CHAPTER ONE

PHYSICAL ENVIRONMENT

To the east of Kashmir in the upper Indus valley, lies a very elevated and rugged country, the tableland of Ladakh.

In Tibetan it is called La-tags or Ladak, but now it is more commonly known and spelt as Ladakh. Formerly it was also called "Mar-Yul" or "Mar Yool", "Ngarees" or "Mangyool". The word "Mar Yool" is an apt name as Ladakh comprises the lowest lying portions of Western Tibet. In the old inscriptions of Ladakh also, Mar Yul was the general name for the westernmost portion of Ngari.

Ladakh lies between north latitude 32° 45' to 35° 50' and east longitude 75° 45' and 80° 30'. Its boundary is extremely irregular outline and in shape it may be likened to a triangle, the longest side or base, which forms the southern limits, running obliquely for about 220 miles from south-east to north-west - more correctly from Bashahr, via Kulu and Chamba to Kashmir.

In the north the country is bounded by the Kuen Lun range and the slopes of Karakorum, and in the west by Kashmir and Baltistan. To its south are situated

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2 H.L. Ramsay, Western Tibet: A practical dictionary of the language and customs of the districts included in Ladak Wazarat (Lahore, 1890), p. 77.

3 Idem.

the districts of Chamba, Kulu and Bashahr and on its east and south-east beyond the international boundary lie the Tibetan districts of Rudok and Chumurti.

When the Dogras conquered Ladakh in 1834, its greatest extent was from north-west to south-east. It extended "from the Hdu-zi [Zoji Pass] upwards, from the Chos-hbad Pass of sSal-ti-yul upwards, and from La-hdar in Zans-dkar upwards; [the region] within the Se-hdu-la Pass of Ldum-ra [Sub-ras], and within Pho-long-hdra-hdra of Byanthan".¹ Its mean length and breadth was 200 miles and 150 miles respectively; thus, Ladakh (including the districts of Lahul and Spiti) covered an area of about 30,000 square miles.² It is one of the loftiest regions of the inhabited globe,³ and no part of it is below 9,000 feet in height.⁴

**DISTRICTS**

The different districts of Ladakh are situated along the head-waters of the Indus, the Shyok, the Chenab and their tributaries, and are usually named after the rivers.

These districts are also the natural divisions of Ladakh and formed administrative units under the native rulers. In a mountainous country, despite changes

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wrought by war and religion, the natural boundaries of its districts generally remain unaltered. Thus after the annexation of Ladakh by the Dogras in 1842, these districts formed various pargannahs or sub-divisions of the Ladakh Wazarat of Maharaja Gulab Singh's empire. Even today, they constitute separate administrative units of Ladakh district. A brief description of the various districts is given below.

Nubra the Western District

Nubra, literally meaning 'the western district', includes all the area drained by the Nubra and Shyok rivers. It was by far the largest district in the country, being about one hundred and twenty-eight miles in length and seventy-two miles in breadth.\(^1\)

The Nubra valley, which is situated on the main caravan route from Leh to Yarkand forms an important part of this district. With a few miles of breadth varying here and there, it is about sixty miles long,\(^2\) and is abundantly watered. As compared with other parts of Ladakh, it is sufficiently warm and is the most fertile area in the country;\(^3\) many kinds of fruit such as apples, apricots, walnuts and grapes grow in it.\(^4\)

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\(^1\)Cunningham, *Ladak*, p. 21.


The north-eastern part of the Nubra district consists of the Chang Chemmo valley and the Lingzi Tang plains. The latter, also known by the general name of Aksai Chin, has a ground level from 16,000 to 17,000 feet, and are a desolate expanse of earth and rock. These plains are dotted by small salt lakes and have little or no vegetation.¹

Ladakh

Ladakh has a local as well as a general sense belonging generally, and in particular, to the central district in and about the valley of the Indus, in the heart of which is situated the capital city of Leh. It was the most populous district in the country, and has an area of about 4,000 square miles.²

The valley of the Indus embraces more than eighty per cent. of the area of the district and runs through the entire length of the country from south-east to north-west. Besides the Nubra valley, it forms another fertile tract in the country.

Zanskar

This district lies to the south-west of Leh and includes all the country lying along the two main branches of the Zanskar river. It has an area of 3,000 square miles and a mean elevation of 13,154 feet.³ The greater part of this district is occupied by the ridges and ravines and is a black inhospitable glacial region,

³Cunningham, *Ladak*, p. 22.
the approaches to which from any side are quite difficult, because it is situated in a maze of mountains.1

**Rupshu or Ruksu**

It is the loftiest inhabited district in the country and its residents are known as Champas. Its mean length and breadth are ninety miles and sixty-two miles respectively, giving it an area of about 5,500 square miles.2 The lowest level of the valleys in this district is 13,500 feet above the sea, while the mountains that surround it have a height of 20,000 to 21,000 feet.3 The surface of these hills is chiefly disintegrated rock and that of the valleys earth and gravel. Vegetation is extremely scant, the only herbage for the flocks being found by the streams and a little on the hill sides.4

The presence of a salt lake valley is another unique feature of this district. The length of this valley, in a direction north-north-west and south-south-east, is thirteen miles, and its width five miles.5

**Dras, Purig, and Suru**

These are three small districts to the west of Zanskar, on the high road between Srinagar and Leh, and extend from the frontier of Baltistan to Zanskar. The total area of all these districts is about 4,200 square miles.6

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2Cunningham, *Ladak*, p. 22.
Spiti and Lahul

The two formed southern districts of Ladakh. Spiti comprises the whole valley of the Spiti river, from its source to the junction of the Para river and has an area of about 1,900 square miles.

Lahul comprises the valleys of the Chandra and Bhaga rivers, as well as that of the united stream flowing up to Trilok Nath, where the Chenab river enters Chamba. It is sixty-eight miles in length and thirty-four miles in breadth.¹ With the single exception of the valley of the Indus, Lahul possesses more cultivable land and a less rigorous climate than any of the other districts of Ladakh.

In 1846, when Gulab Singh became the Maharaja of Jammu, Kashmir and Ladakh, the British Indian Government detached Spiti and Lahul from Ladakh and annexed it to the Kulu sub-division of Kangra District of the Punjab under their control. Now Lahul and Spiti form two important districts of Himachal Pradesh.

Mountains

Mountains are the most important feature in the topography of Ladakh and to the south of Karakoram, they stretch in parallel ranges from the south-east to the north-west. This general direction of mountain chains determines the courses of the rivers as well as the natural boundaries of Ladakh.² The land is not only hemmed between the sea of mountains, but is interspersed by high hills, in which perpendicular cliffs

¹Cunningham, Ladak, p. 24.
²Ibid., p. 16.
of about one hundred vertical feet are quite common. These cliffs are sometimes full of holes, so that the Turks have called one of them as "Kupatar-Khana" or pigeon-house, and the latter occasionally grow into caves large enough for the abode of Tibetan hermits. 

Here, a brief reference to important ranges may perhaps be relevant.

Eastern Kuen Lun Mountains

The high tableland of the Kuen Lun plains and Lingzi Tang are separated and surrounded in the north by a high range of hills, known as Eastern Kuen Lun mountains. These are from 20,000 to 21,000 feet high, and alongwith the Karakoram range form the northern boundary of Ladakh.

Karakoram Range

The Karakoram are a great complex of mountains spread across the north of Ladakh. They are formed by a number of ranges, some of which rise to a height of 26,000 feet or more. The second highest peak in the world, K2 (28,250 feet), which has not been climbed so far is situated in this range. It has great mountain ridges and valleys which are no more than two miles in width. The celebrated Korakoram pass with an elevation of 18,371 feet connecting Ladakh and Yarkand is situated in this complex. Within this range are many glaciers, which are the largest outside the Arctic and Antarctic regions.

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1 Strachey, Western Tibet, p. 18.
4 E.J. Rapson (Ed.) The Cambridge History of India (Delhi, 1955), I.P. 29; Cressey, op.cit., p.477.
rivers of the Tarim basin and the streams flowing into the Indian Ocean.1

**Leh Range or Kailash Range**

It runs through the middle of Western Tibet, along the right bank of the Indus, to its junction with the Shyok. Its length from Kailash peak, which is situated north of the Manasarowar and Rakas Tal lakes to Hunza and Nagar is about 550 miles, and its direction is from south-east to north-west.2 Because of the presence of Kailash peak in it, Cunningham gives it the name of Kailash range or Gangri range.3 It forms the natural boundary between Ladakh, Baltistan and Rongdo on the south and Rupshu, Nubra, Shigar, Hunza and Nagar on the north.

**Zanskar Range or Trans-Himalayan Range**

It branches off from the Kailash range to the south of Gartok, and extends in one unbroken chain through the districts of Chumurti, Rupshu, and Zanskar. From Zanskar it extends to the junction of Gilgit river with the Indus,4 and in this section there are some wide openings. The ramifications of these mountains are most complicated and some of its summits rise up to 20,000 feet.5 It forms the natural boundary between Ladakh, Baltistan and Rongdo on the north, and Rupshu, Zanskar, Purig, Dras and Astor on the south.6

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2 Cunningham, Ladak, p. 50.
3 *Idem.*
4 Cunningham, Ladak, p. 52.
5 Drew, J & K Territories, p. 261.
6 Cunningham, Ladak, p. 53.
Watershed Range or Central Chain

Last of all is the Watershed range. Starting in the west at the great mountain mass above the Indus, of which the culminating peak is Nanga Parbat, it runs in a south-easterly direction, forming the watershed between the Indus and the Kishanganga. Later it abruptly descends to an altitude of 14,000 to 15,000 feet, at which it continues for fifty to sixty miles. It is crossed by several passes, the best known of which are the Barzil La, on the road from Kashmir to Gilgit and the Zoji La, on the road from Srinagar to Leh. From Zoji La the mountains rise rapidly in elevation, the peaks attaining an altitude of 18,000 to 20,000 feet culminating in the Nun Kun peaks which rise to a height of over 23,000 feet. Owing to their altitude these mountains are under perpetual snow, and glaciers form in every valley. The range keeps this character throughout Kashmir territory for a distance of 150 miles to the Bara Lacha pass when it passes into Spiti.¹

RIVERS

The common name for a river in Ladakh is chhu; thus Singge-chhu, meaning the river Indus and Zanskar-chhu, meaning the river Zanskar.² The river system of Ladakh consists entirely of the Indus, the Shyok and the Zanskar. Here a brief reference is made to only important rivers.

The Indus

The name Indus had its origin in the Sanskrit

²Cunningham, Ladak, p. 83.
The word 'sindhu' meaning 'the ocean'. In Western Tibet it is known by the general name of Sinh-kha-bab i.e. the river that rises from the lion's mouth.  

The Indus rises in the interior Tibet near the Lake Manasarowar and is formed by the junction of two mountain streams; the northern stream is the Singi Kampa, which follows a semi-circular course and the southern is the Gartang chu, which takes a straight course from Gartok. The joined stream takes a north-westerly direction and enters Ladakh near the Charding La; after flowing for a few hundred miles through Ladakh and Baltistan, it reaches Gilgit whence it turns south and through West Pakistan flows into the Arabian Sea.

The Shyok

The Shyok is the best known of the mountain tributaries of the Indus. It rises behind the crest of the Karakoram mountains to the north of Leh and after cutting through the higher parts of the range, joins the Indus on its right bank at Kiris. From its source to Kiris, the length of the Shyok is about four hundred miles, and its important left-bank tributaries are the Chip Chap, the Galwan and the Chang Chenmo rivers.

The Nubra River

It is the right-bank tributary of the Shyok. Rising in Saichan glacier, it flows towards the south-east

2 S.G. Burrard and H.H. Hayden, A sketch of the Geography and Geology of the Himalayan Mountains and Tibet (Delhi, 1933), p. 239.
3 Cunningham, Ladak, p. 95.
and joins the Shyok near the village Lokzhung. It is fed by the great conglomeration of snow-fields and peaks, which are the core of Karakoram, and is about one hundred miles long.

The Zanskar River

This is one of the principal left-bank tributaries of the Indus, and comprises two main branches, the Zanskar proper and the Sumgal. Its headwaters are the Yunan, Serchu, and Tsarap, all of which rise to the north of the Himalayan range near the Bara Lacha pass. Mostly flowing through the Zanskar range, it joins the Indus below Leh near the village of Nimu and its length is about 230 miles.

ROADS

In the period covered by this study, a system of roads, in the modern sense of the term, in a country like Ladakh was unthinkable. Till recently no wheeled traffic reached Leh, for it was only in August 1960, that a jeepable road linking Srinagar with Leh was constructed. This road has been further improved and another road from Leh to Chushul via Chang La (17350 feet) has now been completed. This is known as the "skyway" and is said to be the highest road in the world.

1 JRCAS., XXXVI (1942), p. 58.
2 Gazetteer Kashmir and Ladakh, 1890, p. 634.
3 Ibid., p. 865.
4 Burrard and Hayden, op. cit., p. 247.
5 The Tribune (Ambala Cantt), Monday, August 23, 1965.
In the first half of the nineteenth century, roads in Ladakh were no better than bridle-tracks and were, in general, both rough, and narrow pathways. Almost the entire trade of Ladakh was carried through them. Here a brief reference is made to some of the important roads only.

The Central Asian Trade Route

This route connected Ladakh with Kabul and Kashmir on the one side, and Eastern Turkestan and China on the other, and was one of the most frequented in Ladakh. In ancient times also, it was the most important thoroughfare. Indian conquerors after defying the climatic hazards followed this route and established colonies in the basin of the Tarim.

This road traversed the whole of Ladakh from the Zoji pass to Leh. From Kashmir, after crossing the Zoji La, it followed the course of the Dras river to its junction with the Suru and then reached Kargil. From Kargil it ascended the Purig valley and negotiated two comparatively easy passes, Namaki La (12,200 feet) and Photo La (13,400 feet). Then moving to the east, it crossed the Indus river at Khalatse and reached Leh. The whole distance of this trade route from Srinagar to Leh is about 220 miles.

The caravan traders while treading this route

2. A. Neve, Thirty Years in Kashmir, p. 254.
3. The Tribune (Ambala Cantt), Sunday, August 16, 1965.
had to face many difficulties. It was passable only from March to November, when the heavy snowfall at Zoji La closed it for practically all movement. When Izzet Ullah travelled by this route in 1812, he found the road at many places "difficult and rocky, so as to be impassable to a mounted traveller". Goods between Kashmir and Leh were carried partly by men and partly by ponies. If the conveyance was by men only, it took a month or a little more to reach Leh from Srinagar.

However, in the late eighteen-thirties, due to the exertions of Wazir Zorawar Singh, the condition of this road improved. Alexander Cunningham, who visited Ladakh in 1847-48 bears testimony to this effect:

The greater portion of this road, which lies in Ladak was made by Zorawar Singh after the conquest of the country in 1834. The large bridge over the Indus at Kailah (Khalatse), as well as smaller bridges over the Wanka, Kanji, Waka, Suru and Dras rivers, were all built by the energetic invaders who knowing the value of good communications, have since kept them in excellent repair. No road can well be worse than the few marches on the Kashmirian side of the pass (Zoji La) which are still in the same state as described by Izzet Ullah in 1812.

From Leh to Yarkand caravan traders followed two different routes. First was the Zamistan or winter route. Mir Izzet Ullah travelled by this route in 1812, and was the first man who furnishes some details about it. In 1821-22, Moorcroft – that great traveller

2 Ahmad Shah Naqshbandi "Routes from Kashmir, via Ladakh, to Yarkand", JRAS., XII (1850), p. 373.
3 Cunningham, Ladak, 149.
4 For Mir Izzet Ullah, see infra, pp. 135-36.
endowed with indefatigable enterprising spirit - followed in the foot-steps of the Mir, but did not visit the Karakoram pass and returned from the Nubra valley. Generally, this route passed over the beds of the rivers, which in the cold season contained little water and were frozen. These streams which formed no obstacle in winter were often impassable torrents in summer, in which season also there was much danger from the avalanches in many parts of the road. It is thus no wonder that despite all the hazards of a winter journey, caravan merchants selected that season for their travels.

The first obstacle on this road while moving from Leh was the Diggar La (17,930 feet), which was a very difficult pass situated on the Kailash range. The road before reaching the Karakoram pass, passed through the narrow, winding, and difficult valley of the Shyok river, the frozen surface of which was crossed "not less than thirty-six times". After negotiating the Karakoram pass, it descended into the valley of Yarkand, and passing through Kugiar and Karghalik reached Yarkand.

The second route was known as Tabistan or summer route. The details of this route were provided for the first time in 1846 by Ahmad Shah Naqshbandi.

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3. Details of this route originally written in Persian were translated into English by Mr. J. Dowson, and published in JRAS., XII (1850), pp. 372-379.
The route first crossed Khardung La or Leh pass (17,900 feet) and then descending the Shyok river at village Satti, where for the carriage of goods and passengers boats were often employed, it ascended the Nubra valley. Thereafter, before reaching the Karakoram pass it crossed Sasser La (17,820 feet) which was one of the most difficult passes on this road and rarely free from snow. The road in this area passed through, over and alongside glaciers for many miles. After negotiating the Karakoram pass, this route crossed the Aktagh range by the Soogot pass (18,237 feet), and following the course of the Soogot stream, through Shahidullah reached Yarkand.

The third route connecting Leh with Yarkand which does not seem to have been followed in the first half of the nineteenth century by the caravan merchants was through Aksai Chin. The route passed through the Chang Chenmo valley and Chang Lang pass (18,839 feet). Then across the series of high plains i.e., Lingzi Tang, it entered the valley of Karakash river and joined the Tabistani route at Shahidulla.

The distance from Leh to Yarkand, by the Zamistani route was 530 miles; by the Tabistani some 480 miles, while by the Chang Chenmo route it was 507 miles.

1 Trotter, Account of the Survey operations, p. 10.
2 Idem.
3 G.W. Hayward, "Journey from Leh to Yarkand and Kashgar and Exploration of the sources of the Yarkand River", JRGS., XL (1870), p. 33.
4 Ibid., p. 34.
5 Idem.
In early times, caravan traders while going from Kashmir to Yarkand followed an entirely different route. It lay through Gurais, Skardu\(^1\) and Shigar.\(^2\)

William Finch, an English traveller who was in Kashmir in 1611 A.D., tells us that at that time trade between Kashmir and Chinese Turkestan passed through Baltistan.\(^3\)

When Bernier visited Kashmir in 1665 A.D., he also found that the route through Ladakh was closed, perhaps due to political strife in that area, and merchants took the road of Baltistan, though the route was "extremely bad", and in every season one had to "go a quarter of a league over the ice".\(^4\)

Later when Mir Izzet Ullah visited this region in 1812, as noted earlier, merchants followed the more easy, though comparatively longer, route through Ladakh. Mir Izzet Ullah wrote that from Kashmir to Yarkand via Baltistan, the journey was of twenty-five days, three of which were over the glaciers and was rarely travelled.\(^5\)

It appears that this route was abandoned partly owing to the changes in the ice on the Balerro glaciers which made it nearly impassable and partly due to the fact that the caravans were plundered by the Baltis.\(^6\)

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\(^1\)It was the capital of Baltistan.

\(^2\)It was a dependency of Baltistan.


The South-western Road

It linked Punjab through Jammu, Kishtwar and Zanskar with Leh. From Jammu to Leh the distance by this road was about 230 miles, and the greater part of it was traversed on foot, though occasionally for a small distance a horse could also be ridden. From Jammu, it proceeded to Kishtwar through Ram Nagar and Bhadarwah. From Kishtwar it took an easterly direction and after passing through the Chandra Bhaga valley near Chatargarh it negotiated Umasi La, and entered Padam, capital town of Zanskar. From Padam it moved towards the north along with Zanskar river, and after crossing the river at Nira Bridge, it joined at Lama Yuru with the Srinagar-Leh road.

The lofty passes on this road are seldom open before June, and they are always closed by the end of October.

From Padam there are two other routes to Leh; the first passed through Zanskar whereas the second lay through Rupshu. The latter was frequently traversed by the Dogra army between 1835-1840, for suppressing revolts in Ladakh.

The Southern Road

This road connected Leh with Kulu, Bashahr, Nurpur and other trade marts of the Punjab. It passed through Mandi and Sultanpur, then capital of Kulu; and after crossing the Rohtang pass, descended into Lahul. In Lahul after crossing the Bara Lacha pass, it entered

1Cunningham, Ladak, p. 153.
2Vigne, Travels, I. 165.
Rupshu, from where after negotiating Lunga Lacha La (17,000 feet), and Thung Lang La (17,500 feet) it reached Leh. This route was frequented chiefly by the inhabitants of Mandi and the surrounding hill states.\(^1\)

**The North-western Road**

This road led from Baltistan and other Mohammedan districts up the bed of the Indus and connected Skardu with Leh. During the summer months, when due to the melting of the snow, the waters of the Indus were swollen, the travellers generally preferred ascending the Shyok river as far as Chhorbad, whence they crossed the Hanu pass or Chhorbad La (17,000 feet) and descended into the Ladakh district. This road was frequently traversed by the Baltis, who carried dried apricots, which were in great favour and demand in the cold countries of Ladakh and Tibet.\(^2\) This route was also followed by Zorawar Singh who conquered Baltistan in 1839-40.

**The South-eastern Road**

It connected Ladakh with Tibet. The distance from Leh to Lhasa is about 900 miles.\(^3\) From Leh it followed the course of the Indus upstream; then through Gartok and Lake Manasarowar, it entered the valley of Tsang Po and reached Lhasa.

In addition to the principal thoroughfares listed above, there were many other smaller routes, which more appropriately may be called the goat-tracks. These were used by the inhabitants of Ladakh for exchanging the produce and victuals of one district

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\(^2\) Drew, *Northern Barrier*, p. 239.

\(^3\) Cressey, *op. cit.*., p. 165.
A pass in Tibetan is called La. The high mountain walls which surround and dissect Ladakh, are pierced by a number of openings or passes. For many months in a year these passes are blocked by heavy snow falls, as a result of which Ladakh is completely cut off from the rest of the world. But in summer, these passes serve as Ladakh's nostrils, and allow it to communicate with the world outside. In Ladakh there are about a score of passes; mention is made here only of the important ones, especially those which had a commercial or strategic importance in the past.

Karakoram Pass (18,317 feet)

In the complex of mountains at the north-east corner of the Karakoram range, in an area where China, Tibet and Ladakh meet is situated the celebrated Karakoram pass. From time immemorial, the principal Central Asian caravan trade route lay through this pass and it was used both on the winter as well as summer routes from Leh to Yarkand. Dr. Thomson, the first Englishman who visited this pass in 1847, found it totally destitute of vegetation and covered with loose shingle. It is always free from glaciers in winter and in summer from snow. The ascent on both sides is gentle and the road is good. It was crossed by Mirza Haider Dughlat for

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invading Ladakh.¹

The Zoji La (11,300 feet)

It connects Ladakh with the Kashmir valley, and is situated "in one of the densest snow belts in the world".² Like the Karakoram pass, it has also been used by caravan traders. Because of heavy snow-fall, it remains closed from the middle of November to the middle of May. According to Dr. A. Stein, Zoji La also forms the ethnographic watershed between Kashmir and the land of the "Bhauttas" or "Bhuttas", the natural inhabitants of the Indus region.³ It often brings refreshing winds and storms into the Dras valley, but in the past, to the inhabitants on its either side, it brought sufferings too. It was through it that in 1532 Mirza Haider first invaded Kashmir. Later in 1681-84, it was through this pass that the Mughal forces saved Ladakh from the strangle-hold of the Tibeto-Sokpa (Mongol) invaders.

Danny La or Bardhar Pass (17,370 feet)

It is situated between Kishtwar and Zanskar, and is a snowy and difficult pass. The inhabitants of Zanskar call it Danny La, whereas those of Paddar name it Bardhar pass. It was usually traversed by the merchants of Jammu, the Punjab, and Kishtwar, who traded with Ladakh and other Central Asian countries.

¹For details about this invasion, see infra pp.77-81.
²The Tribune (Ambala Cantt), Monday, August 23, 1965.
In the late thirties of the previous century, this pass was crossed and recrossed many times by the Dogra armies when they conquered Ladakh and Baltistan.

Maryum La or Bhot Khol Pass (14,700 feet)

This pass is situated in the Wurdwan valley and connects Kishtwar with the Suru valley. For about six months it remains covered with snow and is a very difficult pass. For subduing Ladakh it was also frequently crossed and recrossed by the Dogra army.

TRANSPORT AND COMMUNICATION

As noted earlier, in the first half of the nineteenth century, there was no wheeled-traffic in Ladakh, and goods were generally carried by riding and pack animals. Horses and mules were the most useful beasts of burden, but these could not be carried to all the places. At more difficult and narrow points, merchandise was carried by the sturdy Ladakhis on their backs. At greater height near the snowy passes, where horse and mule proved unserviceable, the yak was most useful as a weight-carrier.

The Champas of Rupshu did not carry loads on their backs. They employed their large goats and sheep known as ‘huniya’ for carrying loads; a small pack of double bag was made to hang over the back, filled to an average weight of 24 lbs., though the stronger animal was loaded up to 32 lbs.

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1Drew, J & K Territories, p. 535.
2R.H. Phillimore (collector and compiler), Historical Records of the Survey of India (Dehra Dun, 1956), Vol. IV, p. 291.
3Cunningham, Ladak, p. 211.
4Drew, Northern Barrier, p. 299.
Where there were no bridges, goods and men from one bank to the other of a river were carried through rafts. In 1837, G.T. Vigne, crossed the Dras river on a raft. Ferry or 'Grukha' was also in general use. The common people were usually ferried over on a single inflated skin, but more important persons were usually taken over on a raft, formed by placing a bed on two inflated skins.

CLIMATE

As Ladakh is located almost entirely in the mountainous region, its climate is characterised by extremes of heat, cold and dryness. Summers are short and mild and winters long and bitter. Winter begins in September and lasts till mid-May. The hottest and the coldest months are July and January respectively. Most of the precipitation that falls during winter months is in the form of snow, and varies from district to district. Leh gets little snow-fall, which being very dry and powdery is blown off or absorbed within a short time of falling, while Dras, a village in Lower Ladakh, which receives snow during winter months exceeding twenty feet, is said to be the second coldest inhabited area in the world. The disposition of the mountain ranges is

1Vigne, Travels, II, p. 392.
2H. Trotter, Account of the Survey operations, p. 10.
3Gazetteer Kashmir and Ladakh, 1890, p. 539.
4The mean temperature figures collected by the Indian Meteorological Department from 1953 to 1962 for Leh during the months of January and July with Maximum and Minimum are -1.30, -13.03 and +24.66, +10.16 respectively. Draft Fourth Five Year Plan, Ladakh District, typed copy, p. 22.
5The Tribune (Ambala Cantt), Monday, August 23, 1965.
such as offers little resistance to the general direction of winds and hence the scanty rainfall.\textsuperscript{1} In some of the areas in the interior which are completely girdled by mountains, less than five inches of rain falls in a period of ten years. In the thin atmosphere insulation and radiation alike take place at an extreme tempo; mechanical disintegration of the rocks is rapid, and the saying that a bare-headed man with his feet in the shade can get sun-stroke and frost-bite simultaneously may hardly be an exaggeration.\textsuperscript{2} The relative humidity is very low and even barley and fruit trees which are and can be grown in most of the localities in Kashmir without irrigation, cannot grow here without it. Due to excessive dryness of air, thunder and lightning are a very rare occurrence. So is the case with earthquakes; if at all one occurs, its intensity is never severe.\textsuperscript{3}

AGRICULTURE

Nature appears to have been very niggardly in the distribution of its bounties with regard to Ladakh. Uneven terrain is one of its natural disabilities; soil for the most part consists of a desert of bare crags and granite dust. The rugged configuration of land and lack of precipitation limit the land available for

\textsuperscript{1}The Annual Normals of rainfall recorded in millimeters by the Indian Meteorological Department from 1901 to 1950 for Leh, Kargil and Dras are 92.6, 264.5 and 673.0 respectively. Draft Fourth Five Year Plan, Ladakh District, p. 22.


\textsuperscript{3}Gazetteer of Kashmir and Ladakh, 1890, p. 473.
cultivation; the small area which is brought under the plough is mainly confined to the narrow valleys and patches on the banks of the rivers. At present, the total area of land under cultivation in Ladakh (excluding Lahul and Spiti) is about 40,000 acres. There is a very wide range of altitude and climate prevailing in Ladakh, and these vary even from one area to another. The physical features more often than the nature of the soil exercise great influence on the distribution and cultivation of various types of crops, vegetables, fruit and grass.

A holding is termed "Zhing-Khang", and the average possession of a family is eleven 'Khal' of cultivable land or about three acres. Land is levelled by hand and most of the agricultural operations are conducted by man's sinews. Methods of cultivation are crude and primitive.

Irrigation in an arid land such as Ladakh is most essential. Due to irregular and variable flow of water the rivers cannot be dammed for irrigation purposes. However, in flat basins such as near Leh, now extensive diversion canals have been dug but during the period under review, in Ladakh irrigation works were quite an unheard thing. Small mountain torrents are dammed here

1Draft Fourth Five Year Plan, Ladakh District, p. 23.
2Ramsay, Western Tibet, p. 42.
4Cf. Walter Asboe, "Farmers And Farming in Ladakh", JRCAS., XXXIV (1947), pp. 186-192. In this article, Asboe has discussed agricultural activities in Ladakh in great detail. For more information, see also his article "Agricultural Methods In Lahoul, Western Tibet", Man, XXXVII (1937), pp. 74-77.
and there and often water is carried for long distances through small channels.¹

Barley, which forms the staple food of the Ladakhis is grown quite abundantly. It is found in both forms i.e. with beard and beardless. 'Grim' or 'Shirokh' or beardless barley has many varieties;² as compared with other crops it ripens more quickly and requires less manure. A little wheat is also grown in the lower valleys such as Suru. Other crops grown are those of buck-wheat, mustard and millet. No rice or cotton is grown in Ladakh.

Lucerne, locally known as Ola is the most important cultivated forage crop. It is grown chiefly for hay to be stored for winter and subsequent use. Horses become fat upon it in the course of a month or so without any corn.³ It is also a good remedy against the rot in sheep, if given for food for a certain time in autumn.⁴ In 1965, the area under this cultivated fodder crop constituted about twenty per cent of the total cultivated area of Ladakh.⁵

FLORA

In a region of extremes of climate with scanty rainfall, little vegetation is expected. The cover of


2 For details of various varieties, see JRCAS., XXXIV (1947), pp. 190–91.

3 JHASS., XII (1850), p. 377.


5 Draft Fourth Five Year Plan, Ladakh District, p. 212.
Moorcroft, when he visited Ladakh in 1832, estimated its population as between 150,000 and 130,000. In 1834, before the Dogra conquest, Alexander Cunningham calculated the total population of Ladakh at 168,000 of whom 12,000 were lamas. In 1847, this population dwindled down to 126,000; the causes of reduction being a disastrous outbreak of small-pox in 1834, Dogra wars (1834-42), and emigration. According to census reports, the combined population of the districts of Ladakh, Lahul and Spiti amounted to 109,104 in 1961.

In the early half of the 19th century, the entire Ladakhi population consisted of two groups — the Ladakhis and the Champas. The Ladakhis inhabited the valley of the Indus and its tributaries and had permanent villages. The Champas, led a nomadic life on the upland valleys which being too elevated are fit only for pastoral uses.

The great mass of the people of Ladakh were Tibetan-speaking Buddhists. There was, however, a small colony of Mohammadans in Chushod near Leh, and in Dras there was a group of Dards. But Mohammadans and Dards formed a microscopic part of the entire population. Population figures seem to have been affected by polyandry and Lamaism; about the latter more will be said in the next chapter.

Unlike Kashmir and some other parts of India, there were not many invidious caste divisions in Ladakh. The only caste division was that of the blacksmiths and the musicians; they were considered belonging to a low caste called 'Bem'. They lived in segregated quarters and were not allowed to become members of the church.

Laud was the primary economic base of the population and almost all the Ladakhis were engaged in farming. Besides agriculture, sheep-rearing and participation in the carrying-trade of the country were important economic activities.

**TRADE**

So far as the indigenous produce of Ladakh was concerned, its trade was not of great value. The chief consideration in its trade, however, arose from its strategic location whereby it acted as a great thoroughfare for an active commercial intercourse between Tibet, Yarkand and China on the one hand and Kashmir, Kabul and the plains of Hindustan on the other. Leh was one of the most important trade marts on the Central Asian caravan route. It acted as a great entrepot, where merchants gathered and exchanged their commodities.

Trade was a source of considerable revenue for the state and beneficial to the Ladakhis also. Although few merchants carried through trade between India and Eastern Turkestan, yet the mass of trade was carried on between Indians and Kashmiris who came up as far as Leh and there exchanged their goods for the products of Central Asia brought down by merchants who did not go farther south than Leh. This benefited Ladakh, for, as it was a long and bad journey from Leh to Yarkand, or even from Leh to India, merchants on reaching Leh were obliged to rest themselves for a month or two and replenish their stocks before attempting the return journey. As a result, during the months of August, September and October, the Ladakhis reaped a harvest by supplying grass, grain and wood etc., to these

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1 JHAS., XII (1850), p. 378.
merchants and their camp-followers. The country people also got little employment: their ponies, horses and yaks were hired by these merchants and they were also employed as coolies and labourers for carrying loads.

For the sake of convenient treatment of the subject, the trade of Ladakh may be divided into two parts:

1. Internal Trade.
2. External Trade (Exports and Imports).

Internal Trade

This consisted in articles both imported and produced in the country and was carried by the inhabitants of one district with those of another. Mainly, this trade was carried by barter. The people of Rupshu brought salt to Zanskar and took barley in exchange. The Zanskaris, further exchanged this salt with the inhabitants of Suru for pattu (Woollen cloth), some cash and barley. Blankets and coarse woollens or sack cloth (manufactured in Ladakh) which was used for bags for the conveyance of goods was another important commodity that exchanged hands in the country. In 1846, the quantity of wool used in making blankets and sacks was 20,000 small maunds, or 640,000 lbs.

External Trade

Although Ladakh is surrounded by high mountains, it maintained very close trade relations with the neighbouring states. All foreign trade was carried through the Central Asian trade route and other roads, which

1 Ramsay, Western Tibet, p. 79.
2 Drew, Northern Barrier, p. 287.
3 Cunningham, Ladak, p. 238.
4 For details about these roads, see supra pp. 11-18.
connected this Himalayan principality with the neighbouring countries.

Exports

Foreign trade of Ladakh in home produce was confined to four items - wool, sulphur, borax, and dry-fruits. It deserves a slight notice. Wool was the chief product of Ladakh. It was of two kinds, first goat-wool or 'Le-na' which was used for shawls and second sheep-wool, or 'Bal', which was used for blankets and coarse clothing or for stuffing pillows and beddings. The most important wool producing district was Rupshu. It was also produced in the steppes between the Shyok and the main branch of the Indus.\(^1\) Alexander Cunningham, who visited Ladakh in 1846-47 observed that during that period export of shawl-wool (produced in the country) amounted to 2,400 small maunds or 76,800 lbs. a year.\(^2\) Export of sheep-wool or 'Bal' was about double that quantity or approximately about 5,000 maunds.\(^3\) Borax and sulphur were mainly exported to the Punjab and other Himalayan hill states and the yearly quantity amounted to 500 maunds and 250 maunds respectively.\(^4\) Dry-fruits consisted of apricots and small seedless raisins commonly called currants. These were partly imported from Baltistan and were of superior quality. In 1846, the annual quantity of dry fruits exported was about

\(^{2}\) Cunningham, Ladak, p. 239.
\(^{3}\) Idem.
\(^{4}\) Cunningham, Ladak, p. 240.
300 maunds. A salt of soda, locally known as "Phuli", found in the Nubra and Rupshu districts, was also exported to Kashmir and Kulu. It was used for mixing with tea so as to bring out its strength. Also it was employed for washing clothes and for dyeing wool etc. In 1846, the whole value of the foreign trade of Ladakh in home produce did not exceed rupees 80,000.

Imports

Besides exporting indigenous products Ladakh, as pointed out earlier, also exported some of its imports. It is difficult to assess the value of this carrying-trade passing annually through Ladakh, but it must have been considerable. Moorcroft tells us that in the eighteen-twenties, a certain Kothi Mall, a banker of Amritsar, generally invested rupees two to three lakhs annually through his agents.

Shawl wool and tea were the most important imports of Ladakh. The former was imported from Western Tibet and Yarkand. Under treaty rights, Ladakh imported the entire produce of shawl wool of Western Tibet and


2Mohammad Khan, 'Ahwal-i-Mulk-i-Ladakh', Urdu MSS, pp. 4-5. (Research and Publication Department Library, J & K Government, Srinagar).

3Cunningham, Ladak, p. 240.


5W. Moorcroft to C.T. Metcalfe, 12 May 1821: Foreign Department Political Consultations, 10 October 1823, No. 21.
further supplied it to Kashmir. ¹

Tea was chiefly produced in China whence, through Lhasa and Yarkand, it was imported into Ladakh. In 1846, the quantity of tea imported was about 1,000 maunds² or 3,200 lbs. which accounted for rupees two lakhs.³ This was partly consumed in Ladakh and partly exported to Afghanistan,⁴ Kashmir and the Punjab.⁵ About one hundred maunds of black tea of Bashahr was also imported into Ladakh, but being cheaper in price, it was usually mixed with Chinese tea and consumed by the poor classes.⁶ Salt, borax, and sulphur were also imported from Chang Thang; along with the indigenous produce these articles were exported to the Punjab, Kulu, Chamba and other Himalayan hill states. In return, from these hill states, Ladakh got most of its supplies of ghee, butter, honey, raisins and grain.⁷ The Bashahris took to Ladakh various kinds of cotton cloth, gongs, prayer-wheels etc. and brought back kesur or saffron (produce of Kashmir and Kishtwar), coarse shawls manufactured in Ladakh, numdas or felts and dochuks or ingots of silver etc.⁸

¹See infra pp. 96-97.
²Cunningham, Ladak, p. 248.
⁴Ibid.
⁵Hamilton, op. cit. p. 572; Moorcroft, Travels, I, p. 350.
⁶Ibid., p. 358.
Important among the articles of trade through Ladakh from India and Kashmir to Yarkand were opium, shawls, saffron, red leather, spices, brocades, chintzes and copper tinned vessels. Chief among the imports from Yarkand were charas, tea, tobacco, Yambo silver, felts, silk, dried sheep skins, Russian leather, brocades, velvets and horses. A part of these articles was consumed in Ladakh but a greater part was destined for the Punjab.


2 Vigne, Travels, II, p. 344; Moorcroft, Travels, I, pp. 356-57; Cunningham, Ladak, pp. 244-45.