKETCH MAP
of the route of
CAPT. F. M. BAILEY
through
SOUTH EASTERN TIBET
AND THE
MISHMI HILLS
Scale 1: 1,000,000 or 1 Inch = 15·78 Stat. Miles.
10 5 0 10 20
Route
98°
29°
28°
Dama La
Jo La 16307
Poda 14322
Dendon
Gochen 10909
Tsi hung Chu
Zayul Chu
Loma
Polu 9653
Ginda
Drowa Gompa 8726
Michi 11937
A.K. 1882
Tila La
Rope bridge
Kidang
Chikung 7737
Zhasha La 15711
Dokong
Tsong La
Lake
La Gong 12321
Gon Sa
Dubla
Village
Lanka
Tsachung
Rong To Chu
A.K. 1882
Shika
Rima 4839
Rope bridge
Lat
Sama
Bridge
Kahap
Rope bridge
Dong
R.B.
Tinne 3735
R.B.
Mango
Rope bridge
Warli
R. Lohit
Rope bridge 3385
Iwiong
R. Kamung
3389
Minzang 2813
R. Galum
Camp 7000
Camp 10000
Hot spring
Taluk La
R. B. = Rope bridge
Chengtu
Yo-chou Fu
R. Yang-tze
I N A
Yün-nan Fu
Tropic of Cancer
R. Salween
Drayul Chu
Kia La 14894
From Batang
Jada
La Gong
Yen-ching
Trong Ze 9266
Ti La
To-tsong
Beda La 15203
Palhong
Sama
Petu
Parang
Konda
Shipa
Tong La 16797
Drushu
Latrang
Wabo
Ke
Rula
Tondu La
Lonpo
Ridong 11683
Latsa
No La
Menkong
Trana
Tisho
Tsema La 15676
Jaha
R. Salween
R. Mekong
R. Tarawan
R. Irrawady
R. Salween
Snowy Range
Snowy Range
Snowy Range
Rocky Snow Range
— Note —
This is almost entirely a reduction of the map on the scale of 8 miles to an inch, plotted at the Survey of India Office, Dehra Dun, from the prismatic compass route traverse of Capt. F. M. Bailey, in 1911. The position of Shiuden Gompa has been moved four minutes further north in latitude, to make it agree with Capt. Bailey's sextant star circummeridian observation, which gives a value of 29°-28' N. Except where his route is crossed by that of the pundit "A-K," between Yen-ching, Shiuden Gompa and Krang, Capt. Bailey passed through previously unexplored country, and the plotting depends upon his compass bearings and approximate distances.
In preparing the map from which the present one has been reduced, the route between Batang and Yen-ching, and the positions of Drowa Gompa, and Rima were taken from the 1:1,000,000 Survey of India map of India and adjacent countries, Sheet No. 91, while the part to the west of Krang is from Mr. Noel Williamson's map, published in the "Geographical Journal" for October, 1909.
The heights are from hypsometrical observations, computed at the Survey of India Office

Published by the Royal Geographical Society

SOUTH EASTERN TIBET
AND THE MISHMI HILLS

BAILEY.