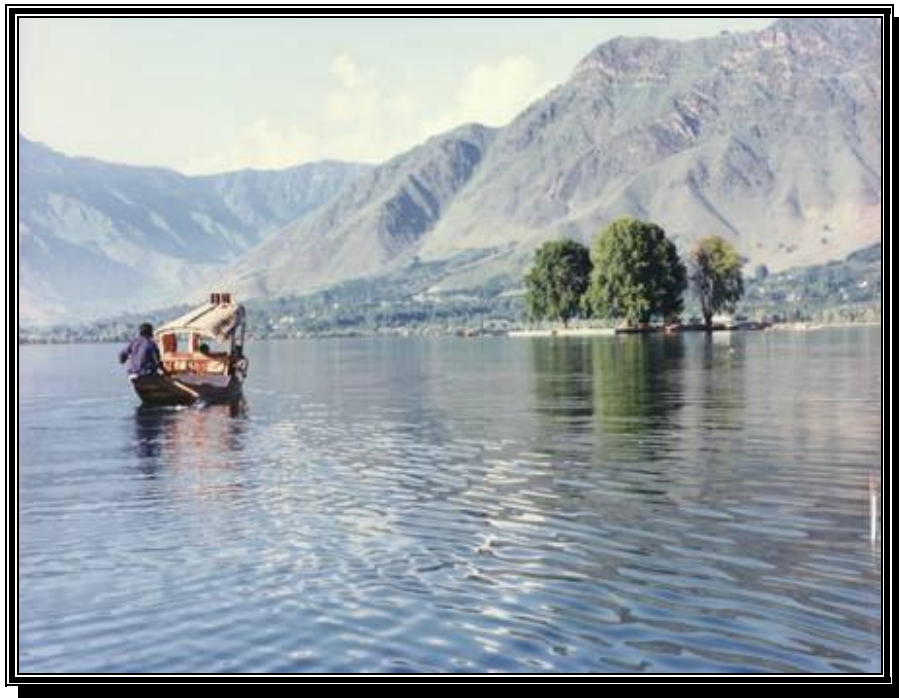


Geography of Jammu & Kashmir State

by Dr. A. N. Raina

Radha Krishan Anand & Co.
Pacca Danga, Jammu



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1

1 Kashmir Valley - Historical Background

Geologists believe that about ten crore years have passed when Kashmir Valley which was once a lake called Satisar, the lake of goddess Sati, came into its present form.

For hundreds of million years Kashmir Valley remained under Tethya sea and the high sedimentary-rock hills seen in the valley now were once under water. Geologists have come to believe that Kashmir Valley was earlier affected by earthquakes. Once there was such a devastating earthquake that it broke open the mountain wall at Baramulla. and the water of the Satisar lake flowed out leaving behind lacustrine mud on the margins of the mountains known as karewas. Thus came into existence the oval but irregular Valley of Kashmir. The karewas being in fact the remnants of this lake confirm this view. The karewas are found mostly to the west of the river Jhelum where these table-lands attain a height of about 380 meters above the level of the Valley. These karewas protrude towards the east and look like tongue-shaped spurs with deep ravines.

Ancient legends and popular traditions say that Samdimat Nagar, capital of the kingdom of Sunda Sena, was submerged as a result of an earthquake, and the water that filled the area formed the Wular Lake, the largest fresh water lake in India. The oldest igneous rocks are still found at Shankaracharya hill. When the whole Valley of Kashmir was under water this hillock was the first piece of dry land lying in the form of an igneous island.

1.1 Significance of its name

Historians say that Kashmir Valley was originally known as Kashyapmar or the abode of Kashyap Rishi. It is said that the Rishi once went on a pilgrimage to Kashmir. When he reached Naukaban near Kaunsarnag via Rajouri, he killed Bahudev, the Giant of Satisar, at the request of the people and let the water of the lake flow out near Baramulla. The land, therefore, came to be known as Kashyampar, which afterwards changed into Kashmar and from Kashmar to Kashmir. But some historians are of the opinion that when the people of Kash caste settled here permanently the valley came to be known as Kashmir. Kashmir is known by many other names also. The Greeks called it Kaspeiria, while the Chinese named it Shie-in or Kia-Shi-Lo. The Tibetans called it Kanapal and Dards named it Kashart.

2 Situation, Location, Area and Extent

The territories of Jammu, Kashmir, Ladakh and Gilgit form the State of Jammu and Kashmir. The state of Jammu and Kashmir, which had earlier been under Hindu rulers and Muslim sultans, became part of the Mughal Empire under Akbar from 1586. After a period of Afgan rule from 1756, it was annexed to the Sikh Kingdom of Punjab in 1819. In 1820 Maharaja Ranjit Singh made over the territory of Jammu to Gulab Singh. In 1846 Kashmir was also made over to Gulab Singh under the Treaty of Amritsar. Ladakh was annexed by Maharaja Gulab Singh in 1830. Thus this northernmost state was founded by Maharaja Gulab Singh in 1846 and was the biggest princely state in India before the partition of the country in August 1947. At that time the total area of the state was 2,22,236 sq. km. Pakistan invaded the State in October 1947. Indian forces pushed Pakistan back but in 1949 when a cease fire line was drawn about one third of the area i.e. 78932 sq. km. i.e. the whole of Gilgit, Mirpur, Kotli and a part of Poonch came into the possession of Pakistan, leaving behind only 143,30 sq. km. on the Indian side. Jammu, Udhampur, Kathua and Anantnag districts remained unaffected. Again in 1962 China occupied about 64000 sq.kms. in Ladakh known as Aksai Chin. Pakistan again made an unlawful possession over Chhamb, Deva, Chakla and Manawar gaining an area of 3999 sq. kms. Thus total area left on the Indian side is about 12850 sq. kms.

There are many low lying valleys in the state like Tawi Valley, Chenab Valley, Poonch Valley, Sind Valley and Liddar Valley, but the main Valley is the valley of Kashmir, which is 100 kms. wide and 15520.3 sq. kms. in area. Through this valley flows the river Jhelum with its tributaries. The height of the valley above sea level is about 1700 metres.

On the map of India, the State of Jammu and Kashmir looks like a crown. The state is 640 kms. in length from north to south and 480 kms. from east to west. To its north lie Chinese and Russian Turkistan. On its east is Chinese Tibet. On the South and South-West lie the states of Punjab and Himachal Pradesh. On the west is the North West Frontier Provinces of Pakistan, China and Russia. Afghanistan and Pakistan now have come close to the boundaries of the state of Jammu and Kashmir, The nearness to the boundaries of foreign countries has made the position of the State most important from military point of view.

The entire State lies between 32.17" and 36.58" North altitude and East to West, the State lies between 73.26" and 80.30" longitude. The standard time is 5.30 hours ahead of Greenwich time as in the rest of India and has a difference of half an hour with the local time. In latitude, the State of Jammu and Kashmir corresponds with South Carolina (North America), Fez (Morocco), Damascus, Baghdad and Peshawar (Pakistan).

3 Geographical and Political Importance of the State

3.1 Geographical Importance

Kashmir is famous for its beauty and natural scenery throughout the world. Its high snow-clad mountains, scenic spots, beautiful valleys, rivers with ice-cold water, attractive lakes and springs and ever-green fields, dense forests and beautiful health resorts, enhance its grandeur and are a source of great attraction for tourists.

It is also widely known for its different kinds of agricultural products, fruit, vegetables, saffron, herbs, minerals, precious stones handicrafts like woollen carpets, shawls and finest kind of embroidery on clothes. During summer, one can enjoy the beauty of nature, trout fishing, big and small game hunting etc.; during winter climbing mountain peaks and sports like skating and skiing on snow slopes are commonly enjoyed . In addition to the above, Pilgrimage to famous religious shrines of the Hindus and the Muslims make Kashmir a great tourist attraction. About Kashmir Sheikh Sadia great Persian poet is believed to have said said, "If there is any heaven on earth, it is here in Kashmir. "

3.2 Political Importance

The state of Jammu and Kashmir has acquired since the 19th century a unique geo-political status in the Indian sub-continent It has contiguous boundaries with Russia, Afghanistan, Pakistan, China and Tibet that deserve constant vigil and as such it has made the State very important. geographically, politically, economically and from the military point of view. Jammu and Kashmir state acceded to the Indian Union in 1947 after the partition. Before the partition in 1947, The English rulers of India took away Gilgit in 1946 from the Maharaja of Jammu and Kashmir on lease for thirty years so that they could check the advancement of Russia towards India.

4 Physical Divisions, Mountains and Passes

The State of Jammu and Kashmir falls in the great north-western, complex of the Himalayan ranges with marked relief variation, snow-capped summits, antecedent drainage, complex geological structure and rich temperate flora and fauna.

Kashmir or the Jhelum Valley is situated between the Pir Panjal range and the Zaskar range and has an area of 15220 sq kms. It is bounded on all sides by mountains. The river Jhelum, which flows out from the spring at Verinag in Anantnag district, passes through this Valley at a very slow speed and ultimately flows out through a narrow gorge at Baramulla. Districts of Srinagar, Anantnag, Baramulla, Kupwara and Pulwama lie in this valley. Average height of the valley is 1850 metres above sea level but the surrounding mountains, which are always snow-clad, rise from three to four thousand metres above sea level. The surface of the valley is plain and abounds with springs, lakes and health resorts.

Rice is the main crop and fruits like apples, pears, apricots, almonds, walnuts, peaches and cherries grow in abundance. The valley is also rich in forests. Mulberry trees grow in abundance and are the mainstay of silk industry in the Valley.

Summer is pleasant but winter is cold and there is snowfall. It rains from the middle of March to the middle of May in the valley with an annual rainfall of about 75 cms.

Road transport is common in the valley but the river Jhelum still serves as one of the means of transportation. There is also Air Service from Delhi and Jammu to Srinagar and Ladakh.

Kashmir is the home of handicrafts like wood carving, papier-mache, carpet, gabba and shawl making and embroidery on clothes. Natural scenery of the valley attracts thousands of visitors every year from abroad. People generally speak Kashmiri and their common dress is phiran, shalwar and a turban or a Kashmiri cap.

There are also some small valleys in this region. On the north of Baramulla is Lolab valley which is 6 Kms long and 4.4 Kms wide. It has many meadows and groves of walnut trees. Forests are so thick that they hide villages in them.

Nullah Sind is the largest tributary of the river Jhelum. The Nullah Sind valley is 100 Kms long upwards and its scenery is diversified. At the head of the valley is the Zojilla pass which leads to Ladakh.

Towards Pehlgam lies the Lidar Valley. Its length is 64 Kms. It has small glaciers, grassy meadows, huge rock walls and gorges in its upper mountains. The path to the holy Amarnath cave passes through this valley. The Kolohai and Sheshnag streams join at Pahalgam to form the Lidar river.

4.1 Mountains and their Passes

Mountains have a special geographical importance to the State of Jammu and Kashmir. Kashmir valley is enclosed by high mountain-chains on all sides except for certain passes and a narrow gorge at Baramulla. There are Siwalik hills towards the south and very lofty mountains in the north, the peaks of which always remain covered with snow. There are volcanic mountains too in the State. They have caused havoc in Kashmir in the past.

Some of the famous mountains and their passes are:

1. Karakoram (8615.17 M) and Kyunlun Ranges: Both these mountains lie to the north and north-east of the State and separate it from Russian Turkistan and Tibet. In the north west, Hindukush range continues towards Karakoram range, where K2 peak, the second highest peak of the world, is situated. Two lofty peaks of Gashorbram (8570 metres) and Masharbram (7827 metres) also lie there. People of Ladakh pass through Karakoram pass (5352 metres) and Nubra pass (5800 metres) while going to Chinese Turkistan and Khattan. One can reach Tibet from Ladakh via Kharudangala pass (5557 metres) and Changla pass (5609 metres).

2. Zaskar Range: It is about 600 metres above sea level and separates Indus Valley from the valley of Kashmir; it prevents south-west cold winds from reaching Kashmir. Ladakh region terminates at Zojila pass (3529 metres) from where begins the valley of Kashmir. Poat pass (5716 metres) of this range is also a famous pass in this range.

3. Nun Kun Range: It lies between Ladakh and Kashmir border. It is 7055.1 metres above sea level. To its south-east is situated Kulu and to its north-west is situated Kargil tehsil of Ladakh. One has to pass through Bawalocha pass (4891 metres) to reach Leh (Ladakh) from Kulu. In 1947, when Kargil was attacked by Pakistan, Indian forces, arms and ammunition were sent to Ladakh by the Indian Union through this pass.

4. Nanga Parbat Range: This range spreads in Gilgit. Its height is 8107.68 metres above sea level and is utterly devoid of vegetation. It was conquered by the Italian mountaineers in 1954. This is now under the unlawful possession of Pakistan.

5. Harmukh Mountain: This is a range of the Himalayas and is situated at a height of 5141.3 metres above sea level towards Bandipore between the rivers Jhelum and Kishan Ganga valley.

6. Burzil Mountain: It bifurcates Kashmir and Ladakh on which Burzil pass is situated at a height of 3200 metres above sea level.

7. Amarnath Mountain: This is famous for its holy Amarnath Cave, at a height of 5372 metres above sea level, which thousands of pilgrims visit every year on Rakshabandan. They have to pass Mahagunas pass (1475 metres) on their way to Shri Amarnathji. Gwasharan (5450 metres) is situated in the Lidar valley towards Pahalgam; on it lies the famous glacier Kolahi. Sheeshnag Mountain also spreads in this valley. It is called Sheshnag as its peaks resemble the heads of seven big snakes.

8. Toshmaidan: Toshmaidan (4270 metres) and Kajinag (3700 metres) mountains lie in the Inner Himalayas. They remain clad with snow throughout the year, but during summer when the snow melts, the water flows down into the Jhelum river.

9. Afarwat: This mountain spreads through the Gulmarg valley. The famous spring Alpathar lies on its peak, from which Nullah Nagal comes out and flows down into the Wullar lake.

10. Pirpanjal Range: It separates Kashmir valley from the outer Himalayas and is about 2621 Kms. in length and 50 Kms. in breadth. Famous Banihal pass (2832 metres) lies in the shape of a tunnel on its peak; it remains covered with snow during winter making it impassable. Now at a height of 2200 metres above sea level a new tunnel 'Jawahar Tunnel' has been constructed. The tunnel is 2825 metres long and it was opened for traffic on 22nd Dec. 1956. On the other end of this range lie Baramula pass (1582 metres) and Hajipir pass (2750 metres). Hajipir joins Poonch and Uri. During 1965 Indo-Pak war, the Indian army had occupied this pass. Later on it was handed over to Pakistan.

11. Siwalik Range: These hills extend from the north of the outer plains to middle mountains of the State reaching heights varying from 600 metres to 1500 metres above sea level.

12. Volcanic mountains: One volcanic peak, 'Soyamji' (1860 metres) is situated in North Machhipura (Handwara) and the other 'Kharewa' peak lies in Tehsil Pehalgam, which is dead so far; the former, however, continued eruption of lava for about 13 months during 1934.

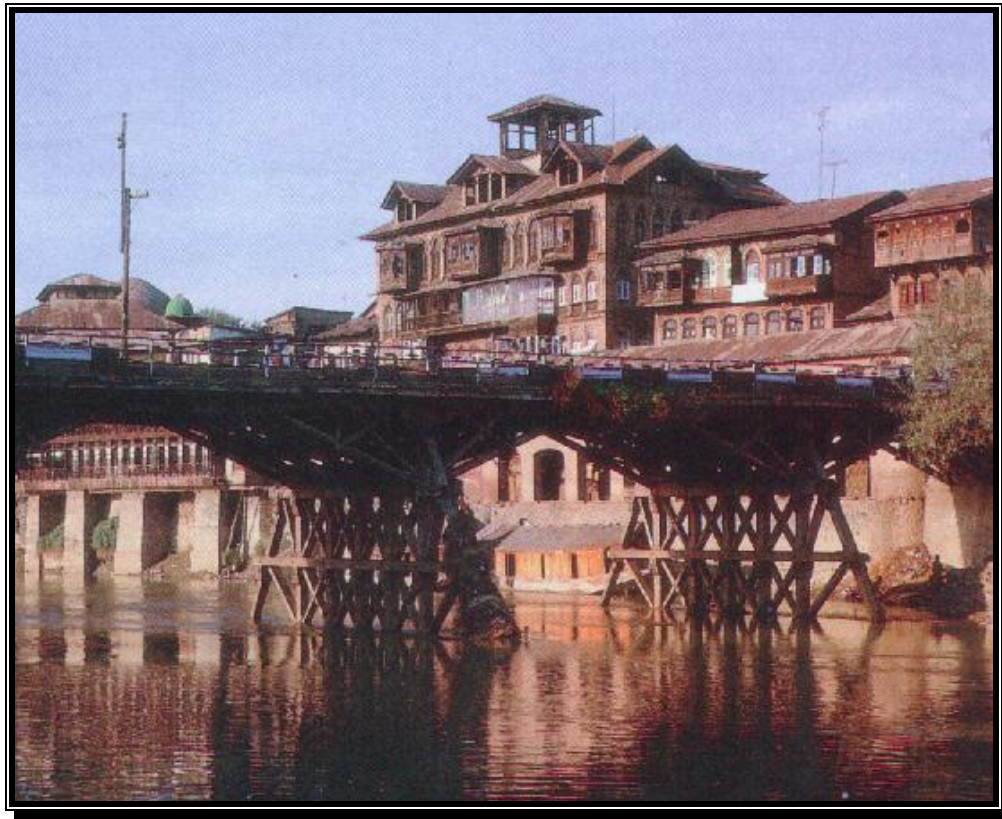
There is a temple on this peak and many sulphur springs are found at the foot of the hill. These volcanic mountains are the cause of earthquakes in Kashmir. So far twelve devastating earthquakes have occurred in Kashmir. Of these the earthquake of 1885 was the most devastating. Hundreds of houses collapsed, thousands of people died and there were cracks in the earth as a result of this earthquake.

5 Rivers, Lakes, Springs, Tributaries and Glaciers

Jammu and Kashmir State is well known for its charming scenery. There are beautiful springs, lakes, rivers and their tributaries. All these add to its scenic beauty.

The **Jhelum** (**Vyeth** in Kashmiri, **Vetesta** in Sanskrit and **Hydaspes** in Greek) is the main waterway of the valley of Kashmir. It rises from a beautiful spring called Verinag. This spring is situated at the foot of a spur of the Pir Panjal mountain.

The Jhelum flows to a distance of 25.6 Kms to Khanabal like a nullah. From that place a number of tributaries join the Jhelum and make it navigable from Khannabal to WullarLake. Its total length in the valley is 177 kms. It flows in loops through the valley till it enters the Wullar; it flows out from its other side to Baramulla and then it enters the boundary of Pakistan. This part is not navigable, as the river makes a very deep bed and acquires a swift flow.



One of the bridges that span the Jhelum in the old city.

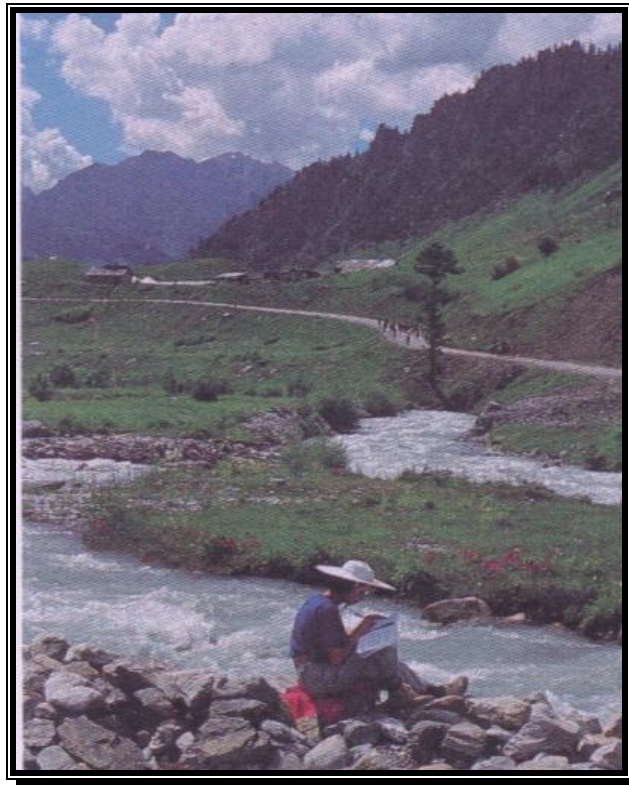
Srinagar town is situated on the either side of the river Jhelum. This enhances the beauty of the town making it a source of attraction for the tourists who stay in house-boats staying permanently in water on the banks of the river.

5.1 Tributaries of the river Jhelum

1. The **Vishav** is fed by the Kaunsarnag lake which is about 3 Kms long. It joins the Jhelum below Bijbehara. Kounsarnag is at an elevation of about 4000 metres above sea level in the Panjal mountains to the south of Kashmir. Ice is present in the lake even in summer.

The Vishav irrigates the Kulgam Tehsil and logs of timber cut in the forests in its upper course are floated down it to be transported to the valley.

2. The **Romushi** is another tributary of the Jhelum. It flows from Kharmarg to Pakharpur and flowing towards north-east. It joins the Jhelum at 75 deg. East longitude.
- 3 . The **Dudhganga** is another tributary of the Jhelum that flows from Ludurmarg and rises in the central Pir Panjal near Tata Kuti mountain. Two mountain streams, the Sangesafed and the Yachera, form this river. This river flows through Batmalu Swamp near Srinagar.
4. The **Sukhang** is another important tributary. It rises near Gulmarg and irrigates a large area.
5. The **Lidar** is one of the largest tributaries of the Jhelum. It flows in a swift narrow stream from Sheeshnag lake to the east of Pahalgam. The Lidar passes through many villages of which Mattan (Martand) is very famous. The Kolahai and Sheeshnag streamlets join the Lidar at Pahalgam to make it a river.
6. The **Ferozapore Nullah** is an important water-way in the western mountains of Baramulla-Gulmarg area. It collects water from many mountain streams, small lakes and springs. This mountaineous area is mostly full of snow even in summer.
7. The **Sind Nullah** has its source in the Inner Himalayas at Dras and after it is fed by the Gangabal lake lying at Harmukh mountain (5150 meters), it joins the Jhelum at Shadipur. It is 96 Kms in length. The famous health resorts of Sonamarg and Ganderbal are situated on its banks. Its water is used for irrigation purposes and the 'Sind Valley Hydroelectric Power Project' uses its water at Gandarbal to produce electric power. It is navigable from Gandarbal downwards.
8. The **Flood Spill Channel** was constructed in 1904 to relieve the strain on the Jhelum in the city of Srinagar. By taking 2/3rd of the total flow in the river it helps the river Jhelum to regulate its water level while passing through the city of Srinagar. The Jhelum rises during floods and the Channel saves the city from being flooded.



Lidar at Pahalgam.

5.2 Lakes

1. The **Wullar Lake** in Kashmir is the largest fresh water lake in India. It is about 16 Kms.long and 9 .6 Kms wide with ill-defined shores. This lake lies between Bandipore and Sopore at a distance of 75 Kms. from Srinagar. The Jhelum enters this lake from the south-east and leaves it from the west. Storms rise in the lake everyday in the afternoon. The deepest part of the lake is at Watlab towards the hill called Baba Sukhuruddin in the north-west. Many small streams, Harbuji, Aarah, Erin and Pohru join this lake.



Wular Lake.

2. The **Dal Lake** is a beautiful lake near Srinagar. It is 8 Kms long and 6.4 Kms. wide. It is the flood-lung of the Jhelum. The famous Mughal gardens are situated around it. The lake is an ideal place for swimming and sailing in Shikaras and motorboats. Floating gardens are found in this lake where a large variety of vegetables is grown. The Dal lake has two parts, the small Dal and the big Dal, separated by a swampy bund. The road round the lake is called Boulevard. There are two artificial islands in the lake, Rupalank and Sonalank, built by Mughal Emperors. Nehru Park is the western terminus of the lake. The lake is a spot of great attraction for visitors, who enjoy staying in house-boats in the lake.



Dal Lake.

3. The **Anchar Lake** is a swampy area. The Sind Nullah enters this lake from one side and flows out from the other. It is about 8 Kms long and 3 Kms. wide. Gandarbal is a famous township on its north-west bank.

4. The **Mansbal Lake** is at a distance of 29 Kms. from Srinagar and is situated at Safapore (Tehsil Gandarbal). It is 5 Kms long and one Km. wide. It is connected with the Jhelum by a canal near Sumbal. Mughal Emperors have built a summer palace on its bank.



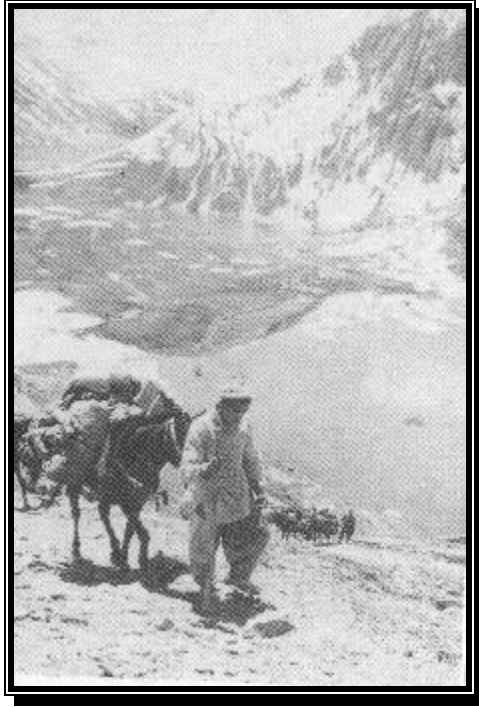
Manasbal Lake.

5. The **Harvan Lake** is situated at a distance of 21 Kms from Srinagar. It is 278 meters long, 137 meters wide and 18 metres deep. This lake is a source of water supply to Srinagar city.

6. The **Hokarsar Lake** lies on Baramulla road about 13 Kms. from Srinagar. It is about 5 Kms. long and 1.5 Kms. wide. Willow trees are grown in abundance around its banks.

7. The **Konsarnag** or **Vishno Pad Lake** is situated in the Pir Panjal range at a height of 4000 meters above sea level to the south of Shopian. It is about 5 Kms. long and 3 Kms. wide and is the source of the river Vishav. It is at a distance of 34 Kms. from Shopian.

8. The **Gangabal Lake** is situated at a height of 3570.4M. on the peak of Harmukh mountain. Hindus consider it a sacred lake.



Gangabal Lake.

9. The **Sheshnag Lake** is situated near Vavjan, enroute to Shri Amarnath cave. It is at a distance of 28 Kms. from Pahalgam.



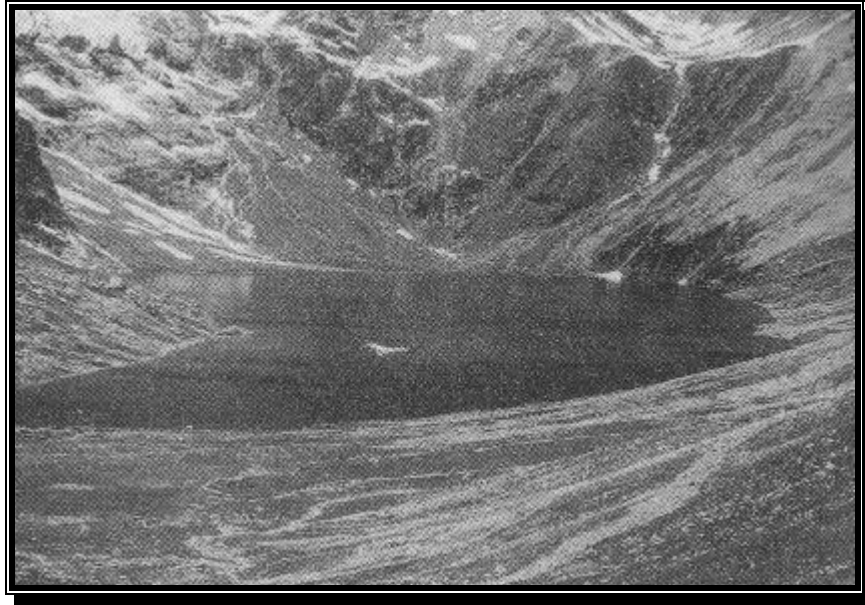
Sheshnag Lake.

10. The **Neelang Lake** is situated in Tehsil Badgam at a distance of 10 Kms from Nagam. It is a beautiful lake with dense forests around it.

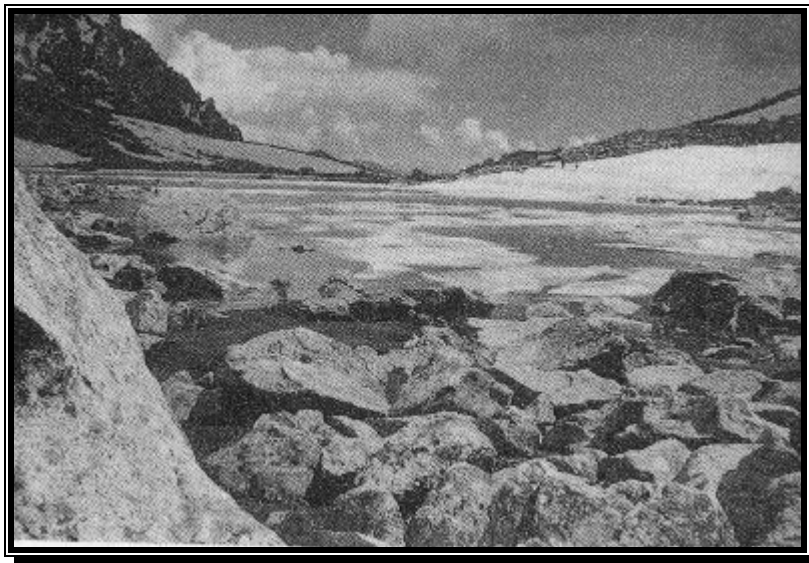
11. There are two more lakes, **Tarsar** and **Marsar** that lie on the northern slope of the Harmukh mountain. Marsar lake is the origin of the Canal Sharab Kohl that provides water to the fountains that

play in the Mughal Gardens. Marsar lake flows into the Lidar which is one of the largest tributaries of the Jhelum.

12. **Sokh** and **Dokh** are two frozen lakes situated at Harmukh Mountain. These are said to be two tear drops of Parvati; one a warm tear drop indicating happiness and other a cold one showing grief.



Vishnosar Lake.



Gadsar Lake.

5.3 Springs

Kashmir valley abounds in numerous springs of which Verinag (source of the Jhelum), Martand (Anantnag), Achhabal (Anantnag), Kukarnag (Anantnag), Chashma Shahi (famous for its fresh and digestive water, situated near Srinagar on one side of the Boulevard road), Tullamulla or Khirbhawani (a sacred spring), Vicharnag, Sukhnag, Vishnosar and Harmukat Ganga in Srinagar area and Chirnegand Vasaknag in Anantnag are very famous.

6 Climate Patterns and Climatic Divisions

6.1 Climate Patterns

The territory of the State of Jammu and Kashmir lies between four degrees of latitude from 32.17 to 36.58 North. Within these 640 Kms. there is a sudden rise of altitude from 305 metres to 6910 metres above sea level. The State of Jammu and Kashmir, therefore, lies between the hot plains of the Jammu Province and coldest dry table-land of Ladakh. These territories are, as such, transitional in climate.

Weather conditions are different at different places. There are many causes of difference:

- 1. Relief** is the main factor. Lofty mountains like the Pirpanjal, the Zaskar and the Karakoram check winds from blowing in thus moisture is stopped from entering the valleys by the lofty mountains.
- 2. The Monsoon winds** in summer cause rain in the Outer Plains and the Outer Hills. But these winds can cross the Pirpanjal range only when they are very strong. In winter winds from the Mediterranean cause snow and rain in the Valley of Kashmir. Snow falls on the mountains which enclose the valley.
- 3. Forests** influence winds, rainfall and temperature. The moisture laden winds cause rainfall in the forests on the hills making the temperature to fall in summer. Thus the climate of Pahalgam, Gulmarg etc. is comparatively milder than that of Srinagar or Sopore.
- 4. Altitude** is also a factor. So the climate of the valley of Kashmir is comparatively milder than that of the Outer Plain that lie on a very low altitude. The rainfall also varies as the altitude rises.

Climate of Kashmir

The climate found in the zone of the Middle Mountains and the valleys enclosed is of a particular type. Altitude determines the degree of coolness and elevation the form of precipitation and summer temperature. Winter is cold and of long duration. When the monsoons are strong, rain is caused. In higher mountains round the valley of Kashmir, winter is very cold and there is snow-fall. Summer is very short and milder.

The climate in the Valley of Kashmir has its own peculiarities. Winter is very cold. It lasts from November to March. During these months strong winds bring snow and rain from the Mediterranean depressions. These come over from Iran and Afghanistan. Spring begins after 15th of March when rain falls heavily. It causes landslides. But for sowing crops this rain is extremely useful. Rainfall in July and August is as high as 70% and with summer temperature, it causes discomfort. The lakes and waterways make the atmosphere damp and oppressive. The entire valley is covered with a haze that hides the surrounding mountains from view.

The seasons are marked with sudden change and the year is divided into six seasons of two months each.

Spring	March 15 to May 15.
Summer	May 15 to July 15.
Rainy Season	July 15 to Sept. 15.
Autumn	Sept. 15 to Nov. 15.
Winter	Nov. 15 to Jan 15.
Ice Cold	Jan. 15 to March 15.

From December 24 to March 8 temperature is often below zero. Strong winds blow from south and southeast. It snows during winter and there are thick black clouds in the sky.

Annual rainfall of the valley recorded is about 75 cms. It rains in July and August and also in March and April. August is the warmest month. Temperature rises to 85 deg. F. January is the coldest month.

Temperature falls down to below zero. Longest sunshine hours are in September, October and November.

December has 80% humidity which is the highest and May has 71% which is the lowest. In July atmosphere has a pressure of 62.68 cms.

7 Vegetation and Soil Types

Vegetation is influenced by climate, rainfall soil and altitude. Since these factors vary as the altitude rises from the outer plains of Jammu Province to the loftiest mountain ranges of the Inner Himalayas, it is but natural that the vegetation should vary from the Inner Himalayas to the middle mountains and the outer plains of Jammu region.

7.1 Forests

Forests are one of the most important resources of Jammu and Kashmir. Spread over 2,236 sq. kms. of the demarcated area forests accounts for 20% of the total geographical area of the state on this side of the Line of Control. More than 99% of forest area is confined to the province of Jammu & Kashmir only, with largest area of 5848 sq. kms. in district of Doda and smallest are of 481 sq. kms. in the district of Budgam. Over 19,236 sq. kms. is under coniferous softwood (Pine) and 946 sq. kms. under non-coniferous softwood. In the coniferous category Fir accounts for 3355 sq. kms., Kail for 1874 sq. kms., Chir for 1773 sq. kms. and Deodar for 1122 sq. kms. Forests require abundance of moisture in the soil. So they are found in the areas where there is sufficient rainfall or along the banks of the rivers where sufficient water is available. In the State of Jammu and Kashmir forests are mainly found where annual rainfall is about 100 cms. However, scrub forests are found, where rainfall is even less than 100 cms.

The valley of Kashmir has deciduous vegetation. The Chinar, Poplar, Deodar, Fir, Pine, Kail, Partal, Mulbery, Walnut and other fruit trees grow throughout the valley. Baramulla and Anantnag districts have respectively 71% and 60% of their areas under forests.

Big forests in the valley provide timber and fire-wood. Grassy meadows in the forest provide fodder for the cattle. Medicinal herbs such as balladonna, hyoseyamus, digitalis, menthol, artemisis, polygola, podophyllum, rubus, trilliu, hops and kuth grow in these forests. Industries like paper, joinery sports goods, furniture, wood carving, herbal drugs, silk industry, manufacture of agricultural implements and construction of railway sleepers depend on these forests.

The thick undergrowth in the forests stores up rain water and allows it to flow slowly and that is why rivers that have their sources in the forests do not run dry in the dry seasons and check floods during the rainy season.

Among these forests are situated the famous health resorts like Gulmarg, Pahalgam, Sonamarg, Achhabbal, Verinag and Kokarnag etc.

7.2 Industries Dependent on Forests

1. Match Industry. Poplar wood available in the valley of Kashmir is mainly used by this industry. A large Government Match Factory has been established at Baramula since long. Its annual production is 60,000 gross boxes of matches.

2. The wood of poplar and willow trees is used for making cricket bats and mulberry wood is used for making hockey sticks.

3. Sentonin Factory in Baramula manufactures sentonin from artimisia. This drug is used as a helminthecide which is exported to foreign countries also.

4. Rifle Half-Wrought Factory in Baramula manufactures walnut wood rifle-butts.

Research on different kinds of forest herbs is carried in the Regional Research Laboratories, one at Jammu and the other at Burzala, Srinagar. The Council of Scientific and Industrial Research uses raw material from these forests for making medicines.

The State Government has established two large joinery mills at Pompore (Kashmir) and at Bari Brahmana (Jammu).

Walnut trees grow in abundance in Kashmir. Walnut wood is suitable for wood carving and Kashmiri artisans are expert wood carvers. The carved goods are exported to foreign countries also.



A display of souvenirs and furniture made of walnut wood.

At Pampore (Kashmir) and Bari Brahmana (Jammu) plywood, hard-board and chip board manufacturing factories have been established by the State Government in collaboration with a firm from Calcutta .

Three large Truck and Bus Body Building factories for the manufacture of truck and bus bodies are established in Jammu and Srinagar.

Pulp required for the manufacture of Hand-made paper strawboard and cardboard is also obtained from the forests.

7.3 Soils

In the regions of Jammu and Kashmir the soils are loamy and there is little clay content in them. Poor in lime but with a high content of magnesia, the soil is treated with chemical fertilisers and enriched with green manure and legume before cultivation . There is sufficient organic matter and nitrogen content in the alluvium of the Kashmir valley as a result of plant residue, crops stubble, natural vegetation and animal excretion. The valley of Kashmir has many types of soils like: Gurti (clay), Bahil (Loam), Sekil (Sandy), Nambaal (Peats), Surzamin, Lemb, Floating garden soils and Karewa soils. No wonder, in Kashmir, soil is virtually worshipped as a miracle of divinity as it is a source of wealth of the land.

8 Irrigation - Importance and Types

8.1 Irrigation

Irrigation plays an important role in the agriculture of the State of Jammu and Kashmir. Our State does not receive rain throughout the year and sometimes it is quite insufficient and it is neither uniform nor certain. In Jammu region temperature conditions favour cultivation of crops throughout the year but due to non availability of water in the region the plant growth is limited. Rainy season provides sufficient water from July to September. In winter also this region receives several showers of rain. The remaining months of the year are dry. This problem had since been solved by irrigation and 25% of the total cultivated land is irrigated. Out of 6,00,000 Hectares of cultivated land 1,50,000 is cultivated through irrigation.

In Kashmir valley it rains mostly in winter when temperature is too low for plant growth. When the temperature begins to rise in May and onwards the rainfall decreases and except some showers of rain in July-August most of the growing season remains dry. Since ages the farm economy has been dependent on a single crop and the cultivator cannot take chances with it. He always requires sufficient water supply for his fields; therefore, he depends mostly upon canals for irrigation. Many snow fed streams running down the slopes of the mountains makes it very easy for him to construct small canals or pools. In this way 60% of the cultivated land in the valley is irrigated.

8.2 Methods of Irrigation

The following methods of irrigation are in use in the State of Jammu and Kashmir:

- (a) **Canals** form the most important system of irrigation in the Outer- plains and in the broad valley of Kashmir where the soil is soft and alluvial and canals can be easily dug. Moreover, the Jhelum and its tributaries are all snow-fed and they never run dry. They supply water to the canals throughout the year. About 486072 acres of land in Kashmir are irrigated by canals.
- (b) **Lift Irrigation** by pumping water to higher level and then carrying it to the field through canals.
- (c) Wherever water is available at the depth of one or two metres, it is drawn out by lever system and then supplied to the fields directly. At present about 6000 such wells are working in the valley.

8.3 Canals in the Valley of Kashmir

1. **The Martand Canal** is the oldest canal in Kashmir. It is about 50 Kms. long. It irrigates about 9.5 thousand acres of land around Matan, Dichhanpur, Khavapura and Anantnag. It takes its water from the river Liddar at Ganeshpora.
2. **The Shakful Canal** takes its water from the Nullah Sind. It irrigates many villages from Manigam to Safapore. Flowing at a higher level., the canal has been utilised to produce electric power.
3. **The Sharabkul Canal** takes its water from the Harwan lake. It flows up to Chashma Shahi to the east of Dal lake. Its water is mostly used for small patches of cultivation. It also irrigates orchards.
4. **The Lalkul Canal** takes its water from the Nullah Pohru at Bubhama near Kupwara. It irrigates fields in Uttarmachhipora, Kupwara, Drugmul, Sopore and Handwara. It is about 3 Kms. long and irrigates about 7500 acres.
5. **The Zainagir Canal** is a famous canal. It is 47 Kms long, takes its water from the river Madhumati. It flows through Bandipore on the bank of the Wullar Lake at Sonawari. It moves in loops till it enters Sopore irrigating about 13300 acres of land.
6. **The Dadikul Canal.** Takes its water from the Nullah Liddar at Kotsu near Chatapura. It is 19 Kms. long and irrigates about 8000 acres of land in the Khuram, Bichhanpura, Anantnag and Sarharna area.

7. The Nur Canal is about 13 Kms. long and takes its water from the river Jhelum at Shadipur and then flows into the Wullar lake. It irrigates Andarkut village. It is a model of the canal that was constructed by Soya during Avantivarman's reign.

8. The Sumbal Canal takes its water from the Nullah Sukhang at Kosa. It is 35.5 Kms. long and irrigates Sonawari area and flows back into the river Jhelum at Shadipur. More than 5000 acres of land are irrigated by this canal.

9. The Zarkul Canal takes its water from the Nullah Sind at Prang and irrigates about 20000 acres of land. It is an old canal and was constructed during the reign of Zain-ul-Abdin, Badshah. It irrigates upper-land karewa on the Mansbal Lake, Manasbal, Lar, Asham and Ganderbal.

10. The Zainapur Canal takes its water from the river Vishav at Bharijug. It is 32 kms long and irrigates 6000 acres of land in Kulgam, and Zainapur area.

11. The Nandikul Canal takes its water from the Nullah Anantnag at Lassipur and was originally constructed during reign of Avantivarman. It is 30 Kms. long and irrigates 8000 acres of land in the northern areas of Anantnag.

12. The Parimpur Canal takes its water from the Dudh-Ganga at Parimpura. It is 8 Kms. long.

13. The Mahind Canal was constructed in 1956. It takes its water from Nullah Liddar at Sakhras. It is 16 Kms. long and irrigates about 2500 acres of land in Seyria, Vichhanpura and Anantnag.

14. The Avantipur Canal takes its water from the Nullah Liddar at Doohjan. It is 36 Kms. long and irrigates 5000 acres of land of the east of Pampore. It was constructed in 1953.

15. The Kayal Canal takes its water from the Nullah Rambrara at Patipore. It is 50 Kms. long and irrigates about 5500 acres of land. It was constructed in 1953.

16. The Rishipora Canal takes its water from the river Vishav at Mitrajan. It is 18 Kms. long and irrigates about 3000 acres of land. It was constructed in 1956.

17. The Babul Canal takes its water from the Nullah Ferozpore at Tangmarg. It is 22.5 Kms. long and irrigates about 4500 acres of land below Gulmarg. It was also constructed in 1956.

Besides these, Chandosa, Beoarachani, Gand, Malora, Rikhiletar, Gorkha, Awanpura and Brinjal are other small canals in the valley that irrigate about 15000 acres of land in the surrounding areas.

Over 486072 acres of land are irrigated by the canals, wells and lift-irrigation system in Kashmir Valley; the district of Anantnag constitutes 50% of this total.

9 Agriculture and Crops

9.1 Agriculture

Agriculture is the most important industry of the people of Jammu and Kashmir. Even those engaged in other industries depend on agriculture for raw material.

About 80% people in the State are cultivators in one form or the other. The total area of the State according to the 1992 record of India is 24.15 lakh hectares. Out of this area 138,6867 Sq. Kms. are rural and only 305.4 Sq. Kms. are urban. This signifies that the entire State of Jammu and Kashmir is rural with 6503 villages. Out of the total area of 24.15 lakh hect. agricultural statistics are available only for about 8.26 lakh hect. The rest of the area is under forests and mountains.

9.2 Scope of land cultivation in the State

1. Rice. Cultivation of rice requires hot and moist climate. It is a Kharief crop and is sown in March-April and harvested in Autumn. Sufficient water must cover the fields. It is grown mostly in the valley of Kashmir at 2100 metres above sea level. Total area under rice cultivation in the valley of Kashmir is 374000 acres having a yield of 25.5 quintals per acre.



Planting rice in the paddy fields of the valley.

2. Wheat. It is a rabi crop and its plant requires a cool and somewhat moist climate in the beginning and warm and dry weather at the harvest time. The average rainfall should be between 50 to 70 cms. and that too at intervals. It is sown in August and harvested in March, April. It is cultivated in the entire Outer Plain and the Outer Hills. Important wheat producing areas are Kathua, Ranbirsingpora, Samba and Reasi. In Kashmir, it is grown like grass. Total area under wheat cultivation in Jammu region is 3 1000 acres, in Kashmir 78000 acres and in Ladakh 7000 acres.

3. Maize. It requires hot dry climate. Rainfall required for maize varies from 75 cms to 125 cms. It is sown in May-July and harvested in August-November. It is cultivated on Karewa lands in the valley of Kashmir on about 303,000 acres.

4. Tobacco. It requires a warm and moist climate and a rich soil containing lime. Frost kills it. It is largely grown in the valley of Kashmir.

5. Rape seed, mustard, linseed, sesamum, toria, cottonseed are the chief varieties of oil-seeds. They require hot and moist climate. They are grown all over Kshmir province but the chief oil seed producing areas are Anantnag and Srinagar. 6700 acres in Kashmir region produce oil seeds.

6. Pulses. Hot and dry climate suit their cultivation. They are largely grown on small patches of land and the pulses of Kashmir Valley are well known for their quality.

7. Saffron is a cash crop and cultivated on the Pampore in the month of July-August Karewas in specially made square beds. Each bed measures 1.5m and is provided with narrow trench on all sides to prevent the accumulation of water. The soil is alluvial and lucstrine. About 3000 acres are under saffron cultivation in Pampore.

8. Amarnath (Ganhar) is sown after 3 or 4 ploughings. The grain when ready is parched, ground and eaten with milk. It is largely sown in the valley of Kashmir.

9. Fruits like apples, pears, cherries, plums, grapes, pomegranates, mulberry, peaches, apricots, walnuts and almonds require a cool climate moderate rainfall and bright sunshine. The climate of Kashmir suits their cultivation. They are, as such, mostly grown in the valley. Fruit cultivation has been known in Kashmir since very early times.

In recent years fruit cultivation has extended with readily available facilities of better seed, nursery culture, insecticides and very cheap and better transport facilities for their export. Fruit cultivation at present is an important source of wealth to the State.

About 3.50 lakh tons of fruits are produced annually, out of which more than 2.00 lakh tons are exported to the foreign countries. Supply of machinery, equipment and technical advice to the orchardists by the State Govt. free of charge has greatly helped fruit cultivation. The training of gardeners and the establishment of a fruit research centre is no doubt helping the fruit industry a lot.

The valley of Kashmir is also known for the cultivation of potatoes, turnips, carrots, spinach, tomatoes, cabbage, cauliflowers, raddish, onions, lotus-stalk, brinjal, gourd and bitter gourd etc.

9.3 Other Agricultural Activities

1. Silk. It is obtained from silk worms which feed on mulberry trees. These trees require a warm and moist climate. Silk cocoons are, therefore, grown in abundance in the valley of Kashmir. Two silk factories, one in Jammu and the other in Srinagar, manufacture silkyarn from these cocoons.

2. Wool. It is obtained from sheep and in the State they are mostly reared in the valley of Kashmir on the grassy meadows. Quality sheep from Australia have been imported for sheep breeding in Kashmir.

10 Geology, Structure, Rocks

10.1 Geological Structure

The Geology of the territories of Jammu, Kashmir and Ladakh have been studied in some detail by R. Lydekker. He has divided the territory into three different structural Zones:

1. The Panjal
2. The Zaskar
3. The Tertiary Groups

These three Geological divisions form the basis of the four physical divisions of the State.

The Panjal forms the Outer plain, the Outer Hills and the Middle Mountains. The Zaskar includes the whole of the eastern region from Spiti and Lahol (32.170N. Latitude) to the lofty Karakoram mountains in the north. The Tertiary Groups include the valley of Kashmir and other river Valleys.

The oval valley of Kashmir is longitudinal. It is about 1700 metres above sea level. There is a high wall of mountains round the valley. These rise to a height of 5500 metres above sea level. The only outlet of the valley is Baramulla where the Jehlum flows out through a narrow gorge. The entire drainage of the valley of Kashmir and its surrounding areas have only this outlet. In the north, Kashmir has many volcanic rock formations. These are mostly stratified and several thousand metres thick. There are many layers of sedimentary rocks which are found in Liddar valley, Baramulla, district and Banihal Verinag section of the Pir Panjal range. Limestones and shells are common. The rock layers have many fossils. Near Yarkand to the extreme north, shells have been found showing that the region was under sea in the geological past.

To the south and west of the valley there are karewa formations which are lake-laid clays and shales. These are lacustrine deposits and appear like flat mounds on the margin of high mountains. Below these karewas is spread the alluvium of the Jehlum. The highest karewa is near the Pir Panjal. It is 3800 meters above sea level and more than 2100 metres above the level of the Jhelum.

11 Distribution of Rocks and Minerals

The mountains surrounding the different valleys of the State of Jammu and Kashmir have varied mineral wealth. The first survey of minerals wealth in the State was made by a renowned geologist. Mr. Middlemiss in 1924 in collaboration with the Government of Jammu and Kashmir, but an intensive mineral survey was taken up in the year 1956 when systematic investigation began, as a consequence of which mineral exploitation in the State was organised and developed.

1. Lignite. It is an inferior quality of coal which is found in the valley of Kashmir at Nichahama, Baramulla, Handwara, Chowkibal, Ferozpur nullah, Nagbal, Tangmarg, Raithan, Badgam tehsil, Laligang and Lolab valley. Lignite is a blackbrown coal that is intermediate in coalification between peat and sub-bituminous coal which has a calorific value less than 8300BTU/lb, on a moist mineral free basis. According to the report of the Geological Survey of India, there are lignite coal deposits of about 5 crore 60 lakh tons in the valley. Drilling operations were started first in the Nicaahom- Chowkibal area where the reserves were estimated at 4. 5 million tons to a depth of 40 metres. Lignite is used as a fuel in the valley of Kashmir.

2. Limestone. All the three regions of the State i.e. Jammu, Kashmir and Ladakh have deposits of different ages and grades of Limestone. The Limestone of Kashmir is of high quality and is used in the manufacture of cement at Wuyan and Khrew. These deposits exist in Anantnag, Achhabal, Doru, Verinag, Biru, Sonamarg, Ajas, Wuyau, Khrew and Loduv. It is also used as building stone and mortar.

3. Copper ores are found at Aishmuqam, Shubbar area (Anantnag), Lashtil hill spurs (Baramulla), Handwara, Sumbal, Kangan and Lolab valley in the province of Kashmir.

4. Iron-ore deposits occur in Sharda (Karnah tehsil), Khrewa, Haral (Handwara), Uri tehsil, Garez (Sopore tehsil) and Lolab valley in Kashmir.

5. Gypsum. It is used for making plaster of paris and chalksticks. The Kashmir province has gypsum deposits at Lachhipora, Baramulla, Anantnag, Liddipora and Kathia Nullah (Uri). There is total reserve of about 4 million tons of gypsum in the State.

6. Ochre. It is used in paints and varnishes etc. There are extensive deposits of ochre in Nur Khawn, Ratasar and Jhaggi in the Uri tehsil. About 4 lak tons of ochre have been found in the State so far.

7. Zinc and Nickel are found at Buniyar (Baramulla).

8. Fuller's Earth is used in the manufacture of country soap and for filling paper. It is found in Rampur near Baramulla

9. Slate Stone is found in abundance in the valley of Kashmir.

10. Graphite is used in the manufacture of lead pencils and is found in Bararipora, Uri, Karnah, Malogam, Piran in the province of Kashmir

11. Sulphur is found in Pagga valley in Ladakh. In spring water, it is found at Anantnag and Khrewa. The estimated deposits of sulphur in the State are 2,00,000 tons.

12. Marble. Large deposits of marble have been found at Drugmalla, Zirahama, Oura and Trehgam in Kupwara district of Kashmir. This is light brown to dirty grey in colour. This is being used commonly in buildings these days.

12 Hydro-Electric Power Stations

Of late year Hydro-Electric Works have made considerable headway in the State of Jammu and Kashmir. This electric power is used in running factories irrigating fields and for lighting towns and villages as well as for other common household requirements. Two grid stations have been commissioned. Three gas turbines have been set-up to overcome power shortage in the valley during the winter.

A hydro-electric power corporation has been set-up to mobilise resources for effective implementation of various projects. The total power generation in the state sector is 259mw.

The following are the important Hydro-Electric Works established in Kashmir:

1. Mohra Hydro-Electric Power Stations. It was in the year 1907, during the reign of Maharaja Pratap Singh, that the British designed a 25-cycle per second plant of 4000 Kilowatts at Mohra about 22.5 kms. from Baramulla towards Uri in Kashmir. After some years, conversion from 25 to 50 cycles machinery costing about 2 crores of rupees was set up to add 600 kilowatts to the existing capacity. Srinagar, Sopore, Baramulla and Gulmarg towns are supplied electric power from this power station.

2. The Sind Valley Hydro-Electric Project. This project established in 1955, is near Ganderbal on the bank of the Nullah Sind towards its east. A canal 113 kms long rises upwards to a height of 1500 metres and generates 13000 Kilowatts of electric power. The project is a multipurpose one. Its water is used for a variety of purposes, like irrigation, generation of electricity, flood control, navigation, fish culture and soil preservation. The electric supply has been extended to 56 kms south of Srinagar towards Anantnag and supplies power to Lift Irrigation scheme as well.

3. The Pahalgam Hydro-Electric Project. The river Liddar is an important tributary of the Jhelum. It has been harnessed for water power at Pahalgam. A dam 8 metres high creates a water fall, generating 200 kilowatts of electricity. This power helps in lighting tourists huts and running cottage industries.

4. Lower Jhelum Hydel Project (Sheri). This project for generating electricity has only one stage which generates 105 megawatts of electric power.

13 Industries, Handicrafts, Export and Import

Industrial complexes have been established at Rangreth, Khunmoh and Doabagh in Kashmir where the units for the manufacture of TV sets, radios, electronic clocks, stabilizers, tape recorders, jewels for watches, joinery articles, automobile batteries, oxygen etc. have been set up.

13.1 Small Scale Industries

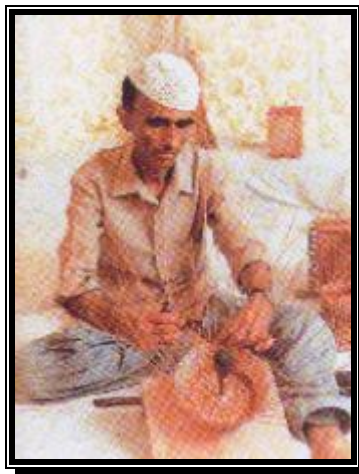
There has been a remarkable increase in small-scale industrial units all over Jammu and Kashmir in recent years. These units manufacture food products, beverages, machinery parts, plastic goods, chemicals, drugs, paper products and automobile equipment.

13.2 Handicrafts

In Kashmir, with its severe winter when climate conditions are semi-arctic, craftsmen utilize their leisure as well as creative intelligence in creating artifacts of exquisite beauty. Princely patronage encouraged these handicrafts from early times till these products, light in weight and rich in art, found a big market in India and abroad. The State Government has set up many training centres for coaching young boys and girls in traditional arts and crafts. As a result there has been a wide dispersal of handicrafts throughout the State.

Kashmir is known for the following handicrafts throughout the world:

1. The art of making **carpets** is a gift of caravans coming into the valley from Central Asia. In the time of Zain-ul-abdin Badshah, this art was greatly developed by imported skill and royal patronage. The Europeans also took a keen interest in it. It resulted in the establishment of more than 15 well known factories with about 350 looms weaving carpets. Finest wool obtained from pashmina goats and marino sheep is used in these factories. Cotton yarn is, however, imported from Amritsar.
2. **Namdás** are made of wool of inferior quality and old woollen blankets are used for making gabbas. The art of felting wool into namdás has come from Yarkand. Namdás and **gabbas** are embroidered with thread, which gives colour, beauty and strength to them. This cottage industry is concentrated in Anantnag, Rainawari and Baramula.



Wicker-work and basket making are arts common to Kashmir and Jammu.

3. **Lois** (woollen blankets) of Shopian and Bandipore are well known. Hand-woven blankets of Rainawari are also durable and warm. Woollen pattus, tweeds, and worsted are manufactured in many hand and power looms established in and around Srinagar.

4. The **Kangri** making is a cottage industry concentrated in the areas on the banks of Wullar lake near Watlab and at Tsrar and Botingo villages.

Kashmir is known for its **wicker willow**. Wicker is used for making baskets, boxes, lamp-shades, curtain rings, trays, chairs, tables, and cycle baskets etc. Srinagar, Harwan, Shalabug, Hazartbal, and Sowra are the centres of its production. The cultivation of wicker willow is the monopoly of the State.

5. **Papier Mache** is a monopoly of Kashmir. Pulp and paper are shaped into a variety of decorative articles and colorful designs are painted on them. The goods prepared are mostly boxes, table lamps, toilet sets, jewellery boxes and other articles of decoration. Srinagar, Rainawari and Anantnag are famous for this cottage industry.



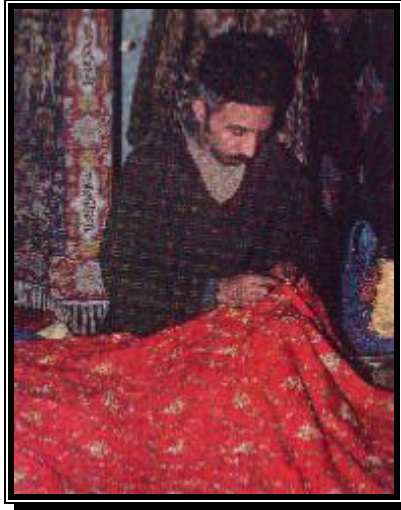
A papier mache replica of a samovar.



A rich display of papier mache in a Srinagar shop.

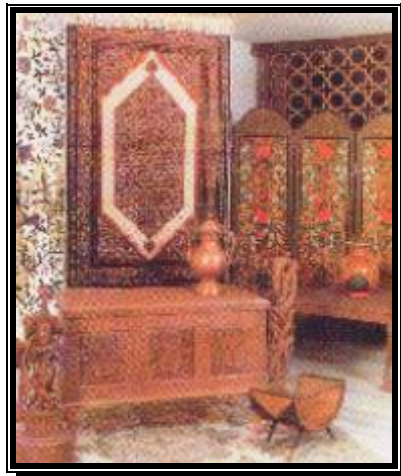
6. **Pashmina shawl** industry is an old industry of Kashmir. Pashmina wool used to come from Tibet via Ladakh but since the invasion of China in 1962 and closing of the Leh Yarkand route, Pashmina shawl and carpet industries have been affected greatly. Now the raw material comes from Ladakh only. Moreover the water of river Jhelum is most suitable for washing pashmina wool. Best pashmina shawl is known as ring shawl, a shawl that can pass through a wedding-ring.

7. **Silverware and imitation jewellery**. Silver-smiths, engravers and polishers work to make beautiful silverware articles like teaset, tumblers, boxes, trays, soap cases, toilet cases, and other articles of decoration. This work requires skill and craft. Engraving is a speciality of the Kashmiri engravers. Kashmir purchases about one lakh tolas of silver a year for this cottage industry. There are



Embroidering a shawl with Kashmiri motifs.

about 80 units of imitation jewellery at Srinagar. They prepare rings, cuff-links, bangles, broaches, bracelets, ear rings and tops etc. The raw material consists of jade, cayz, pashm, tiger-gold, pheros, bakarmohar, cat's eyes and various types of glass chatons and beads.



A range of carved furniture and papier mache objects d'art.

13.3 Large Industrial Units

1. Superior quality woollen cloth, tweeds, blankets and suiting-cloth etc. are manufactured in a factory run by the state Government. The factory was originally established by Sh. A. K. Wattal. It has an annual turnover of goods worth rupees 60 lakhs. Besides, there are many other private wollen Mills in Srinagar and Anantnag.
2. Raven Craft factory is situated at a distance of about 6 Kms. from Srinagar which makes jams, juices, squashes, sauces and pickles etc.
3. A brick and tile factory is installed near Pomporre and is a Government concern. It manufactures about 15 thousand tiles and five thousand fire-proof bricks daily.
4. Government Cement Factory is established at Wuyan (Srinagar). It produces about 60 tons of cement daily.

5. Silk manufacture is the oldest industry of the State which involves the production of raw silk and silk fabrics. Silk worms are raised on mulberry leaves as a cottage industry both in Jammu and Kashmir provinces.
6. H.M.T. Comany has recently started a very large watch factory at Zainakot (Sopore) in collaboration with the State Government.
7. Government Spinning Mills, Noshera(Srinagar) manufactures ruffel and knitting yarn to be used in the other local factories for the manufacture of woollen cloth and knitwear.

14 Transport and Means of Communications

Geographical factors govern transport and means of communication in Kashmir. Although there has been great progress in transport and communication system in the valley, man is still the beast of burden in some mountainous areas. In the valley roads are the main means of transportation for wheeled traffic. The Government of India, in order to make the traffic possible between the valley of Kashmir and the rest of the country even in the coldest weather of the year, has constructed two tubes of Jawahar Tunnel near Banihal at a height of 2200 metres above sea level. Rivers in the valley of Kashmir are also navigable. On the higher altitudes, where roads are not so common, mules and ponies are also used as means of transportation. There is also Air transport from Jammu to Srinagar and Ladakh.

14.1 Road Transport in Kashmir

- 1. Jhelum Valley Road** is 132.5 Kms. long and connects Srinagar, Pattan, Baramula, Mohra and Uri. It is also a part of the National Highway and is very important from military point of view.
- 2. Srinagar-Shopian Road** is 53 Kms. long and connects Srinagar, Pampore, Pulwama, and Shopian.
- 3. Srinagar-Kulgam Road** connects Srinagar, Khannabal and Kulgam. It is 71 Kms. long.
- 4. Srinagar-Gulmarg Road** is 29 Kms. long and connects Srinagar, Tangmarg and Gulmarg.
- 5. Srinagar-Pahalgam Road** is 96.5 Kms. long and connects Srinagar, Awantipura, Khannabal, Mattan, Aishmuqam and Pahalgam. From Pahalgam a bridle path leads to Swami Amarnath cave which is 45 Kms. from Pahalgam. On this route, Chandanwari, Sheshnag and Panjtarni stations are worth mentioning.
- 6. Srinagar-Bandipur Road** leads to Shalateng- situated on the Jhelum Valley Road. From Shaltang this road leads to Bandipur. It is 56Kms. long. From Bandipur to Sopore it is 33 Kms. From Bandipur another road leads to Gurez and it serves as a military defence road.
- 7. Srinagar-Wayal Road** is 85 Kms. in length. On this route, Anantnag, Achhabal, Kukarnag are worth mentioning.
- 8. Sopore-Tetwal Road** is 95 km, long and connects Sopore, Handwara Trehgam, Chowkibal, Santochangli and Tetwal. From Srinagar to Chowkibal the road is open for both public and military traffic, but from Chowkibal to Tetwal only military vehicles run and the road is closed during winter when there is heavy snowfall.
- 9. Srinagar-Gandarbal-Baltal Road** winds its way across the Anchar Lake passing through Ganderbal where the Sind Nullah enters the Anchar lake. This road connects with many other roads, the important one is Khirbhawani or Tulamula road leading to the well known shrine. The main road passes through the entire valley of the Sind Nullah upto Baltal, the foot of the Zojila pass. Beyond Baltal the road leads to Matayan and to Dras. It is 117 Kms. long up to Baltal and from Baltal to Dras it is 45 Kms.
- 10. Srinagar-Charar-e-Sharif Road** has been constructed over the karewa to the southeast. It leads to the well known shrine Charar-e-Sharif.
- 11. Srinagar-Ladakh Road** is 80 Kms from Srinagar to Sonamarg. It connects Srinagar, Gandarbal and Sonamarg, from where. after passing over the Zojila Pass it connects Machai, Drass, Kargal and Leh, the capital of Ladakh Province. From Sonamarg to Leh the distance is 350 Kms.
- 12. Kargal-Askardu Road** is 151 Kms. in length. On the way, Kharalpul, Awiding, Bagicha Talse, Madhopore, Gole and Theggo are worth mentioning.
- 13. Pulwama-Yus-gogji Pathar Road** connects Pulwama, Parkota, New Kalipora, Ramopakherapora, Kanidanwan and Yus-gogjipathar.

Other important road- links are:

14. Khannabal-Kulalgam 17 Kms.

15. Anantnag-Verinag	26 Kms.
16. Srinagar-Tral -Shikargah	45 Kms.
17. Shopian-Kulgam	22 Kms.
18. Shopian-Wuyun-Letapore	31 Kms.
19. Shopian-Bijhebara	31 Kms.
20. Srinagar-Naseem-Pandach	18 Kms.
21. Srinagar-Halwar-Drafama	27 Kms.
22. Srinagar-Aerodrome	11 Kms.
23. Srinagar-Chrar-e-sharif-Yusmarg	47 Kms.
24. Srinagar-Badgam-Raithan	32 Kms.
25. Baramula-Langet-Handwara	29 Kms.
26. Srinagar-Sopore	73 Kms.
27. Srinagar-Sopore-Gangbug	137 Kms.
28. Handwara-Nichhama	21 Kms.
29. Handwara-Magam-Lonawara	27 Kms.
30. Ukherhal-Senawatipul	11 Kms.
31. Srinagar-Panthchak-Lethpora	31 Kms.

15 Tourist Industry

Tourism is one of the major industries of the State. This industry provides employment to lakhs of people directly and indirectly. Hoteliers, house boat owners, transporters, travel-agencies, traders, guides, porters, ponymen, boatmen, handicrafts and small scale industry units and many others earn their livelihood because of this industry. Private and public sector agencies provide necessary facilities to the tourists and every year the number of tourists increases.

15.1 Places of Tourist Interest

15.1.1 Monuments

The ancient history of Kashmir is present in its beautiful historical monuments. These are Martand temple, Ardnwan Monastery at Harwan, Shankaracharya temple, Sharika Bhagwati-temple, and ancient ruins at Avantipora, Pattan, Baramulla, Parihaspur, Handwara and Andarkot. History of India has left deep marks in Kashmir in its grand remains of early civilisation. These are the remains of temples of learning and worship which were Kashmir's glory in ancient times. Pari Mahal, Kabutar Khana, and Hariparbat in Srinagar are also the ancient monuments in the Valley of Kashmir.

15.1.2 Gardens

The Mughal gardens- Nishat, Shalamar, Bijbehara, Achhabal, Verinag, Naseem and Chashma Shahi are some of the marks of Mediaeval history.

15.1.3 Fishing

It is a sport very much liked by tourists. Mahaseer fish is found in the river Jhelum near Sumbal, Sopore, and Baramulla bridge. Trout fish is found in Harvan Hatchery and Achhabal Hatchery. Common carp is found in the river Jhelum and its tributaries. The Wullar lake, the Dal lake, the Manasabal lake and the Anchar lake are other fishing spots.

15.1.4 Hunting

The hills and mountains of the state of Jammu and Kashmir are known for Big Game. Markhoor, Brown Bear, Leopard, and Barasingha are mostly found in Kanag, Baltistan, Pirpanjal and in the Middle and Inner Himalayas.

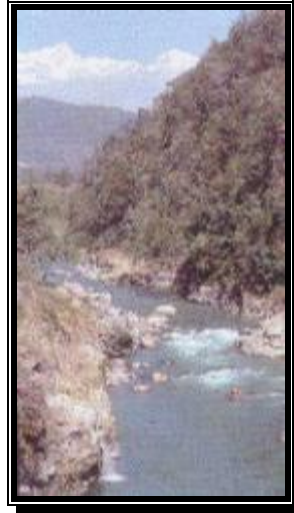
15.1.5 Hiking and Trekking

Hiking and trekking is an attractive excursion for tourists. The places for hiking and trekking are:

Affarvat - 4420 meters, Amarnath Cave - about 5372 meters, Dras - 3050 meters, Harmukh Mountain - 5160 meters, Kolahai - 4270 meters, Kausarnag - 3965 meters, Qazinag - 4720 meters, Leh - 3630 meters, Mahadev - 3500 meters. Nangaparbat - 8115 meters, Khilin - 3050 meters, Sheshnag - 6470 meters and Kajinag - 3700 meters above sea level.



In the high snows ... mountaineering opportunities in the Himalayas excite even professionals.



Watersports in Kashmir range from river rafting (top) to water trekking on the lakes and rivers of the valley (above).

15.2 Winter Sports in Kashmir

Skating in Gulmarg attracts many tourists during the months of December, January and February.

15.3 Tourist-Spots and Health Resorts

Name of Place	Distance from Srinagar	from
1. Achhabal	62 Kms.	
2. Kokarnag	77 Kms.	
3. Verinag	80 Kms.	
4. Pahalgam	96 Kms.	
5. Gandarbal	21 Kms.	
6. Gangabal	66 Kms.	

7. Sonamarg	82 Kms.
8. Gulmarg	45 Kms.
9. Lidarwat	117 Kms.
10. Chandanwari	109 Kms.
11. Aru	99.3 Kms.
12. Yusmarg	34.5 Kms.

15.4 Places of Pilgrimage

For Hindus important places of Pilgrimage are: Shri Amarnath Cave, Mattan, Khirbhawani and Mahadev. The Muslims have the following places of Pilgrimage: Hazratbal, BabaRishi (Gulmarg), Charar-e-Sharif, Shrine of Makhdoom Shah Hamza and Shah Hamdan.

15.5 Botanical Interest

Valuable plants and herbs are found in the State of Jammu and Kashmir. These vary from altitude to altitude. Interested people visit the state in search of these plants and herbs.



Houseboats line Dal lake's banks.

15.6 Arts and Crafts

Kashmiris are well known for their artistic talent and craftsmanship throughout the world. Weaving shawls, wood-carving, embroidery on silk and woollen clothes with fine, colourful and attractive designs, making of wicker-willow artifacts, silver-ware manufacture and carpet weaving of very superior

workmanship are some of the arts and crafts which they have inherited from their forefathers. Tourists are very fond of these handicrafts

15.7 House-Boat Life

Houseboat life is also a great attraction for tourists in Kashmir. In these well-furnished boats there is every kind of indoor comfort. All the necessities and comforts of day to day life are available in these houseboats. These are in fact small luxury houses. Thousands of visitors like to stay in these houseboats not only during summer but winter days too.

15.8 Springs and Lakes

Wullar, Dal, Anchar, Harvan, Hukarsar, Konsarnag, Sheshnag and Neelnag lakes in the province of Kashmir are the best picnic spots for tourists to spend their vacation.

Kashmir valley abounds in numerous springs of which Martand, Verinag, Anantnag, Achhabal, Chashma Shahi, Khirbhawani, Alpathar, Kicharnag, Sukhnag, Vishnosar and Harmukat Ganga are famous. These places are fine picnic spots where tourists like to spend their vacation in the company of nature.

16 Political Divisions of Kashmir

In the year 1947 the State of Jammu and Kashmir was invaded by Pakistan. India and Pakistan fought for more than a year when cease fire was agreed upon on 1st of January, 1949 and the fighting stopped. A ceasefire line of demarcation gave 79788 Sq. Kms. of area of the state of Jammu and Kashmir to Pakistan.

The district of Poonch lost 52% of its area to Pakistan. The district of Muzaffarabad lost some area in tehsil Muzaffarabad, Uri and Karnah. The whole of Gilgit district, Asotre district and Mirpore district also went to Pakistan. The whole of Askardu tehsil and a part of tehsil Kargil went to Pakistan. Invasion of China in 1962 also made the State to suffer a loss of its area. In 1971 Pakistan once again made unlawful possession of Chhamb, Deva, Chakla and Manawar.

The State of Jammu and Kashmir, therefore, suffered serious splitting in area and population. Only four districts - Udhampur, Jammu, Kathua and Anantnag - suffered no change; other districts suffered loss in area, either wholly or partially to Pakistan.

Re-organisation was necessary; therefore, new districts like Pulwama, Doda, Rajouri and Poonch were created.

The districts were further sub-divided into tehsils so that more attention could be given to the development of agriculture, cottage industries and trade. Construction of new roads, water supply and electricity helped these rural settlements. The abolition of jagirdari of two jagirs of Poonch and Chenani also brought about a change in the area of these tehsils and districts. Poonch was made a district while Chenani was merged with the district of Udhampur.

The latest reorganised units of administration in Kashmir are:

Districts	Tehsils
1. Anantnag	1. Anantnag 2. Kulgam 3. Pahalgam 4. Bijbehara
2. Srinagar	1. Srinagar 2. Gandarbal
3. Badgam	1. Badgam 2. Beerwah 3. Chandura
4. Baramulla	1. Baramulla 2. Sopore 3. Sonawari 4. Uri

	5. Gulmarg
	6. Bandipore
5. Kupwara	1. Kupwara
	2. Pattan
	3. Handwara
6. Pulwama	1. Pulwama
	2. Tral
	3. Shopian

The State of Jammu and Kashmir is an integral part of the Indian Union. The President of the Indian Union appoints the Governor. The Governor orders the leader of the major political party in the State Legislature, which consists of the Legislative Assembly and the Legislative Council, to form the Ministry to run the Government. The Government thus formed, by the-elected representatives of the people functions with the Opposition in the Legislature. The judiciary is separate from the executive. The judges of the High Court are appointed by the President of the Indian Union. Since 1990 the state is under Presidential rule due to militancy. The Governor runs the administration with the help of Advisors appointed by the Centre.

In addition to the State's own constitution, the constitution of India applies to the State of Jammu and Kashmir like the rest of the country but with a special status under article 370. It guarantees equal rights for all irrespective of caste, creed, color and religion. As already stated above each province is divided into various districts, which are administered by Deputy Commissioners, and each district is divided into Tehsils, which are under Tehsildars and each Tehsil is further sub-divided into Niabats, which are under Naib Tehsildars. There is one Divisional Commissioner who is the provincial head.

16.1 Cities, Towns, Health Resorts and Places of Historical Interest

The state of Jammu and Kashmir is primarily an agricultural State, hence most of the population lives in villages. But even then several towns and cities have grown up.

1. Srinagar City, the summer capital of Jammu and Kashmir State, lies in the centre of the Kashmir valley at 34.50 North longitude and 74.50 East longitude. It is 1524 metres above sea level. The most beautiful spot is the temple of Shankarcharya on a hill over looking the city. The other is the Hariparbat hill with a fort on its top. The city is spread on both the banks of the river Jhelum for about 6.5 kms.

The city is now expanding towards new settlements of Jawahar Nagar and Burzala on the elevated road towards the aerodrome-Damodar Karewa. The aerodrome is situated on the Damodar Karewa. Srinagar is the focus of tourist attraction. It is well known for handicrafts like shawls, carpets, woollen and silk cloth, wood carving, silver wares, papier mache and willow work. There are many Degree Colleges, a Medical College and an Engineering College in this city. The University of Kashmir, situated in Srinagar, provides instruction in multiple postgraduate courses.

2. Anantnag is 45 Kms from Srinagar towards Banihal. Khannabal is only 2.5 Kms. from Anantnag and after passing through Khannabal one reaches Anantnag. It lies at 33.40 North altitude and 75.10 East longitude. It is District Headquarter. There are many holy springs in this area. Besides wooden toys, embroidered namdas and gabbas are made here. There is one Govt. Degree College.in this town.

3. Achhabal is located at a distance of 10 Kms. from Anantnag. The water of the spring there is cold and helps digestion. Trout fish is found in abundance and the visitors from far and wide come here to spend hot summer days. It is a famous health resort

4. Kokarnag is also a health resort situated at a distance of 27 Kms. from Anantnag and 13 Kms. from Verinag. There are beautiful camping grounds in Kokarnag for the visitors to spend their summer days.

5. Mattan is located on the Srinagar-Pahalganl road about 10 Kms. from Anantnag. The spring at Mattan is considered holy by the Hindus. The spring is full of fish. Its water irrigates agricultural land near Mattan.

6. Verinag lies at the foot of the Pirpanjal on the side of Kashmir valley. There is a beautiful spring at Verinag which is the source of the river Jhelum. The town is 34 Kms. from Anantnag. The Tourist Department of the State has constructed some beautiful huts here for the for tourists to the valley. It is also a famous health resort.

7. Pahalgam is a township 2651 metres above sea level. It is a very famous health resort in the State of Jammu and Kashmir. It is 96.5 Kms from Srinagar in Liddar Valley. There are beautiful camping grounds on the banks of the river Liddar. Hindu pilgrims going to Shri Amarnath Cave situated at a height of 600 metres above sea level have to pass through Pahalgam. They first go to Pahalgam and then to Amarnath either on foot or on ponies.

8. Kulgam is a township to the west of Anantnag. The area of the town is 5.54 Sq. Kms. It is on the way between Shopian and Anantnag.

9. Shopian is a foot-hill town. It has an area of 5.44 Sq. Km and is 55. Kms. south of Srinagar. Some beautiful places like Aharbal fall, Kaunsarnag and Kungwattan surround this area. Icebergs flow in these lakes till June. Aharbal fall is 13 Kms. from Shopian. The town is well known for hand-woven Lois(woollen blankets). Apple orchards are in abundance here. The Mughal Kings used to come to Kashmir via Rajouri - Aliabad-Shopian route.

10. Gandarbal is known for its clean, cold water and fresh air and tasty fish . It lies on the banks of the Nullah Sind. The alluvial plain is sandy . It is also known for its camping ground. It is 21 Kms. from Srinagar. Khirbhawani temple is at a distance of 5 Kms. from this place. The Sind Valley Hydro-Electric Project is located at Gandarbal.

11. Pampore is a small township on Srinagar-Jammu road. The Government has established there very big factories for the manufacture of furniture, plywood, bricks and tiles. The town is famous throughout the world for the best quality of saffron grown here.

12. Sopore is 13 Kms. from Baramulla towards Srinagar. It is 6 Kms. by water through the river Jhelum and is close to the Wullar lake. Cool breezes blowing from the lake towards Sopore make evenings windy. Fish and fruit from this town are exported outside the State. From Sopore a road leads to Lolab Valley, Handwara and Tetwal. There is one Agricultural University at Sopore. This town is well known for woollen patus. There is also one Degree College here.

13. Baramulla is 55 Kms. to the north of Srinagar. It lies at 34.1 deg. North Latitude and 72.2 deg East Longitude. It is located at a height of 1600 metres above sea level. The river Jhelum is navigable only upto Baramulla. The area of the town is 6.22 Sq. Kms. It is known for its fruit orchards There is one Govt. Match Factory and one Half-wrought rifle Factory located here The importance of B as a trade center has declined considerably since the Jhelum-Valley cart-road was blocked in 1947. There is also one Degree College in this town.

14. Handwara is at a distance of 26 Kms. from Sopore. It is the Tehsil Headquarter. In this area is situated Nichahom where lignite is mined. The mountains begin to rise and road leads to mountain passes which are guarded by the army.

15. Bandipora is a township on the eastern bank of the Wullar lake. It is 4.97 Sq. Kms. in area. From here the road rises up the mountains leading to Gurez and Gilgit. The town is known for the export of hand-woven lois (woollen blankets).

16. Uri is a township in the north of Baramulla. It lies in the narrow gorge of the Jhelum. Beyond Uri is the ceasefire-line making it militarily important.

17. Teetwal is situated on the left bank of the river Kishanganga. A road leads to Sharda and Keran from Teetwal. It is surrounded by mountains and is an important town located at the cease-fire line.

18. Liddarwat is at a distance of 21 Kms. from Pahalgam. It is located at a height of 3390 metres above sea, level and is a health resort. There are many camping grounds in this area for the visitors to stay during summer.

19. Chandanwari is situated at a distance of 19 Kms. from Pahalgam towards Amarnath Cave. It is at a height of 3288 metres above sea level. It is also a very good health resort.

20. Aru is at a distance of 3.03 Kms. from Pahalgam. This is a beautiful mountainous meadow or grassy land. Tourists enjoy camping here during summer days.

21. Sonamarg is located at a distance of 84Kms. from Srinagar towards Zojila pass. It is covered with thick forests and situated at a height of 2438.4 metres above sea level. Climate of this place is better than that of Gulmarg and Pahalgam. A road leads to Kargil and Leh from Sonamarg.

22. Gulmarg, a beautiful health-resort, is 52 Kms. to the south-west of Srinagar. It is located at a height of 2650 metres above sea level. There is a beautiful camping ground at Gulmarg where thousands of visitors come and enjoy themselves. A bridal path leads to Khilanmarg and Alpather from this place. Grassy lands at Gulmarg are best for playing golf. The area is surrounded by pine forests.

23. Sheshnag is 24 Kms. from Pahalgam. It is situated at a height of 3600 metres above sea level. The water of the lake is cold and clear. During summer visitors come and enjoy camping at the lake-side.

24. Yusmarg is at a distance of 47 Kms. from Srinagar. It is also a good health resort where the visitors go and enjoy themselves during summer days. It is 18 Kms. from Charar-e-Sharif.

Places of Historical Interest

1. Shri Amarnath Cave situated at a height of 6000 metres above sea level is 49 Kms. from Pahalgam. There is a bridle path from Pahalgam to Shri Amarnath Cave. The cave is 9 metres deep and is 14 metres high in the middle. The cave is made of gypsum. Thousands of pilgrims visit the holy Shivling every year on the festival of Rakshabandan. In the cave there are idols of Shiva, Parvati and Ganesh.

2. Shankaracharya Temple is situated at a height of 2611 metres above sea level on a hill near Dal Lake. There is a Shivling in this temple. Thousands of visitors and pilgrims go by bridle path or by road to visit this holy shrine.

3. Khirbhvani is 22.5 Kms. from Srinagar. Every year a very big fair is held there in June. This is also a place of pilgrimage for Hindus.

4. Hariparbat Fort is about 5 Kms. from Srinagar where there are holy shrines of the Hindus and the Muslims. This fort which is situated on a small hillock was built by the Mughal King Akbar.

5. Pari Mahal (Palace) was built by Sufi Muslims as mentioned in the Rajtarangni. There is a road leading from Chashma Shahi to Pari Mahal.

6. Kabutarkhana is a beautiful small island in the Dal Lake. There is a Rest House built on the island.

7. Jawahar Tunnel is built at Banihal at a height of 2194.56 metres above sea level. There are two tubes each one of which is about 2825 metres long. It is the longest tunnel in Asia. Before the construction of this tunnel the distance between Jammu and Kashmir was 328 Kms, but now it has been reduced to 300 Kms. only.

8. Ruins of Martand Temple near Mattan: Shivji and Vaishno temples in Awantipura, Bijbehara ruins, ruins of Buddhist shrines in Harwan and Sharika Bhagwati Temple are the ancient historical places in the valley of Kashmir.

9. Hazratbal, where the holy hair of the prophet Mohammad is kept,

Jamia Mosque, Pathar Mosque, Tomb of the mother of Zainulabdin Badshah, shrines of Makhdoom Hamza, Bulbul Shah, Maula Drugjan, Naqashbandi, Madni and Makhdoomi, and Shah Hamdan Mosque in Srinagar and Charar-e-Sharief at a distance of 29 Kms. from Srinagar are the holy shrines of the Muslims in the valley of Kashmir.

10. Nishat garden, Shalimar garden, Chashma Shahi, Naseem garden and Verinag spring are historical monuments. These were built by Mughal Kings in the valley of Kashmir during their reign.