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JOURNEYS THROUGH KAM (EASTERN TIBET)

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Spelling of names is Tibetan, with alternative Chinese in brackets where necessary.

THAT part of Eastern Tibet dealt with in these notes, that is to say, roughly speaking, the basins of the Salween, Mekong, Yangtze, and Yalung rivers between the latitudes of Jyekundo and Atuntze, consists of the eastern portion of the great Tibetan plateau, here furrowed by the canyons of the above rivers and their affluents. These streams flow, in the northern part, through broad open grassy valleys (ice-formed), and in the southern part through deep narrow gorges (water-eroded). The general trend of the drainage being south and south-east, the roads, easiest in the north, become more and more difficult as one proceeds south; whence arises the great contrast between the two highways and their subsidiary branch roads, from Szechwan to Tibet—the north road from Tachienlu to Jyekundo, and the south road from Tachienlu *viâ* Batang to Chamdo. On the former, which might without great difficulty be made passable for cart traffic, one keeps at a comparatively high elevation all the way, and, although the passes are big, the gradients are not very steep; while on the latter one is constantly climbing in and out of deep narrow valleys, which bring one down to 8000 or 9000 feet, and scaling steep and difficult passes up to 15,000 and 16,000 feet.

Following down the headwaters of one of the big rivers, say the Mekong, from the north, cultivation begins generally at from 12,000 to 13,000 feet; the usual limit for barley being about 13,500 feet (except on certain favoured slopes), and for wheat 11,000 to 12,000 feet. Trees run up to 14,500 feet at least; but the big forests, of which there are many, are usually confined to the mountain slopes facing north; the same peculiarity being noticeable over a vast stretch of North-Eastern Asia from Shensi and Kansu across the Kokonor border into Tibet.

The wettest seasons of the year are the summer and autumn, which are followed by a period of extreme dryness (November, December, and January), when practically no snow falls at all, and hot days with a bright

sun shining out of a cloudless blue sky alternate with clear frosty nights. (These observations apply more particularly to the neighbourhood of Chamdo, *i.e.* the centre of Eastern Tibet.) As a result the snow-line is apt to be lower in the summer than in the winter; and we have crossed 17,000-foot passes which were practically free of snow in midwinter, and waded through drifts of newly fallen snow at 14,000 and 15,000 feet in midsummer. In South-Eastern Tibet, on the borders of Yunnan, Burma, and Assam, where the precipitation is probably greater, the line of perpetual snow appears to be considerably lower than in the dryer regions further north, thus giving the impression that the mountains are higher. In the spring another snowy season sets in, and as the weather is then still very cold, and the pasturage at its worst, this is the most difficult time of the year for travel. Generally speaking, however, one can cross almost any pass at any time of the year, though they may become blocked with snow for a few days at a time. The true line of perpetual snow in the neighbourhood of Chamdo is probably not far short of 18,000 feet.

The winter cold on the plateau country and on the high passes, though not often falling much below zero Fahrenheit, is rather severe, especially when a wind blows, and is felt all the more as one is there dependent on yak-dung for fuel. In the "Rong" (agricultural valley) country, on the other hand, the winter climate is perfect, while wood for fuel is also abundant.

Locally bred mules are by far the best animals for transport purposes (the mules of Szechwan and Yunnan being of a different breed and quite unable to stand the hardships of life in real Tibetan country for any length of time). The local pony is serviceable for riding purposes, but will always collapse before the mule when the pasturage gives out. Yak are very surefooted and strong, but are unsuited for long journeys except at a phenomenally slow rate of march; but they can usefully be hired from the nomads for a few days' march at a time in order to rest the mules when crossing grass country in the winter or spring, as is often done by the big Lhasa caravans. Yak do not and cannot eat grain; Tibetan mules and ponies will eat almost anything that is available, including tsamba, butter, and even meat at a pinch.

All this region from the Yalung to the Salween is known to the Tibetans as Kam, which, like Amdo in the north-east, is only a vague geographical term without any very definite significance. The Kamba-wa (natives of Kam) are considered rather a wild and barbarous race by the more highly civilized Tibetans of Central Tibet, and the swashbuckler from Kam is a familiar figure in Tibetan theatricals; yet the people of De-ge, for instance, are widely known for their skill in handicraft and their literary attainments. Probably the Kamba-wa owes his reputation for turbulence to his distance from the metropolis, which renders him uncouth in manner to the inhabitants of the latter. The real wild men of Tibet are the nomads of the north-east; while everywhere the house-

dwellers in the agricultural valleys (of which Kam has more than its share) are much more civilized than the tent-dwellers of the grass country.

The secret of successful and agreeable travel in Eastern Tibet is to depend as much as possible on the natives, the native animals, and the native products of the country. In a region where milk, butter, mutton, beef, barley, wheat, and game abounds, no tinned stores of any kind are needed; and the Chinese or other non-Tibetan element in one's caravan, both as regards animals or men, should be eliminated or reduced to a minimum. Fate has placed Szechwan, with its heavily manured and fertile lowlands and teeming millions of rice-eating inhabitants, next door to the bleak uplands of Eastern Tibet, inhabited by one of the hardiest races in the world; and, though the Chinese have of course a wonderful gift of adapting themselves to their surroundings, it is too much to expect that a Szechwanese should be able to adapt himself successfully to Tibetan conditions. The Kansu Mohammedans, on the other hand, who come into contact with the Tibetans further north in the Kokonor territory, are a hardy and virile race, and are much more at home in Tibetan country.

Eastern Tibet is so universally mountainous, and the troughs of the rivers, in which one is so often travelling, are so deep and narrow, that it is very difficult to describe the trend of the chief ranges; and the following observations on the subject are therefore of a somewhat tentative nature.

The Yü Chu (the river running south from the direction of Chamdo between the Mekong and the Salween) flows between two well-marked ranges with high rocky peaks rising in places far above the line of perpetual snow. These ranges appear to start from the high plateau, which, giving rise to the Yü Chu, lies between Chamdo on the Mekong and Shiyizamka (Chiayüchia) on the Salween. The eastern one probably runs right down to the huge snow massif which lies west of Atuntze (we only followed it down to the latitude of Tsakalo (Yenching)).

Another very prominent mountain feature in Kam is the big range which runs parallel to, and on the right-hand side of, the main road from Jyekundo to Tachienlu. It is a huge and imposing barrier wherever seen. South of Jyekundo it forms the divide between the basins of the Yangtze and of the headwater streams of the Mekong, and is here crossed by the Shung La, a high pass on one of the roads from Jyekundo to Chamdo. Proceeding south-east it is pierced by the gorges of the Yangtze below Chunkor Gomba (Tengko), and thence serves as the Yangtze-Yalung divide down to below Kantze. On this stretch of its course it contains some very high peaks and glaciers behind Dzogchen Gomba, below which it is crossed by the Tro La on the main road to De-ge. Further down it appears as the magnificent snow-capped range which stretches along the southern side of the Yalung plain from Rongbatsa to below Kanze; in this neighbourhood it is crossed by the Tsengu La and the Hön La on the road to Beyü and Southern De-ge, and by another high pass on a road to Nyarong. Below Kanze it is pierced by the gorges

of the Yalung, which are overlooked by a giant snow-peak, Kawalori, a sacred mountain of Nyarong. From here it continues south-east to Tachienlu, where it serves as a clear-cut ethnographical boundary between Chinese and Tibetan inhabited country; it is here split into two by the valley of the river of Tachienlu, which is overlooked by snows on both sides. From Tachienlu it continues south, containing here some very big peaks, towards the Yunnan border. I suspect this great range to be a south-easterly continuation of the Dang La mountains north of Lhasa, and to be therefore one of the principal features of the mountain system of Tibet.

There are some very high mountains on both sides of the Yangtze between De-ge Gonchen and Batang, including the giants immediately east of the latter; but I have not been able to distinguish the continuity of particular ranges in that neighbourhood.

It is to be hoped that the heights of the principal mountains of Kam will some day be ascertained by scientific measurement, the results of which will probably show the existence of some very high peaks. I believe that amongst the highest will prove to be the group of peaks behind Dzogchen Gomba (bearing roughly north from the Mizo La near Beyü); Kawalori on the Yalung below Kanze; some of the peaks on the Mekong-Salween divide between Chamdo and the latitude of Atuntze; the peaks east of Batang; and the peaks north and south of Tachienlu.

As regards big game in Eastern Tibet, the antelope (Tibetan go-wa, Chinese chitze) is constantly met with in the grass country. Burhel (wild sheep, na in Tibetan) and goral (wild goat) are very common in the mountains. There are at least two kinds of stag, one with spreading wapiti-like antlers found in the grass country, and another with single antlers with one brow tine found in the forests. On the grass lands round Jyekundo (which are really a portion of the Jang Tang, or northern plateau, of Tibet) we saw large herds of wild asses (chyong in Tibetan, yeh lotze in Chinese), and wild yak and long-horned antelope are found in the same country a little further north. The serow and the takin are not true Tibetan animals, and are found rather in the region of steep forest-clad mountains intervening between Szechwan and the Tibetan plateau. The above list might be greatly extended (bears, leopards, snow-leopards, etc.), but I mention only the animals with which we came into contact (which did not include Abbé Huc's unicorn). In Tzachuka (grass lands of the upper Yalung basin) and in the grass country about Jyekundo and Chamdo we found big game of all kinds remarkably tame and easily approached; this is because the big monasteries in those neighbourhoods do not permit shooting or hunting of any kind in their vicinities.

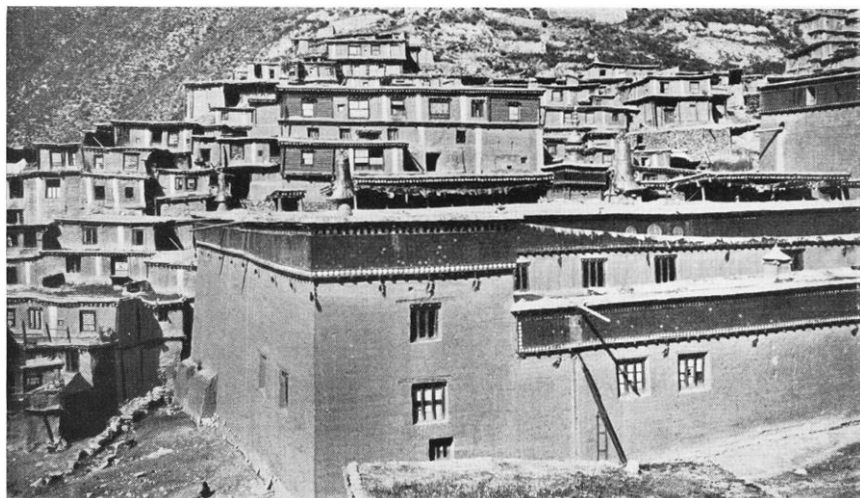
Of small game the common pheasant is confined to the border country between Szechwan and Tibet, as also are the gorgeous long-tailed varieties. Once in Tibet Proper one can get nothing but the huge white pheasant (very common and easily shot, but an indifferent table bird), a small



CAMP ON THE HLATO PLATEAU (14,000 FEET), GONJO GRASS COUNTRY



ON THE MAIN BATANG-CHAMDO ROAD, A FEW MILES SOUTH OF DRAYA-JYAMDUN



THE PRINTING ESTABLISHMENT IN THE MONASTERY AT DE-GE GONCHEN



SUNRISE ON THE SALWEEN-YÜ CHU DIVIDE, TSAWARONG



GORGES OF THE MEKONG, THREE MARCHES BELOW CHAMDO, ON CHAMDO-YUNNAN ROAD

partridge, and a kind of pheasant-partridge with a square tail (the latter at very high altitudes, perhaps a blood pheasant).

The following are some brief notes on the various routes which go to make up the attached map of Eastern Tibet :

(1) From Kanze *viâ* the Yalung valley to Dzogchen Gomba, and thence *viâ* Seshü and Tzachuka to Jyekundo.

The main road from Kanze to Dzogchen and Jyekundo, followed by Krishna, Rockhill, and other travellers, crosses the Yalung above Kanze and proceeds directly north-west *viâ* Rongbatsa and the Muri La. The road we took follows up the banks of the Yalung, which issues from a gorge in the mountains on to the Rongbatsa-Kanze plain about opposite the big monastery of Darjye Gomba.

We marched up the Yalung for about a week. It is here a swift dark green stream, flowing through alternate gorges and stretches of cultivated valley, at an average height of 11,000 to 12,000 feet. On either side lies the grass country, extending northwards for hundreds of miles to the distant Kansu border. The valley, forming a succession of cultivated oases in a desert of grass country, is thickly dotted with monasteries which serve as religious centres for the surrounding nomads. One of these monasteries, Denchin Gomba, is considered the most important establishment of the Bon sect in Eastern Tibet. This Bon sect is generally understood to be a relic of the old nature worship of Eastern Asia, whose followers in Tibet compromised with the invading Buddhism by adopting the gods and saints under different names and much of the lamaistic ritual reversed, *e.g.* turning wheels and circumambulating holy places in the reverse direction.

Several old Tibetan forts, the seats of small local officials, are passed on the way, such as Deji Podrang, Trötsang Podrang, Dema Podrang, and others. A "Podrang" in Eastern Tibet means a residence belonging to a chief, and occupied by him, or more usually by a district officer appointed by him. They correspond more or less to the "Dzong" of Central Tibet, where the word Podrang seems to be confined to the Dalai Lama's palace, *e.g.* Potala Podrang. They are always of the same architecture, a rough square several stories in height, with an open court in the middle.

At Denchin Gomba the Yalung is joined by an important tributary from the north, the Di Chu, up which lies the main road into the country of the independent Ngolo nomads. The valley of the Yalung above Kanze may be said to be the northern boundary of the settled and more or less civilized parts of Kam, and beyond it lie the unknown pasture lands of these Ngolo and other nomads, which extend from here across the Yellow River basin to the Kansu border. The Ngolo are noted for their horsemanship, their shaven heads, and their predatory habits. Apart from some large monasteries, mostly of the Red Sect, there are no settled habitations in their country, which is nowadays about the least-known region in Central Asia.

The Yalung valley from Deji Podrang up to Nando is known as Tzako, and above Nando as Tzachuka. These names mean, roughly, "basin of the Tza," the Yalung being known as the Tza Chu above Kanze, and the Nya Chu below; whence the name Nyarong (Chantui in Chinese) for the region along the river between Kanze and Nyachuka (Hokou).

At the hamlet of Nando (12,500 feet) we left the Yalung, and turned up the valley of a tributary stream which led us after a short march right up to the great monastery of Dzogchen. Our destination being Seshü in Tzachuka, we might have continued up the Yalung; but finding myself—unexpectedly according to the map—so close to Dzogchen, I proceeded there in order to connect my route survey with a well-known point.

Dzogchen is a cold, bleak spot, about 13,000 feet high, lying right under the snows and glaciers of the Yalung-Yangtze divide. We had here rejoined the main road to Jyekundo, which we followed for four marches, past Göze (Lintsung), a large Sajya monastery and seat of the Göze chief (who is a jyelbo, or king, though his territory is small), to a point on the Yangtze known to the Tibetans as Dröma Hlakang (the name of a famous temple there), and to the Chinese as Tengko. A cultivated plain (11,000 feet odd) here stretches along the Yangtze, on the opposite bank of which lies a large monastery called Chunkor Gomba.

From here the main road to Jyekundo continued up the Yangtze, crossing the river at Drenda Ferry a little further up. We turned north into the mountains, and crossing a high pass in the Yangtze-Yalung divide (Dzi La, 15,800 feet) found ourselves on an undulating grass plateau, a region of flat open valleys 14,000 to 15,000 feet high, sloping almost imperceptibly down towards the Yalung. Another three days' march across these grasslands brought us to Seshü Gomba, a very important Sajya monastery lying at an elevation of over 13,000 feet in a perfectly flat plain a few miles from the Yalung; the latter being here joined by a river from the north called the Marmu Chu (marked on the latest map of Tibet). Seshü (Shihchu) is also the name of the district, which forms the northernmost part of De-ge State. The population is purely nomadic, and from here one could travel north to Sining or Taochow and never see a house.

This road through Tzachuka *via* Seshü Gomba is much used by the trading caravans going in and out of Tibet in the summer in preference to the main road along the Yangtze, as by it they can secure good grazing and avoid the agricultural valleys all the way from Jyekundo to near Kanze.

Leaving Seshü Gomba and turning our backs on the Yalung, we travelled for two days in a westerly direction up one of the flat grassy valleys to reach an easy pass, the De-ge-Jyekundo boundary, whence we descended steeply into a ravine and so on down to the Yangtze; the latter is here, at low water, a clear blue stream, flowing in alternate rapids

and deep still pools at an elevation of about 11,700 feet. After crossing in skin coracles and marching up the river for a few miles, we turned up into the mountains at a small monastery called Gala Gomba, crossed a pass, and descended south-west to Jyekundo.

Jyekundo (Chinese Chiehku) is a straggling mud village lying in a small cultivated plain formed by the junction of two streams which combine to form a river flowing east to join the Yangtze. (The termination "do" always denotes a place so situated—as, for instance, Jyekundo, Chamdo, Dartsendo, etc.) The large Sajya monastery of Jyeku Gomba is built on the hillside overlooking the village. In spite of its mean appearance, due to its being a nomad rather than an agricultural centre, Jyekundo is perhaps the most important trade mart in Kam, lying as it does at the junction of the two great trade routes from Sining in Kansu and from Tachienlu in Szechwan to Lhasa and Central Tibet. Nearly all the caravans pass through it, and usually halt in the neighbourhood for a month or so to enable their animals to recuperate on the surrounding pastures. A big annual fair is held here in the month of August.

At Jyekundo one can buy candles and cigarettes from India, brass cooking-pots and vermicelli from Kansu, tea and silks from Szechwan, and sugar from Yunnan. Tracks radiate south-east to Tachienlu, south to Chamdo (for Yunnan), south-west to Lhasa, north to Sining, north-east to Labrang and Taochow, and east to Sungpan. All around stretches for enormous distances the best wool-raising country in Asia, the northernmost edge of which is tapped by the Sining–Yellow River–Tientsin export trade.

Foreign travellers who have visited Jyekundo include Krishna, Rockhill, Grenard and de Rhins, Rijnhart, and Kozloff.

(2) From Jyekundo *via* Nangchen (Lungchin) to Chamdo.

This route runs south-west from Jyekundo across the various head-water streams of the Mekong, and eventually descends the Ngom Chu, the most westerly branch of that river, in a south-easterly direction to Chamdo. Another road, running south-east from Jyekundo, seems to be that followed by the Russian explorer Kozloff.

The first day's march from Jyekundo took us over a pass to a camp in a flat grassy plain watered by a tributary of the Barung Chu, the river of Jyekundo. This plain is bounded on the south by a high rocky barrier range, the Yangtze–Mekong divide, which we crossed on the following day by a high pass (Shung La, 16,000 feet), deep under new-fallen snow in early May. From this pass we descended across grassy park-lands to the Dze Chu, one of the three principal headwater streams of the Mekong, which was just fordable when we crossed it. On the way down we passed a big and wealthy monastery called Rashi (also known as Lungshi) Gomba.

One of the most remarkable journeys ever made in Tibet was that of

the Dutch missionaries, Mr. and Mrs. Rijnhart, in 1898 (see 'With the Tibetans in Tent and Temple'). Starting from Sining in Kansu, without a proper caravan or any equipment for their long journey, they eventually reached the neighbourhood of Lhasa, where they were stopped and turned back along the Jyekundo road. Arrived at a camp on the banks of the Upper Mekong, Mr. Rijnhart left his wife to go and seek assistance or ask the way of some nomads. Mrs. Rijnhart watched him follow a path round a corner of rock, and never saw or heard of him again. From the spot where her husband disappeared, Mrs. Rijnhart travelled to a monastery she calls Rashi Gomba, whence she reached Jyekundo in three days. The Rijnharts left no geographical records of their journey, but I have no doubt that we were, just twenty years later, in the neighbourhood of the scene of the Rijnhart tragedy, and that the Rashi Gomba we passed is identical with the monastery of that name referred to in Mrs. Rijnhart's story. Mrs. Rijnhart eventually reached Tachienlu after undergoing the most terrible hardships, and, as Mrs. Moyes, was subsequently well known to missionaries and other foreigners in Western China. Her experiences had however permanently undermined her health, and she died not long after.

Leaving our camp on the banks of the Dze Chu, we spent the next few days crossing the low divide of rolling downland between it and the Dza Chu, the principal branch of the upper Mekong, eventually descending to the latter through a narrow gorge, a mere cleft in the limestone mountains. On the banks of the Dza Chu (12,000 feet) we met with trees, houses, and cultivation again.

(It should be mentioned that the Tibetan names Tza Chu and Dza Chu, for the upper Yalung and upper Mekong respectively, are identical in sound and often in spelling also ; but I have retained the above romanization to avoid confusion.)

The Dza Chu, where we debouched upon it, flows in a broad sandy bed between low hills of red sandstone. It is just fordable at low water, but we crossed by coracle ferry at a spot called Gurde Druka ; this is probably the same as the Gurtu-tuka, where Kozloff crossed coming from the north-east and proceeding south-east (Druka means "boat-place" or ferry).

Continuing south, we crossed a formidable pass (Manam La, 16,000 feet) and descended to Nangchen (Lungchin). This place consists of a Gajuba monastery, called Tsepchu Gomba, a huge heap of Mani stones, the chief's castle, and a hamlet of mud hovels, and lies hidden away at an elevation of 13,500 feet in a ravine on the southern slope of the precipitous Dza Chu-Bar Chu divide. It is the seat of the Tibetan chief (of the rank of jyelbo or king) ruling the state of the same name which covers a large area of grass-country in the upper Mekong and Yangtze basins, extending originally beyond Jyekundo. It is an important religious centre also, and big game, mostly antelope and wild sheep, are consequently remarkably tame in its vicinity.

Leaving Nangchen, we crossed the Bar Chu, down which runs an alternative trail to Chamdo (not that followed by Kozloff). The Bar Chu, which figures too prominently on some maps of Tibet, is here a mere stream (at low water), only a foot or two deep, and with its sources probably not more than 50 miles distant. Continuing south, we crossed an easy pass and descended on the following day through a winding gorge between towering walls of rock to the Dje Chu, where we camped opposite a small monastery called Nede Gomba.

This river, lower down known as the Ngom Chu, was, in May, a swift muddy torrent, unfordable, and of about the same size as the Dza Chu which it joins at Chamdo to form the Mekong. It is here found flowing from north-west to south-east in a cultivated valley (12,000 feet) between red hills dotted with pine trees. Crossing by coracle ferry, we followed down the valley to a monastery called Gushi Gomba, where the river is spanned by a frail iron suspension bridge, the only one we met with in Eastern Tibet (they are common in the Chinese border country); the hamlet near by is naturally called Ja-zamka.

A few miles below Gushi Gomba the Dje Chu takes an easterly bend through a gorge, and our trail turned south away from the river. During the next few days we crossed two more high passes, on one of which, the Dongma La, we found ourselves marching for a mile or two along the top of the watershed between the Dje Chu and the river of Riwoche. The country traversed in this neighbourhood is a pleasant region of grassy vales alternating with pine forests, in one of which we came upon a flock of monkeys hanging in the trees at an elevation of over 13,000 feet.

Eventually we rejoined the Ngom Chu (by which name the Dje Chu is known from here down to Chamdo) a short distance below its confluence with the Bar Chu, and marched down its valley past numerous hamlets and monasteries for the rest of the way to Chamdo.

We found both branches of the Mekong a thick reddish-yellow in colour as early as May; but by November they were again a clear blue. The discoloration in summer is due to the red sandstone formation of the elevated plateau country drained by the headwater streams. These freeze in the winter in the higher valleys, when the rivers are mainly fed by the more powerful and perennially clear streams issuing from the gorges in the underlying limestone.

During this journey from Jyekundo to Chamdo we crossed all the various branches which go to make up the Mekong, Dze Chu, Dza Chu, Bar Chu, Dje Chu, and others; it is really only from Chamdo down that the Mekong can take rank as one of the great rivers of Asia (whereas the Yangtze is a big river as far up as north of Jyekundo). The Tibetans apply the name Dza Chu to the Mekong above and below Chamdo; but lower down, at Tsakalo (Yenching) for instance, they call it the Da Chu and also the La Chu. (There is a great lack of continuity in the names of Tibetan rivers, as for instance Tza Chu and Nya Chu for different

parts of the Yalung.) The Chinese call it the Lantsang Kiang from Chamdo down, being largely unacquainted with the country further north.

(3) From Chamdo by the main road *viâ* Draya Jyamdun and Markam Gartok to Batang.

This is a portion of the main south road from Lhasa to China, and having been followed by various foreign travellers in the past, does not call for much description. A great number of passes have to be crossed, and it is not the least arduous portion of what is perhaps the most difficult highway in the world.

(4) From Batang *viâ* Jyase Gomba and the Ong Chu valley to Draya Jyamdun, and thence *viâ* Yemdo (Yentaitang) and the Me Chu valley to Chamdo.

This is an alternative route between Batang and Chamdo. As far as Draya Jyamdun it is practically a straight line, thus avoiding the *détour* made by the main road *viâ* the Bum La and Gartok.

The Yangtze below Batang flows in an immense canyon 7000 to 8000 feet deep, and this trail climbs from the water's edge straight up the mountain-side to cross the top of the range, descending into a narrow forested valley on the other side. Our camp here lay almost on the meeting point of Markam, Sangen, and Batang territories. Another big pass has to be crossed to reach the important monastery of Jyase Gomba in the valley of the Ong Chu, the large stream which, rising on the grass lands of Gonjo, drains Eastern Markam and joins the Yangtze just below Drubanang Druka (Chupalung).

The Ong Chu is followed up almost to its sources, where a small pass gives access to a basin-like plateau at an elevation of about 14,000 feet, a marshy plain surrounded by low hills. This neighbourhood is known as Hlato (to be distinguished from the state of Hlato north of De-ge), and forms here the Yangtze-Mekong divide; from it streams flow west to Draya, south to Markam, and north to Gonjo. From the Hlato plateau we turned west, and followed down one of the headwater streams of the Draya river to Draya Jyamdun.

From Draya Jyamdun, instead of following the main road over the big Gam La, which happened to be deep under snow, we took on this occasion the trail down the Me Chu valley past the ruined monastery of Yemdo (Yentaitang), formerly one of the residences of the lama ruler of Draya. The Me Chu is left just short of its confluence with the Mekong at Drentsa Druka, and the main road is eventually re-joined at the Ipi La, two short marches from Chamdo. This Ipi La is a curious mountain knot with streams flowing in four directions, north down to Bonde, west down to the Mekong, south down to Yemdo, and south-east down to Bagung, and is the end of the big range crossed by the Jape La on the Chamdo-De-ge road; we crossed it on several

occasions, and the only time the snow on it was at all deep was in midsummer.

(5) From Chamdo *viâ* Gangto Ferry to De-ge Gonchen, and thence *viâ* Mesho and Dzenko to Rongbatsa and Kanze.

This is the main road connecting Chamdo with De-ge, and is nowadays one of the most frequented trails in Eastern Tibet. After crossing two difficult passes on leaving Chamdo it traverses easy grass country for several days, passing over the Mekong-Yangtze divide at a low grass pass called the Lazhi La. The camping-ground called Chorzhung on the eastern side of this pass lies on the headwaters of a big stream called the Re Chu, which with its southern tributary the Mar Chu drains the whole of Gonjo province. A later journey enabled me to lay down the approximate course of this river on the map.

The descent to and ascent from the Yangtze, which is crossed by coracle ferry at Gangto Druka, is made through the usual precipitous gorges, which here as elsewhere lead down from the plateau country to the valleys of the big rivers.

What was formerly considered by the Chinese as the main road from De-ge Gonchen to Kanze, north-east across a big pass called the Tro La, and thence south-east *viâ* the Yilung grasslands to Rongbatsa (see Mr. Coales' route, 1916-17, in map published in the *Geographical Journal*, Oct. 1919), had for various reasons fallen into disuse at the time we were making this journey. We followed another road further south which passes through the heart of the best part of De-ge, traversing a series of fertile little valleys draining from the Yangtze-Yalung watershed range into the former river. The chief of these are called Mesho, Dehlung, and Dzenko. The latter is an important centre lying at the junction of several valleys, up which roads lead north-west to De-ge Gonchen, east to Rongbatsa and Kanze, south to Nyarong and Litang, and west to Beyü and Batang.

The distance from Dzenko to Rombatsa can be covered in two long marches. The trail crosses the Tsengu La, the big pass over the snow range which here serves as the Yangtze-Yalung divide, and descends across uninhabited grasslands to the cultivated plains along the Yalung and the village of Rongbatsa, whence Kanze can be reached in one long march by a level road along the river.

(6) From Rongbatsa, near Kanze, *viâ* Beyü and Gonjo to Draya Jyamdun.

On our way back to Dzenko our guides on this occasion took us over another pass, the Hön La, further north, the Tsengu La being temporarily blocked by snow. The former pass is equally high, but broader than the latter, and we were able to find a place where we could struggle over through the snow.

The higher grass valleys on the Rongbatsa side of the Yangtze-Yalung divide in this neighbourhood form a nomad district called Aser, and belong to Nyarong (Chantui), and that portion of the Yalung valley can be reached direct from here *viâ* a monastery called Norlong Gomba.

From Dzenko we followed down the wooded gorges of the Dzin Chu to the village of Horbo, situated just short of the latter's confluence with the Yangtze. This river, the Dzin Chu, is one of the three big streams (the other two being the Ba Chu of Batang and the Ngü Chu of Beyü) which drain the unknown stretch of country between the Yalung and the Yangtze north of the Litang-Batang road. It is said to take its rise on an extensive grass plateau called Trungko, which forms the Yangtze-Yalung watershed and the De-ge-Nyarong boundary in that direction. There is a trail leading directly from Dzenko to Nyarong, by following which one could probably discover its sources.

At Horbo we left the river and turned south into the mountains to reach Gato Gomba, a big Red Sect monastery strikingly situated near the top of a mountain ridge at an elevation of 13,500 feet, with pine-clad slopes falling away steeply into the valley thousands of feet below. On the next day a big pass, the Mizo La, over 16,000 feet high, is crossed to reach Beyü Gomba, a similar monastery to Gato Gomba, lying in the deep narrow valley of the Ngü Chu a few miles above its confluence with the Yangtze. This is all part of De-ge state, which probably contains more big and wealthy monasteries than any other part of Tibet.

From Beyü the main road to Batang, which we followed on another journey, runs south; on this occasion we took the Gonjo trail, which leads south-west over the mountains and down to the Yangtze. Crossing the big river by the usual coracle ferry, we marched up its right bank for a few miles to a small monastery called Polo Gomba, situated at the point where the Yangtze, making a right-angle bend from north-east to south-east, is joined by the river of Tungpu from the north-west. The three big bends of the Yangtze in De-ge were unknown to European geography before Mr. Coales placed them on the map as the result of his journey in 1916.

From Polo Gomba we turned west away from the Yangtze, and after crossing two passes, the second of which, the Nadzong La, is the boundary between De-ge and Gonjo, we emerged into the valley of the Re Chu. This river, which drains the whole of Gonjo, consists of two main branches, one from Chorzhung in the north, and one from Gonjo Dzong in the south, which unite at a place called Sharundo; local information tends to show that there is a third branch from the west. The combined stream flows to the Yangtze, which I was told it joined somewhere near Gaji. It is quite an important river and deserves to be correctly represented on the map.

After following the Re Chu for a time and then crossing it, our trail worked away from the river, first through difficult forest country, and then



MONASTERY OF GATO GOMBA (13 500 FEET), ON MAIN ROAD FROM BATANG TO DE-GE



SNOW-PEAKS ON THE YÜ CHU-SALWEEN DIVIDE FROM NEAR DI IN TSAWARONG



SUMMIT OF TSENGU LA (15,800 FEET), DIVIDE BETWEEN YALUNG AND YANGTZE RIVERS, AND BOUNDARY BETWEEN DE-GE AND KANZE



VALLEY OF THE KARGUNG RIVER, WESTERN DE-GE



THE SZECHWAN BRIDGE OVER THE MEKONG AT CHAMDO

through a semi-desert region of red sandstone, eventually rejoining it a short distance below Gonjo Dzong. This place is the capital of the small Tibetan province of Gonjo.

I believe that M. Bonvalot must have visited Gonjo Dzong. Being deflected north of Chamdo, he seems to have come south probably from Toba to Gonjo Dzong, and thence to have continued south across the Hlato plateau to Tara in the Ong Chu valley, and so to Markam Gartok. If there is a detailed map of his route it would help to clear up some of the obscure points about the river system of Gonjo.

Draya Jyamdon is reached from Gonjo Dzong in two easy marches, crossing the grass country on the Yangtze-Mekong divide by two small passes.

(7) From Chamdo *via* Tsawarong to Tsakalo (Yenching) on the Mekong, and thence to Batang.

This route is known as the Yunnan Road, being the principal trade route from Yunnan into Tibet. For the first two marches the trail leads down the right bank of the Mekong, which flows in a barren gorge between mountains of sandstone until a few miles beyond the village of Wayo it leaves the river (the latter flowing south-east) and slants south across a low ridge to reach the valley of the Riwoche river, here called the Se Chu. Marching a few miles down the gorges of this stream we reached an open cultivated valley dotted with farms, called Jyedam, the seat of a small Tibetan official and the principal centre of trans-Mekong Draya. It commands the road we were travelling by, and also a road into Tibet from Drentsa Druka, the ferry across the Mekong below Yermdo, and is therefore considered an important point.

The Riwoche river (Dzi Chu and lower down Se Chu), which is here a stream of considerable size, with its valley eroded down nearly to the level of the Mekong, is incorrectly shown on British maps of Tibet as being a tributary of the Salween. As a matter of fact, it appears to follow a south-easterly course from Riwoche and Enda, and is found in this neighbourhood flowing in a deep gorge only a mile or two distant from and roughly parallel to the Mekong, from which it is divided by a narrow ridge less than 1000 feet above the two valleys. This curious configuration is characteristic of south-eastern Tibet, the land of deeply eroded parallel rivers.

Below Jyedam we left this river, which here turns south-east towards its confluence with the Mekong near by, and spent the next three days in crossing an elevated grass plateau in a south-westerly direction to a monastery called Bomda Gomba on the headwaters of the Yü Chu, a long and important tributary of the Salween. This plateau (elevation about 14,000 feet), from which another trail leads westwards and descends to the main Lhasa road at Shiyizamka (Chiayüchiao, the bridge over the Salween), forms here the Mekong-Salween divide, and belongs to

the Tibetan province of Bashü. We crossed it in very cold weather in the winter, no snow, but with the temperature below zero.

Two days' march down the flat grassy valley of the Yü Chu, past a monastery called Tendo Gomba, brought us to Dzogang (pronounced Dzogung or Dzogong). The elevation here is still about 13,000 feet, and the population scanty and for the most part nomadic.

Dzogang consists of a large monastery, a hamlet, and a Dzong, and is the seat of the Tibetan official, called the Dzogang Deba, who administers the Tibetan province of Tsawa Dzogang. His territory appears to comprise the greater portion of the basin of the Yü Chu from near its sources on the Bashü border on the plateau down to the neighbourhood of its confluence with the Salween at Menkung, the latter place lying within the territory ruled by the Tibetan official resident at Sangachu-Dzong (west of the Salween). The name Tsawarong, Tsarong, or Charong, which appears on maps of Tibet, means the "Rong," or agricultural valley part, of Tsawa.

From Tsawa Dzogang we travelled for five short marches down the valley of the Yü Chu, which is here thickly forested and very sparsely populated, to Drayü Gomba. It is to the valley of this river, trending in exactly the required direction, that the so-called Yunnan Road from Chamdo to Tsakalo and Atuntze owes its existence. It is one of the main arteries of communication in Eastern Tibet. As well as linking Yunnan with Chamdo, it connects with the main Lhasa road at Shiyizamka on the Salween, and it is the route generally followed by Yunnanese produce bound for Lhasa and Central Tibet; it is also much frequented by pilgrims from all parts of Kam bound to and from a sacred mountain in North-Western Yunnan. If the days of railway construction ever come in these parts the Yü Chu valley offers what is probably the easiest line of penetration for a railway from the direction of Burma up to the highlands of Central Kam.

Drayü Gomba (Dayul on our maps; the letter *r*, which is subjoined, is pronounced; while the letter *l* at the end is silent and serves only to modify the *u*, as in Beyü(1), Seshü(1), Tzayü(1), etc.) is an important monastery lying at the junction of the road we were following and one from Markam-Gartok, across the Mekong at Samba Druka, and *viâ* Drayü into the Salween valley; the Indian explorer Krishna visited it coming by the latter road. The monastery buildings lie on the right bank above the river at an elevation of slightly over 11,000 feet, backed by pine forests and a snow range. A small Tibetan military official resided here at the time of our visit.

Leaving Drayü Gomba we continued down and in the neighbourhood of the Yü Chu valley for another four marches (a march in Tibet under Tibetan conditions amounts usually to 12 to 15 miles as against 20 to 30 under Chinese conditions with posting stages, etc.) to a group of farms called Di, which lies at the junction of the trails of Tsakalo (Yen-

ching) and Atuntze (in Tibetan Jü) : a branch of the latter road leads to Menkong on the Salween, which is close by. One has here reached the difficult deeply eroded country of South-Eastern Tibet, the river flowing in a narrow forested canyon between two parallel ranges topped with eternal snow.

From Di we turned east into the mountains, leaving the Yü Chu flowing south towards its confluence with the Salween near by. The trail leads over a high pass (Di La, 15,200 feet) in the Mekong-Salween divide, and descends to the Mekong to reach Tsakalo; another pass, called the Beda La, lying a little further south on the same ridge, leads to Menkong (see Colonel F. M. Bailey's route from Batang to Assam, *Geogr. Journ.*, April 1912). The Mekong flows here, as elsewhere in Kam below Chamdo, in a deep narrow canyon hemmed in between mountains rising many thousands of feet almost from the water's edge.

Tsakalo is an important point owing to its brine wells, which lie along the banks of the Mekong, so low down that when the water rises in the summer they become flooded. The salt produced supplies all South-Eastern Tibet and North-Western Yunnan (further north the inhabitants of Kam draw their supplies of this indispensable commodity from the rock-salt deposits of the Kokonor). Tsakalo appears on most of our maps as Yakalo, or Yerkalo, which, meaning simply "the high ground" above the brine wells, is properly speaking the name of a hamlet near by where the Catholics have an establishment; this name is quite unknown to the Tibetans other than those of the locality, while the name Tsakalo is familiar to every one in South-East Kam. The Chinese call it Yenching, the meaning being much the same as the Tibetan Tsaka, *i.e.* brine wells.

Tsakalo lies in China, the Di La range being here the boundary; it was formerly a part of Batang territory, but is now a separate district. The population is partly Moso (a non-Tibetan race called by the Tibetans Djong); this is, I think, the most northerly point at which such people are found.

The main road from Tsakalo to Batang, five days' march, runs east across the Yangtze - Mekong divide by a pass called the Chia La to Tsongen (Chung-ai), and thence *viâ* Pamutang to Batang, keeping in Chinese territory all the way. Circumstances led to our following a different route, which took us north across the boundary into Markam, and then back into Batang territory, by the Bum La (Ningching Shan), and so down to Batang. The southern portion of Markam, which we traversed on this journey, is a pleasant park-like region of alternating forest and grass land, but at too high an elevation to be agreeable in mid-winter. It is all drained by the river of Gartok, the course of which, with all its tributaries, is usually very incorrectly portrayed on the map.

(8) From Batang to Beyü Gomba.

This is the main road from Batang to De-ge, and is, and always has

been, a much-travelled trail. It follows up and near the valley of the Batang river for two marches to the village of Hlamdo. This river is a comparatively large stream, comparable to the Ngü Chu and the Dzin Chu in size; as far as Hlamdo it flows north-west, and then makes a remarkable turn back on its tracks to flow south past Batang to the Yangtze. Its upper valley, inhabited by a particularly turbulent tribe of Tibetans, called Lengkashi, and its sources are unknown; it appears to flow roughly parallel to and north of the Batang-Litang road.

From Hlamdo the trail leads up a long forested valley and over a pass, the Ngupa La, into De-ge. The country round Batang is nominally under Chinese control, and the forests are full of Chagba (Tibetan brigands) from Lengkashi and Sangen, who harass travellers and ambush the caravans.

Descending from the Ngupa La we reached Gaji (Kaiyu), formerly the seat of an hereditary Tibetan official under the De-ge chief. Gaji lies in a valley parallel to and only a few miles distant from the Yangtze; the actual canyon of the latter lies in a territory called Sangen ("Bad Lands," transliterated by the Chinese as Sangai), the inhabitants of which, like the people of Lengkashi, have always been robbers and raid the Chinese and Tibetan inhabitants of Batang.

From Gaji the trail continues north up another side valley and over a pass, the Me La, which gives access to Beyü and the basin of the Ngü Chu, whence Kanze is reached by the route previously described.

Before the paper the PRESIDENT said: Our lecturer this evening, Mr. Teichman, belongs to the Consular Service of China, to which we in this Society are very much indebted. For many years members of that Service have made valuable explorations in unknown parts of the Chinese Empire, and we shall hear this evening, from the lecturer, of some work which he has done on the borders of Tibet. I will ask Mr. Teichman to give us his paper.

Mr. Teichman then read the paper printed above, and a discussion followed.

The PRESIDENT: Mr. Archibald Rose is here. He has made several journeys in that region, although not over exactly the same route. Perhaps he will very kindly speak.

Mr. ARCHIBALD ROSE: I am afraid I have little to add to the delightful lecture which Mr. Teichman has given us. I have never been in the mysterious red square shown on the map to-night, though I have bumped up against it from time to time in the course of my work and travels. Nearly twenty years ago I reached its eastern frontier, but at that time no British official was allowed to cross the border. Ten years later I was stationed near its southern frontier, and there then seemed some hope of getting in. But immediately after my arrival two travellers tried to penetrate it through the Salween gorges, and, as they were murdered by the tribesmen, further efforts were promptly discouraged. All who have had any experience of that remote corner of Asia will appreciate the fact that this lecture records a remarkable addition to our geographical knowledge. They will realize the dangers and difficulties, and the solid accom-

PART OF KAM in EASTERN TIBET

by
ERIC TEICHMAN, C.I.E., B.A.

Scale 1/1,000,000 or 1 Inch = 15.78 Stat. Miles.

Miles 10 20 30 40 Miles

1 Millimetre = 1 Kilometre

Kilometres 10 20 30 40 50 60 Kilometres

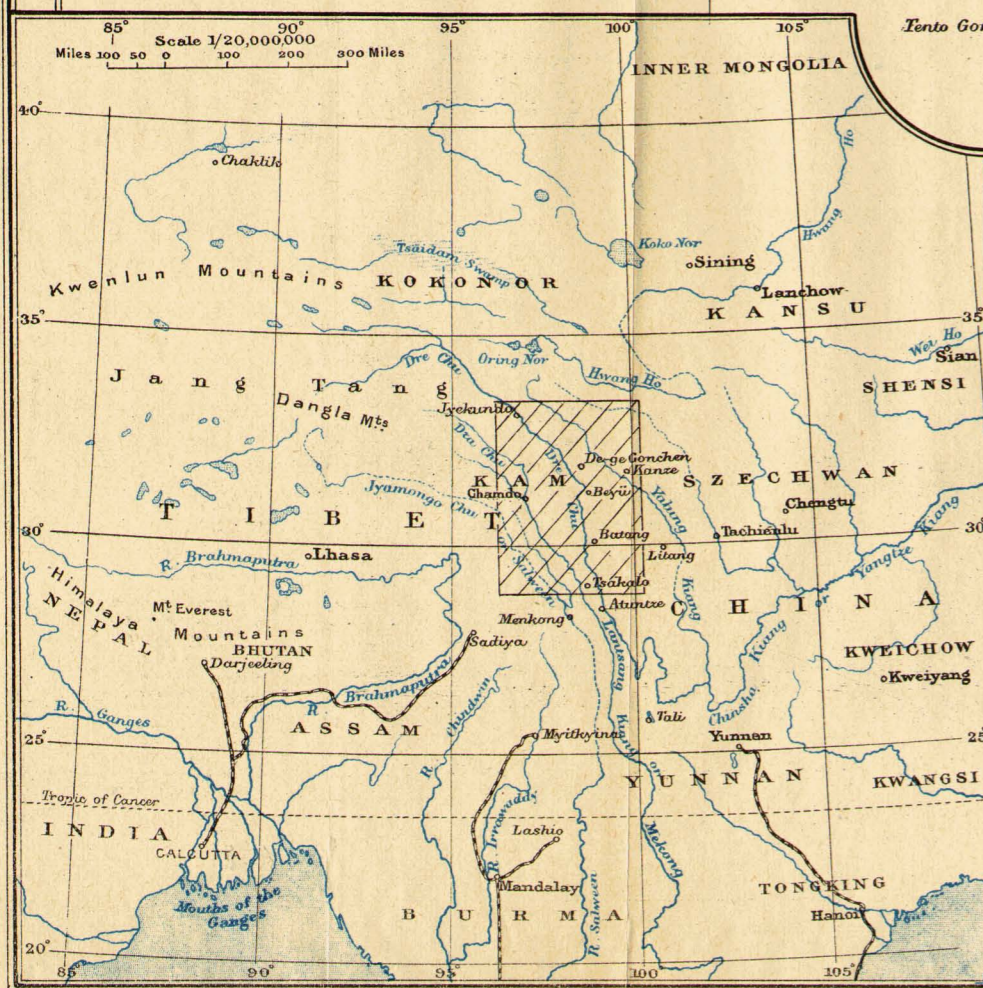
Reference

Routes followed by Mr. Teichman Pass x
Boundaries of states and provinces shown thus
Names are all given in Tibetan, with Chinese names, where
the latter are in common use, added in brackets.
Tibetan romanisation: vowels as in Italian and consonants as
in English, with j substituted for soft g.
Chinese romanisation according to Chinese Postal System.



East Tibetan Glossary.

- Chu = River
- Druka = Ferry
- Ho = River valley
- Ka = River valley (mouth)
- Ding = Flat in a river valley
- Gony = Cultivated slope above a river
- Do = Confluence of streams
- Sumdo = Confluence of three streams
- Zamka = Spot where river is bridged
- Jaxamka = With iron chain bridge
- Rong = Cultivated valley
- Podrang = Seat of native chief
- La = Pass
- Ri = Peak
- Kari = Snow peak
- Gomba = Monastery
- Tang = Plain
- Rawa = Hamlet
- Tsaka = Place where salt is produced
- Dzong = Fort, or seat of an official.



This map is based upon the prismatic compass traverses of Mr. Eric Teichman, adjusted, at the places indicated, to the astronomical determined latitudes of earlier travellers, whose names are given. In certain districts the route surveys of these travellers have also been used to supplement and complete the river systems. The longitudes depend upon the traverses as no reliable observations are available. Throughout the plotting comparatively little adjusting was necessary to Mr. Teichman's traverses to bring the points into agreement with the latitudes. Heights (in metres) are from aneroid readings, and must be considered as only approximate.

99°

100°

PART OF KAM in EASTERN TIBET

by
ERIC TEICHMAN, C.I.E., B.A.

Scale 1/1,000,000 or 1 Inch = 15.78 Stat. Miles.

Miles 10 5 0 10 20 30 40 Miles

1 Millimetre = 1 Kilometre
Kilometres 10 5 0 10 20 30 40 50 60 Kilometres

Reference

Routes followed by Mr. Teichman ----- Pass x
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Tibetan romanisation: vowels as in Italian and consonants as
in English, with j substituted for soft g.
Chinese romanisation according to Chinese Postal System.



33°

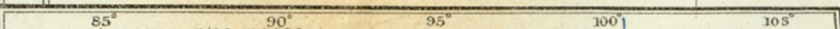
32°

NYARONG



East Tibetan Glossary.

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- Ko = River valley
- Ka = River valley (mouth)
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- Gong = Cultivated slope above a river
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Dzogchen Gomba (Chuching) 4055

Rönda Druka 3660
Bome Gomba
Denchin Gomba
Dema Podrang

Troisang Podrang
Bana-yun 3795
Lat. 31° 59' 55" (Kozlöh)

Jargo Gomba
Yilung Lat. 31° 53' 20" (Coales)

De-ge Gonchen 3290
(Teko or Kengching) Lat. 31° 49' 02" (Coales)

Jyangra Podrang
Jyangra Gomba
Shigagarba
3535
Götse La
3530
Beyor
Gomba Dordra
3045
Gomba
Ba La
4360

Kongsar Gomba
Mesho Somo Podrang
Röda La
4045

Hön La
4815
Tsengu La
4915

Gomba Shetanda
3475
Rongbatsa
3535
Lona Gomba

Lintso (Lintsung)
Lat. 31° 39' 44" (A-k)
Dumbugo
Beri Gomba
Beri (Paik)
Nyara Gomba
Camp

Kanze 3445
Lat. 31° 38' 03" (Coales)
To Druwo, Drango & Tachientu

Changbung Gomba
Baya La
3960
Dzenko 3595
Dakung Gomba
Daranda

Racha Illaba
Racha Nachi
Racha Gomba

Gato Gomba
Jyacho La
4570

Mizo La
4970

Beyu (Paiyü)
Gomba
Lat. 31° 13' 29" (Coales)
3260
Polo Gomba
Lungara La
4815

Rushi Drango
Druka 3015
Karnagong
Ronged (Jungkai)

Sheda
3720

Me La
4390

Ongtung (Camp)

Forest

Gafi (Kaiyü)
Kawong Gomba
De-ne
3110

Darchi (Camp)

Sama 3475
Ngupa La
4265

Forest

Baongshi (Maohsi)
3170

Hlamdo
Sudong
3050

Lengkashi
Lahön

Dam (Tangtsun)
2835
Snow peaks

BATANG Lat. 30° 00' 30" (A-K)
2740

Dru La
To La
4635
Shisongong
Nyugu
To Litang & Tachientu

32°

31°

30°

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Projection of the 1/M. International Map.



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EASTERN TIBET.
Teichman.

plishments, of the hard journeys on which we have had the privilege of accompanying the lecturer from our comfortable chairs. We have seen a country where Nature is at its wildest, where the Yangtze, Salween, and Mekong run within 50 miles of one another, cutting their deep channels through the plateaux of Eastern Tibet, with scattered tribal villages on their rocky banks. Close at hand we have seen the craftsmen at work, the achievements of their arts and crafts, and a printing press distributing its products by caravan. Until a few years ago we knew practically nothing of those men, their lives, their work, or their country. Mr. Teichman has opened a window into a new world. We shall go away to-night with a memory of snow-clad peaks, open plains, deep gorges, yaks, and monasteries. But when they read the lecture in Peking, where the lecturer and I have recently been stationed together, they will find in it even another interest. They will read those pony stories with a deeper understanding. Mr. Teichman and I were partners in a Peking racing stable. He used to buy the ponies, transform them in a few months from creatures resembling woolly bears into miniature race-horses, and then ride them to victory. People wondered why they won. Some thought it was the early gallops, others surmised a mystery about the food. And now the secret is out. Mr. Teichman has discovered in his travels that ponies thrive on the Tibetan equivalent of tea, bread and butter, and cold meat.

The PRESIDENT: One of the most interesting parts of this lecture is about the trend of the great mountain ranges, and we have here this evening Sir Henry Hayden, who was the head of the Geological Survey in India, and who has written a very valuable work on the Himalaya mountains. We shall be glad if he will give us his views on the extension of the Himalaya in the direction of Kam.

Sir HENRY HAYDEN: I am afraid I know even less than Mr. Rose about Kam, but it is a region of great interest. It was at one time supposed that the Tsangpo flowed across that country and emptied into the Irrawaddy. One of the native surveyors of the Survey of India—A. K., I think—exploded that idea by his journey through the south-western parts of Kam and brought back information of great gorges between Tibet and Assam, thereby indicating that the Brahmaputra was the continuation of the Tsangpo. The question was finally set at rest during and after the Abor expedition, largely through the instrumentality of Major Bailey—whose name we meet at every turn in all matters connected with Tibet. As we have heard to-night, Kam is a country of high mountains, which, as will be seen from the map, appear to run approximately north and south, with large rivers in between. To the west of this area are the Sikkim and Bhutan Himalaya. The general trend of the tectonic elements of the latter mountains is easterly and westerly, although here, as in other parts of the Himalaya, the subordinate orographic features not infrequently appear to trend approximately N.—S. It is possible, therefore, than if Kam were examined from the geological point of view, the orographic and tectonic features might not be found to correspond. This region, however, is probably not far from the zone in which the Himalayan and Burmese systems of mountain-folding meet; the Himalayan system being approximately equatorial and the Burmese system meridional, that zone might be expected to show a passage from the one to the other, the trend of the geological formations in its western parts being more or less E.—W. and continuous with that of the rocks of the Bhutan Himalaya and Tibet, while that of the formations on the east would gradually take on a more southerly direction to conform to the strike of the allied sedimentary systems of Yunnan and Burma. But the solution of this

interesting problem in regional geology must await a geological examination of Kam.

Colonel WIGRAM: I was in charge of the yaks in the Tibetan expedition under the command of the President here, and my feelings can be better imagined than described if I tell you that the higher the yak goes the quicker he goes, and when working at an altitude of 15,000 to 18,000 feet the yak literally disappears into thin air, because he likes to go to the top of the hill as hard as he can, and man is left behind trying to get his breath. I endorse everything the lecturer said about them, and I do not think they are reliable animals for transport work, particularly military work, which postulates the delivery of a specific quantity of goods at a given place in a given time. Provided there is plenty of time and one can go one's own pace they are useful, but they require much time for grazing, and this they cannot get on military expeditions.

The PRESIDENT: But they were useful to us in Tibet, were they not?

Colonel WIGRAM: Undoubtedly they were useful: I do not know how we should have got on without them.

The PRESIDENT: I think you will have gathered from the lecturer's paper and from the observations of Mr. Archibald Rose and Sir Henry Hayden, that that part of Kam which the lecturer described is one of extraordinary geographical interest, and not only geographical but ethnographical and zoological as well. We have here the Himalaya mountains impinging against the great ranges of China, and we have the chief races of man as the lecturer has described: the Aryan, the Mongolians, and even the Negroes meeting one another. Here is a field for the geographer of greater interest than any other part of Asia—a splendid objective for an expedition which would unravel the course of the mountains, make accurate observations as to their height, and obtain full information about the peoples, the zoology, and the botany. One particularly interesting point which the lecturer referred to in the course of his lecture was with reference to that great range which extended from the north of Lhasa down towards China. He described how one of the great rivers cut through it just at a point where there is a very high mountain. Later on I heard him drop the remark that that particular mountain was probably the highest in the region. Now a few weeks ago we had a remarkable discussion at one of our afternoon meetings on a paper by Col. Sir Sidney Burrard on the origin of mountains, in which he drew attention to the fact that in a number of cases where great rivers cut through the Himalaya mountains it so happens that just where they cut through there is a remarkably high mountain. Sir Sidney Burrard mentioned the case where the Brahmaputra or Tsangpo cuts through the Himalaya mountains and showed there was a high peak there. At the other end of the Himalaya where the Indus cuts through there is also a high peak—that magnificent peak Nanga Parbat, 26,000 feet in height. Rising from the river (which is only 3000 feet above sea-level) is an almost continuous slope, probably the biggest slope there is. It is an interesting point to work out whether there is any direct connection between the river's passage through a mountain range and the height of the mountain. That is one point on which Sir Sidney Burrard is working at the present time, and every additional piece of information like that we have had this evening will be of value to him. The lecturer referred to French travellers who had travelled in that region, and he mentioned De Rhins. I well remember entertaining him and his companion, Grenard, at Kashgar in Central Asia, in the year 1890. De Rhins was a naval officer and a man of great physical capacity and

determination. He unfortunately lost his life in Tibet, but his companion carried on after his death and did an excellent piece of work in exploring that region. The lecturer has given us some valuable information about an exceptionally interesting region. We are very much indebted to the Consular Service for the valuable work which they do on the borders of the Chinese Empire. There is a wide field for their energies there, and we hope that more of them will come to the Geographical Society and be trained in surveying and other subjects, so that the information that they can bring back will be of all the more value. I ask you to give a very hearty vote of thanks to the lecturer this evening for his most interesting and valuable address.

THE INFLUENCE OF ITS GEOGRAPHY ON THE PEOPLE OF THE AURES MASSIF, ALGERIA

M. W. Hilton-Simpson

Read at the Meeting of the Society, 7 November 1921.

I CAN scarcely hope to lay before the Society any new facts in the topography of the Aures massif in South-Eastern Algeria, upon the borders of the great desert; an area which has been mapped to the scale of 1 : 200,000 by officers of the French Service Géographique de l'Armée.

This paper, therefore, can lay claim to be nothing more than an attempt to draw attention to the influence of the geography of the massif upon its Shawiya Berber inhabitants in the preservation of manners and customs, arts and crafts, many of which have disappeared from other more accessible regions of North Africa. In order to realize how such a conservative influence has been exercised by the country upon its inhabitants, we must call to mind the frontiers of the massif and the geography of its valleys, before proceeding to consider a few examples of those traces of ancient culture which are to be found among the Shawiya to-day.

The boundaries of the Aures are clearly defined. Its northern frontier, separating it from the high-level plateau some 2800 feet above sea, upon which stand the ruins of the Roman camp of Lambessa and city of Timgad, consists of a barrier of steep wooded slopes leading up to the ridge of Mahmel, 7620 feet, and the peaks of Ishmul, 6800 feet, and Shelya, 7630 feet above sea-level, which mountains, capped with snow during a great part of the year, form the watershed of the massif. This frontier provides the Shawiya with an excellent line of defence in the north, running from west to east between the modern French towns of Batna and Khenshela on the plateau.

The southern wall of the Aures, the barren rocks overlooking the Sahara, whose wonderful coloration at sunset delights the eye of the visitor to Biskra, offers scant hope of success to an invader approaching from the desert, for the streams flowing from the high northern ridges