CHAPTER - II

THE HABITAT:

THE PHYSICAL LAYOUT
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In a study dealing with cultural ecology the significance of the habitat can hardly be overemphesized. Cultural ecology, by its very nature is concerned with the human Universe of day to day life, since the human population is territorially localized, out of the principal elements cultural-ecological studies is the definition of the spatial boundaries of the habitat and geo-ecological features prevailing therein. This is because the distinctive characteristics of a community may least be partly attributed to the peculiarities of its habitat.

In the following pages an attempt has been made to define the habitat area of the pastoral nomads of Jammu and Kashmir so, as to contain all that is relevant for an understanding of the collective life of these people.

Physical Layout of the Habitat:

Since the pastoral nomads operate from the southern foot hills of the Pir-panjal to the Alpine pastures in the Greater Himalayas, the entire state of Jammu and Kashmir constitutes the habitat for the purposes of the present study.

The state of Jammu and Kashmir is strategically located in the north west corner of India. It shares its borders with China in the east and Pakistan on the west. On the north lies
the Tibetan plateau while on the north west its borders are common with Afghanistan. On the northern side the vale of Ab-i-panja or the panhandle (Wakhan) of Afghanistan intervenes between the borders of Jammu and Kashmir and U.S.S.R. Towards the south, we find the plains of northern India and eastern Panjab i.e. Panjab and towards southeast state of Himachal Pradesh shares its borders.

From the latitudinal point of view the state is situated for beyond the tropical zone of the country. It extends from 32°.17 N to 37°.50 N latitude. Longitudinally the state lies between 73°.26 east to 80°.30 east.

The area of Jammu and Kashmir state is 2,22,800 Km². Out of this 83,808 Km² are under illegal occupation of Pakistan since 1947. Another 41,500 Km² were illegally occupied by the Chinese in 1962. Thus the area effectively under the controle of the state of Jammu and Kashmir is 97,492 Km².¹

Being a mountainous state Jammu and Kashmir is characterised by a great diversity in relief. Hemmed in between snow kissed peaks of the Himalayas and the scorching plains of Punjab, the state contains a mosaic of ecologies—the Jammu plains, the Siwalik hills, the thickly forested middle Himalayas, the

¹ Map No. for details of area.
lushgreen and verdant Kashmir valley and finally the lofty peaks of the greater Himalayas. The mountain ranges are pierced by longitudinally aligned dense forested valleys. These valleys and numerous passes greatly facilitate transportation which otherwise is too difficult in this mountainous region. It was through these passes that cultural and commercial ties were maintained between India and central Asia during ancient times.

**Physical Divisions:**

Except for a small portion in the south, the entire state of Jammu and Kashmir is mountainous and is traversed by ranges. A number of mountain ranges which bifurcate from the Pamir complex — Karakoram, Ladakh, Hindukush Mazlog and the Greater Himalayan ranges on south, southeast and southwest, Pamir Alay, Tienshan and Trans Alay on north east and on the east and southeast Kunlun and Agine ranges more or less fall into three parallel ranges: (I). The Greater Zanskar range, also known as the Inner Himalayas, (II). The lesser ranges, also called the Middle Himalayas and (III). The Siwaliks and Pir-panjal ranges, also known as the outer Himalayas. One important characteristic of these ranges is that they present a steep slope towards the south and a gentler slope towards the north.

The state of Jammu and Kashmir falls into the following natural divisions:
I). Outer Plains.

II). Outer Hills.

III). Middle Mountains (Pir Panjal).

IV). Kashmir Valley.

V). Greater Himalayas.

I). **Outer Plains:** This strip of plain, lying between river Ravi on the east, rivers Chenab and Jhelum on the west, at an altitude of 305 metres to 366 metres above sea level, is a continuation of the Punjab plains. The general slope of the plain is towards south-west. Denudation and erosion have played a significant role in the modification of topographical features in this region, carving out depression by sub-aerial denudation is spacially common. Broad longitudinal valleys form a conspicuous features of the relief of this region. Extending from Ravi to Jhelum, the plains vary in width from 6 to 42 Km. The rainfall is scanty but the alluvial soil is very rich. Water deficiency is spacially marked during summer months, when people face acute shortage of even drinking water. The water shortage has to some extant been reduced by the state government which has, in recent years, sunk a large number of tubewells and dug wells. Besides providing water for drinking purposes, these wells also provide some water for irrigation. Two recently constructed canals also provide water for irrigation by lifting water from rivers Ravi and Tawi respectively.
The entire outer plains are full of small streams which carry off flood water during the rainy season. The volume of these streams vary from season to season. More important of these streams are Tawi and Ujh. The Tawi flows for about 128 Km before it enters the plains near Jammu city, while Ujh joins the plains near Jasrota after flowing for about 80 km. These rivers are subjected to floods in summers and to some extent in winters also. River Ujh which has comparatively steeper bed carries much bigger boulders than the river Tawi, they can be as big upto 61 to 92 Cm in diameters.

Only 32 Km west of river Tawi one comes across the Chenab a bigger river of which Tawi is a tributary. The Chenab river is of large volume and debouches on the plains near the town of Akhnoor (348 m). Upto this point the stream is so broken by rapids as to be unnevigable but from Akhnoor, where its level is 355 m, down to the sea boats can traverse it. The country to the west of Chenab is no different from the country to the east of it. They are the same plains, with small depressions making away for many streams which mostly remains dry except in rainy season. To the north-west of Chenab in the hilly area another important stream flow which rises from Rattan Pir (2529 m), Pir-panjal range behind Rajouri (943 m) and joins

TRENDS OF THE PRINCIPAL MOUNTAIN RANGES IN THE NORTHWESTERN HIMALAYAN COMPLEX

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- SALT ROCK RANGE OF PAK
- SECOND HIGHEST PEAK
- NP NANGA PARBAT
- ND NANDA DAVI
- ZL ZOJILA PASS

SOURCE: MOonis Raza et al.
the waters of Chenab in the plains. This stream is known as Manawar Tawi or Rajouri Tawi. The beds of all the streams like Ujh, Tawi, Manawar etc. are full of pebbles and boulders of varying sizes. The average annual rainfall is nearly 762 mm, while the maximum temperature sometimes reach 40°C to 46°C in plain region.

As one moves towards north, the altitude rises and stream beds become narrow and vegetation begin to appear on the hill slopes. It is here that one finds many thriving villages on the alluvial soil patches. Agricultural production in this region has now become profitable at places which are irrigated by canals or tub-wells. Rice and wheat are the main crops of this region on the broken kandi area thorny bushes are found and on the river islands of Chenab and Tawi there is a healthy vegetation cover, being maintained by the social forestry project.

II). Outer Hills or Siwalik Hills:— The outer hills or Siwaliks as they are known, bear a regular and gentler slope till they reach a height of 600 m above sea level. These hills are formed of young tertiary rocks and rarely reach a height of more than 1200 m. The outer hills extend, on an average, for 240 Km. from river Ravi on the east to river Jhelum on the west. Their width ranges from 22 Km to 60 Km with a greater extension on the north and north west. They
abruptly end inwards in steep escarpment as they reach a height of 600 m. These hills separate the outer plains from the Middle Himalayas. From Basohli to Ramkote one comes across bare gray sand stone. In this region numerous small longitudinal valleys known as 'dun' are found while describing these 'dun' valleys Raina writes, "the narrow neck of hills open into small valleys, mostly 'duns' extending longitudinally upto Dansal in the west". The plain is open to erosive action of running waters which leaves no land with uniform level. To the north of Dansal 'dun' a longitudinal valley runs on the opposite side of Ramkote. It is at Dansal that the river Tawi traverses a steep gorge running across the main highway to Kashmir valley.3

The topography of this region can be said to be undulating with extraordinary rate of deposition. In the west of this region conglomerates, boulders and clays are spread over a vast expanse. This in fact, is the catchment area of such rivers as Tawi, Ravi, Chenab and Ujh.

Being a hilly region, means of communication are not significantly developed. Thus the whole region is economically backward. The spurs are forested right from the higher elevation down to the plains of Punjab. However, agriculture is practised

throughout this belt wherever, alluvial patches of land are available. The remaining area is mainly used as winter pasture by the nomadic Gujjars and Bakerwals of this region. In the terraced fields of the area the major crop is maize, although rice is also cultivated where fields can be irrigated.

Thus one comes to conclusion that the outer hills rise from the Punjab plains with a gentle slope, attaining an altitude of about 600 m and abruptly ending in steep escarpments. Which overlooking a succession of narrow parallel ridges. The outer hills are formed of younger tertiary rocks whose elevation rarely exceeds 1200 m above sea level. The ranges situated more inwards are formed of older tertiary rocks and attain higher altitude ranging from 1800 to 2400 m.

III). Middle Mountains or the Pir-panjal Range:- The middle mountains (Himalayan) ranges start from 13 to 16 Km north of Basohli in the east and run along Ramnagar, Reasi to Rajouri — Poonch. On the north the Middle ranges are bounded by two lofty mountains viz., one which ends off at Kishtwar coming from southeast and the second is Pir-panjal range beyond which lies the vale of Kashmir. In between these two ranges numerous other ranges attain elevation of between 3657 m to 4572 m above sea level.

This region is widest in the east (64 Km) and gradually narrows down towards west. Prolonged erosion has carved deep valleys. The ranges do not have any regular plan of directions and have a high tendency of bifurcating into separate sides. "They also do not show any concordance between the alignment of the hills and the strike of the component beds." Nearly twelve peaks are more than 3500 m. in elevation. There are a number of passes which join the outer plains and outer hills to Kashmir valley.

Geologically, Pir-panjal and associated mountains are not similar to the outer hills. The mountains have an arthoclinical structure. The ranges are composed of highly compressed and altered rocks of different geological periods. Similarly Drew records "looking from geological point of view one may say that there is not the same correspondence between the direction of ridges and the strikes of the beds as there is among the outer hills." Thus the middle mountains are ridges of varying and irregular direction which branch off again and again and are intersected by deep gorges which are occupied by rivers that flow through them. The upper courses of chenab

and many of its tributaries lie in this region. These rivers are perennial as they are fed by snow on the high mountains.

In view of the altitude attained by the middle mountains it is not difficult to conclude that the region has a temperate climate. The temperate climate is responsible for a luxurious vegetative cover in these mountains, which are homeland of the Gujjars and Bakerwals. During the summer, monsoon winds are capable of giving rainfall south of Pin-panjal ranges. The monsoon wind rarely cross this range and hence do not bring rainfall to the Kashmir valley except when they are exceptionally strong. For winters precipitation either in the form of snow or rainfall comes from the cyclonic disturbances originating over the Mediterranean region.

A few small but beautiful valleys in this region deserve special mention. Important among these are Bhadarwah, Doda, Ramban, Basohli, Pader and Reasi valleys. Bhaderwah which is the most important of these valleys, is a longitudinal valley with a flat bottom. It is 1 to 7 Km wide and about 17 to 20 Km in length. The valley is situated at an average height of 1646 m above sea level. The valley is drained by a stream locally called Niru which is tributary of Chenab which meets at Doda. The outcrops of igneous rocks appear even in the terraced fields of the valley. Another important valley is Kishtwar which is more or less an undulating plain lying between lofty mountains.
This valley is situated almost at the same height at which the Bhadarwah is situated. The main stream of Chenab flows through this valley.

Towards the south west of Pir-panjal is the hilly region of Rajouri — Poonch, a mountainous valley region. Prior to partition Poonch (1001 m) used to be called, the "Chhota Kashmir" (little Kashmir). The valley of Suran, having its head waters in the snowy peaks of Pir-panjal, is a well known valley and in the past was linked through Loran (1889 m) — Toshmaidan (2200 m) route to the vale of Kashmir. The route is still used by the nomadic Gujjars and Bakarwals for their seasonal migration. Through Rajouri (943 m) also passes one important route to vale of Kashmir, this is the "old Mughal route", which is now primarily used by nomadic herders. Rajouri region has a number of small valleys offshooting from the Pir-panjal longitudinally.

IV). Kashmir Valley:— Across the middle mountains one comes across the beautifull valley of Kashmir; a longitudinal depression which owe its origion due to differential uplift of Pir-panjal and the Great Himalayan ranges.

Aligned in a general southeast to northwest direction along the axis of the encirculing mountains, the valley of Kashmir has a typical oval shape. It lies at an average altitude of 1500 m to 1800 m above sea level. The flat alluvial part of the valley is only 150 Km from southeast to northwest and 42 Km from south west to northeast, the
corresponding distances from crest to crest are 120 and 125 Km apart.

The Kashmir valley has close genetic relationship with the whole network of mountain system which spreads out of the Pamir knot in different direction.

As noted earlier the valley of Kashmir is surrounded on all sides by high mountains. The Pir-panjal on the south, separates it from the Jammu region, while the Greater Himalayas cut it off from Ladakh and Baltistan. The northern slope of Pir-panjal which descends gently towards the valley is flanked with enormous Karewa beds which have been repeatedly uplifted, lifted and folded in the past. The sources of all the important left bank tributaries of Jhelum are located on the northern slopes of the Pir-panjal range. This range is the principle barrier between the valley and the rest of the country and hence the passes, the lowest part of the mountain rim of the valley is in the extreme south where the highest ridge is about 3048 m in elevation.

It would be worthwhile to mention a few tributary valleys to the main Kashmir valley. More important among these are Lolab, and Sindh valleys. The Lolab valley is located between 34°.45' and 34°.55' north latitudes and 74°.15' and 74°.32' east longitudes. It is the most fascinating and picturesque of all the Kashmir valleys. It lies to the north of Baramula
(1575 m) in the district of Kupwara. The valley is about 25 Km long and 3 to 5 Km wide. Thickly forested mountains surround the valley on all the sides.

The Sindh valley is the most developed of the side valleys of the vale of Kashmir. The valley is drained by the river of the same name whose headwaters lie near the lofty peaks near Zojila (3444 m). The river is also fed by the Kolahai and Panjterni glaciers. From Sonamerg (2636 m) onwards many small but swift tributaries join the main Sindh stream which flow through narrow gorges to ultimately join river Jehlum. Other important valleys are Lidder and Daksum.

V). Great Himalayas:- Inner or greater Himalayas appear beyond the valley of Kashmir towards the north and northeast — north and northwest. These mountains, due to their great height, offer great difficulty in maintaining communications. The Great Himalayan ranges are by far the most imposing ones. For the sake of convenience this complex system of mountains can be divided into the following sub-divisions:

a). Zanskar range
b). Hazara range
c). Ladakh range
d). Karakaram range and
e). the Akasi Chin region.

FIG. 4

TARIM BASIN

CROSS SECTION FROM OUTER PLAINS TO

KILOMETRES

METRES

0 50 100 150 200 250 300 350 400 450 500 550 600

500

650 SEA LEVEL

15 10 7 6 5 4 3 2 1

1. Outer Plains

2. Outer Hills (Siwaliks)

3. Middle Mountain (Pir-Panjgul)

4. Vale of Kashmir

5. Zanskar (Himalayas)

6. Harmank

11. Aghili Basin

12. Aghili Range

13. Yarkand River

14. Kunlun Range

15. Tarim Basin

SOURCE: Tourist Guide Map 1:9K
The Zanskar range lies between Nanga Parbat in the west and ramifying glaciated ranges of crystalline rocks of Rupshu in the east. On the north of Zanskar lies the deep gorge of Indus river. There are 13 peaks of more than 6000 m in elevation. The famous cave of Amarnath (4236 m) is situated in this range to south of Zojila. The axis of the range is the representation of geanticline of the Himalayan geocycline. Many famous glaciers occupy large portion in this region. The few important passes, other than Zojila are, Sarsanke (5716 m), Poathal (5715 m), Singohal (5097 m), Baralacha (4819 m) and Sirsirla (4990 m) high which are well known to travellers and mountaineers.

The Ladakh range is another important range of the trans-Himalayan region. It starts from the confluence of Shyok river and Indus river and stretches up to the western borders of Tibet, where it is separated by Indus river from the Zanskar range in Rapshu. This range is about 350 Km long and 50 Km wide and is composed mainly of crystalline rocks. As many as nine peaks reach a height of more than 6000 m. There are fifteen which range between 5000 to 6000 m in height. Important passes in this range are Khardungha (5602 m), Changha (5599 m) and Chorbat (5090 m).

The Karakoram range extends for 420 Km between Hamza on the northwest to Shyok on the east. This range is very significant because it separates two great basins — The Indus and the
Tarim. It also derives its significance from the fact that it possesses many glaciers which are among the largest glaciers of the world. It is in this range that the world's second highest peak, Godwin Austin (K2) (8614 m) is located. Apart from this there are as many as six peaks which exceed 7500 m in elevation. The range is mostly snowbound and therefore, is called the shining crest of the earth. The passes of this range lie at a higher elevation than 'Mount Blanc' which happens to be the highest peak in the European Alps.

There are a number of offshoots which branch off from the main Karakoram range and extend southeastwards. Among them are the Batura-Mazlagh, which lies between Gilgit and Hanza, the Harmukh range which stretches between Hanza and Shigar and the Saltora range which extends from Nubra to lower Shyok. Similarly, the Sasermuzlag range spreads out and lies between Braldu and Saltora rivers. Some of the other peaks worth mentioning are Broad Peak (8056 m), Gasherbum (8068 m) and Distighilsar (7885 m). The main important passes through this range are Muzlagh pass (5700 m), the Karakoram pass (5575 m) and Sasarla (5300 m).

Sedimentary rocks of permo-carboniferous age are widely found in Karakoram range, which are fossiliferous limestone of that age.

The Indus valley lies to the northeast of Zanskar and extends upto the lofty Karakoram and the Hindukush. The river
Indus flows towards west before entering Pakistani territory. Being a fast flowing river, its bed is deep but narrow and hence not suitable for lifting water for irrigation except to some extent during summers.

The Aksai Chin has been occupied by China since 1962. The main features of this region is that it possess a number of salt lakes. The excessive glacial erosion has exposed the crystalline rocks. It presents a peneplaned surface of inter-mountain plateau which extends at a height of 4500 m above mean sea level.

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