NAINI TAL.
The Chand Rájas used to be burned at Jágenswar, and their Ránias became satis here. On the occasion of the cremation of a Rája, a stone from the pyre used always to be sent to Pitroli near Champáwat, and deposited there at the old pyre-place of their family with great ceremony and sacrifices of male kids; a practice still observed by the Almora and Káshipur families. Rájis reside near Jágenswar.

Nainí Tál, the hill sanitarium of the Kumaon Division, is situated in patti Pahár Chhakkáta of parganah Chhakkáta of the Kumaon district in north latitude 29°-22'−49" and east longitude 79°-30'−19" (south south-east corner of the lake); distant 16 miles from the foot of the hills at Káládhúngi, 10 miles from Ránibáig, 32 miles from Almora by the Rámágár road, 30 miles from Almora by the Khairna road, and 23 miles from Ránikhett. The population on the 17th September, 1880, numbered 10,054 souls (2,957 females), but varies every month with the number of visitors. In February, 1881, it was 6,576 (1,970 females) exclusive of cantonments. The station is situate in a valley running from west to east, and is bounded on the north by the peak of Chhina, 8,588 feet high, continued by the Almán peak and the Sher-ke-dánda to the eastern extremity where the ridge descends almost to the level of the lake. On the west the rugged hill of Deopátha rises to the height of 7,989 feet, and on the south Ayár pátha attains an elevation of 7,461 feet, diminishing gradually towards the east. The eastern boundary is the pass through which the surplus waters of the lake find an exit, forming the principal source of the Baliya river which in turn is a principal feeder of the Gaula. The western end of the valley consists of a series of gentle undulations formed by the debris of the surrounding hills while the eastern end is filled by the lake of Nainí which gives its name to the station. The surface of the lake has an elevation of 6,350 feet above the level of the sea. In 1871, Dr. Amesbury measured and sounded the lake with the following results:—The length from east to west in the centre is 4,702½ feet or about 1,567 yards; the width at the Smuggler's rock is 792 feet, and at the broadest part opposite Omnibus cottage is 1,518 feet. The circumference by the road is 11,880 feet or a little over two miles. The superficial area is 1,204½ acres. The greatest depth is 93 feet, and the least depth on a ridge running through the centre of the lake is 20 feet.

\[\text{The lake.}\]

\[\text{1 See further } \textit{Gaz. XI., 778.}\]

\[\text{2 Kumaon and Garhwal Survey.}\]
The colour of the water is generally a bluish green, but after an earthquake, such as occurred in 1871, the colour is more opaque, and turns to a dirty reddish brown from the agitation of the bed of the lake, and the presence of infusoria. There is but one important feeder which collects the drainage and spring waters of the western end of the valley and with it some of the refuse from the whole hill-sides. In the rains this stream must to a certain extent pollute the waters near its entrance into the lake, but as a rule the water of the lake is good and well adapted for drinking purposes as its analysis shows.

The lake is very slowly but surely filling up from the immense quantity of debris swept into it during the rains, though, as it has received that from the landslip without any perceptible diminution of its area or depth, we may well hope that many generations shall pass away before the chief ornament of Naini becomes a thing of the past. Occasionally fish weighing 28 to 35 pounds are caught, but the most common is a small scaleless species which, however, is fit for the table. In the lake itself there is a sulphur spring nearly opposite the Smuggler’s rock in 63 feet of water and another outside it near the Tall Tal bazaar, which has been found a medicinal agent of considerable value in cases of debility.

Near the brink, the surface of the lake is covered with a tangled mass of Potamegeton macrorhizum, Myriophyllum indicum, Chara verticillata, Polygonum subrincacum and the pretty English Polygonum amphibium, which, according to Madden, “here and here only in India, raises its pink spikes above the water.”

Ayārpātha, so called from the ayār (Andromeda ovalifolia) a species poisonous for cattle and goats, is covered with the green oak (Quercus dilatata) and this as well as the adjoining mass known as Hāni Bāni is almost exclusively formed of the transition limestone of Mussooree exhibiting everywhere vast rents, fissures, crags and boulders of all sizes and shapes and falling under Ayārpātha so abruptly to

1 Specimens of these infusoria were transmitted to England in 1870, and the species found in the lake at Naini Tāl has been named Ceratium hummonense by Mr. H. J. Carter (Am. Mag., N. H., 4th Ser., VII., 229). It is a species of horned Peridice allied to that found in the Baltic sea, Red sea, Indian ocean, the Swiss lakes, the fresh-water ponds of Bombay and those of Calcutta, and it is to an assemblage of these minute animals that the rusty brown colour of the lake at certain seasons is due. They are also found in the other lakes.
the edge of the lake that until 1847 there was only a very indifferent pathway in that direction. To the south-east of Ayárpátha the Gaiwála estate or Sherwood, now occupied by the Diocesan boys school, comprises a series of swelling lawns thickly wooded and terminated abruptly by magnificent precipices from 1,500 to 2,000 feet high, from the base of which issues the Nihál river flowing by Kúlálhúngi through the Bhálbar to the Tarái. To the east, the cliffs are of clay slate in the centre of limestone, and to the north-west again of clay-slate distinctly stratified and dipping from the plains. Here, as in the Balian glen, the rocks appear to rest upon beds of blue aluminous shale and white gypsum, which must be of immense thickness, as they are found nearly to the foot of the mountains where the gypsum assumes the texture of alabaster and has been found useful in manufacturing plaster of Paris. The woods along Gaiwála comprise oak, ash, maple, Siberian crab, cypress and other northern forms, while the sward abounds in the Primula denticulata, Parnassia nubicola, with pwny; at no great distance and immediately below commences a tropical vegetation connecting it with the plains. The view from Ayárpátha shows the Bhálbar and Tarái arranged like a map at one's feet and on fine days takes in Bareilly to the south-east and Morúdabad to the south-west.

Deópátha on the east rises at a very sharp angle from the Abelia pass, whence the road from Kúlálhúngi enters the valley at an elevation of 6,800 feet above the level of the sea to 7,989 feet. On the north-east it is separated from China by a pass known as the China-ke-khán or khál, 7,438 feet high, which communicates with the villages lying along the headwaters of the Bhakra or Baula river. The sides of this peak and its base are strewn with immense boulders of limestone in natural confusion which are clothed with ferns and other epilithal vegetation amidst close coppices of the abelia.

China, the monarch of the Gágar range, raises his furrowed sides on the north almost precipitously at a horizontal distance of about one mile and a quarter from the lake. On the north, the crest is prolonged in a ridge known as the Duráns-ke-dánda or 'Rhedodendron ridge'
from the number of those trees growing there. The southern face is covered with a forest of noble cypresses (Cupressus torulosa) which here alone on the lower ranges appears to be indigenous. The crest is formed of limestone on a basis of clay-slate which appears to dip to the west or north-west. Limestone also appears along the south-western slopes. According to Madden the summit is clothed with a brushwood of Indigofera, Spiraea, Elsholtzia and Salsola; Androsace lanuginosa covers the rocks; Anemone discolor grows in the shady places and at the Surveyor's cairn Stellaria semicrescita and Hemiphragma heterophyllum appear.

The holly (Ilex diphylla) reaches a great size; one measured near the ground was between 16 and 17 feet in girth: but the characteristic tree of China is the Quercus semecarpifolia, which fringes the crest and covers the whole south-west face. Badhun Dhura and Sat-chuliya, points of nearly the same altitude, and at no great distance, on each side of China, have not a trace of it; and on the former Madden could only find a few specimens of Colquhounia vestita, a very common shrub at Naini Tal and towards Badrinath. The Limonia laurina too occurs only in this locality on the Gāgar range, and though the cypress is said to exist in Dhyānirau, it appears to be very local, limited to a grove or two while they occur on the face of China towards the lake in quantities and on the Gaiwāla cliffs as low down as 5,100 feet. The vegetation of China and Naini Tal thus presents some difficult problems, which the natives resolve at once by the assertion that the oak, cypress, Limonia, Colquhounia, &c., were imported from the snowy range and planted here by Naini Devi herself: and one might really suspect that some of the devotees who did penance on China in days of yore, actually introduced them from the holy tirthas among the snows, were it at all probable that they would have condescended to such humble plants as the Hemiphragma and Anemone. Moreover, on this principle it might be surmised that “Pilgrim” put the Polygonum amphibium into the lake to make it more English.”

The view from China embraces Rohilkhand, Kumaon, Garhwal and the snowy range from the sources of the Jumna to those of the Kāli. The great Himāchal must be about 65 miles distant in a straight line, and its
details are therefore less distinct than from Binsar and Almorad, whence the superior limit of forest is perfectly defined—much more so than the snow line—and above which the eye reposes with a never-to-be-satiated curiosity on the enormous shelving masses of rock and snow which appear as if they would squeeze mother earth to a mummy. Here we have the Gangotri group running apparently north, with sloping and apparently stratified planes to the east; then comes the great Kedarnâth mass, said to be the original Sumera, whence Siva regards with jealous rivalry his neighbour Vishnu, who dwells over the way in the still grander mass of Badrinâth, or rather on the Nâlikânta peak above the temple. Next comes Trisul about 20 miles more to the southwest and behind this again Nanda-devi with its pyramidal grey peak rising to 25,660 feet. Next comes Nandakot with the tent-shaped peak which is supposed to form the pillow of the katiya or cot on which Sita reclines. Further east are the Panch-chûla or five cooking places used by the Pândavas and then come the peaks of Api and Namjang in Népâl and its other unnamed mountains. Though perhaps not so clear or distinct a view as is obtained from the hills nearer the snowy range, it is undoubtedly the most comprehensive and impressive in the whole outer range (Madden).

The small ridge on which Fairlight (Tonnochy's) is built, separates China from the Alma or Ulma peak, up and around which a road has been made which commands a fine view of the Khairna valley, the China water-fall, Rânikhet and the hills beyond. The Alma-khan separates this from the snow-seat and Government house and the Khairna pass from Sher-ke-dânda or Tiger's ridge which is thickly covered with forest and abounds with beautiful shady walks. The east and south-east extremities of this hill abruptly end in precipices formed of clay-slate which caused considerable difficulty in making the foot road to Almora by Râmgâr and the cart-road to Râutibâg. To the north-east, the Tiger's ridge is connected with Liriya-kânta or Luriya-kânta, so called according to native accounts in memory of some forgotten goddess. It attains an elevation of 3,144 feet (8,023 feet, R. S.) ; its summit is quartz, bold and craggy towards the north and undulating to the south-east where it is clothed with forests of oak and pine. Mr. J. H. Batten discovered greenstone near the north end of the lake running north east to the
summit of Sher-ke-dánda and again to the south between Ayárpátha and Gaivála passing through limestone and beds of hornstone. The trappean rocks are said to reappear between Khúrpa Tál and Kálapathar where they derange and alter the other rocks as usual.

The valleys around Naini Tál afford occupation to the naturalist, the painter and the sportsman. A list of the plants to be found is given in the first volume as well as one of the fauna. Game is abundant close by and scenery unrivalled in the lower hills is within easy distance. The lakes of Malwa, Bhit, Nau-kuchiya and the seven lakes are only one march to the north-east, and will well repay a visit, while on the west the valley of the Kosi and the sequestered glades along the Rámganga and the Kota and Páthli Dúna afford scenes which a Salvator Rosa would delight to paint. The hills on all sides are thickly studded with the bungalows which are occupied by visitors from the plains from April to October. In the winter there are few European residents and the greater number of the native traders also leave the bázár for their homes. The southern face of Chíua and the space around the northern margin of the lake itself appear to be the favourite sites for residences and are fully taken up. Here also are the schools, church, and travellers' bungalow. Between the church and Hání Bání or 'the echo' rock lies Sukha Tál, a depression filled with water during the rains and used also as a quarry for stone and a shooting range for the volunteers. Close to this under Ardwell is the circular hollow covered with grass and flowers known as the Malla Pókhar or 'upper pool' perhaps originally filled with water but now dry at all times. The upper bázár and the assembly rooms are situated at the western end of the lake which also boasts of a fair cricket, tennis, polo, and race ground. At the eastern end is the bázár known as Tálá Tál or 'lower lake,' and beyond this at a distance of about a mile the barracks of Kálakhán forming the military convalescent depot of the Rohilkhand Division. There is no trade or manufacture unconnected with the supply of the wants of the summer visitors. The court of the Assistant Commissioner of Kumaon sits here, and there are besides a police-station, post-office, telegraph-office, dispensary, European shops and several hotels and boarding-houses.
The Naini Tál municipality is constituted under Act XV of 1873, and is managed by a committee of six members. Taking the latest returns, those for 1882-83, the receipts amounted to Rs. 56,602, of which, however, Rs. 9,729 were abnormal, being due to refunds and donations. The actual receipts were therefore Rs. 46,873. The principal sources of income are (1) the octroi on animals brought in for slaughter which yielded Rs. 2,761; (2) tax on houses (Rs. 8,335 in the station and Rs. 2,326 in the bázár) Rs. 10,661; (3) tolls on vehicles, Rs. 7,453; (4) special taxes such as conservancy, stalls for animals and on sites, which yielded Rs. 18,644; (5) rents, Rs. 1,939; (6) fines and miscellaneous, Rs. 5,425, to which add the abnormal receipts. The expenditure amounted to Rs. 57,531 distributed as follows:—Collection Rs. 1,055; head-office, Rs. 1,487; public works, Rs. 25,425; police, Rs. 2,513; education, Rs. 300; charitable grants, Rs. 348, conservancy, Rs. 11,025; repayment of loans, Rs. 11,527; and other items, Rs. 3,818. The large sum under the head repayment of debt is in part liquidation of the loan received from Government (a lakh and a half of rupees) for protective works after the landslip of 1880. These works have been tried by heavy rains since and have thoroughly stood the test, and with the establishment retained to see that all drains are clear, have made the station safer than it was before, and far more pleasant for those who have to walk or ride during the rains.

The receipts of the Naini Tál cantonment fund amounted to Rs. 4,199 in 1882-83 chiefly made up of a grant-in-aid of Rs. 2,189 and Rs. 1,674, dues on grass and fuel. The expenditure almost equalled the income and was devoted to the usual purposes, conservancy, lock-hospital and police.

The American Episcopal Methodist Mission established a branch of the Society here in 1858, which supports a vernacular school for boys having now a large attendance of pupils. Besides this there are eleven other schools supported by the Society in the hills and Bhábar with an average daily attendance of 3 to 400 and a girls' school with 20 pupils. In 1871, a dispensary in connection with the same Society was opened at Naini Tál when, in three months, 1,800 out-door and 30 in-door patients received treatment. Similar institutions were established at Dwáráhát and Bhím Tál in 1872. In 1869 a medical
school was formed at Naini Tāl where eight young men and four young women received instruction in the rudiments of their profession.

The Naini Tāl Diocesan schools owe their origin to a project framed by Dr. Condon, Mr. H. S. Reid and others in 1869 for founding a school for the children of residents and others of small means. It was felt that, though there were several schools in other Hill stations suitable for the children of comparatively rich parents, there was no school elsewhere established, adapted to the means of the comparatively poor. They determined therefore upon commencing such a school. Their object was to secure for parents of small income, a really good education for their children, in a good hill climate, for a very moderate sum. The public readily met their appeal for help, and in July, 1869, a mixed school was commenced under the charge of Miss Bradbury. It was continued during the year 1870, and with such success that the committee decided upon enlarging their operations and setting up two schools, one for boys and the other for girls to be conducted on a liberal scale and to supply a good and sound education. Every exertion was made to render them efficient, and excellent teachers were engaged. These schools commenced work on the 1st of February, 1871, and have met with large success. The average number of pupils during the first year was 70, and, in the case of the boys' school, the committee were obliged to reject applications for want of space. In 1872 the number of pupils increased to 100, but still many applications were refused in consequence of the want of accommodation. The committee then appealed to the general public for aid in erecting proper school buildings and met with a generous response. The school for girls was built from a tasteful design by the Rev. W. N. Tribe and in 1873 the Sherwood estate with its house and magnificent grounds was purchased by the committee for the boys' school and is perhaps the finest site and establishment of its kind in India. The reports of the examiners show that both in the internal economy and in the character of the instruction imparted, the Diocesan schools thoroughly fulfil the designs of their founders.

Naini Tāl is entered from Moradabad by the postal road passing through Kālādhūngi and Mungauli, at both of which places there are traveller's rest-houses. From Kālādhūngi there is a steady rise for eight miles to
Munganli and thence to Siriya Tál, better known as the washerman’s ghát, the road is tolerably level. From this a steady rise of a few miles leads to the Abelia pass 6,800 feet high. On the east there is a railway from Bareilly to Rūnsbāg and a carriage-road thence to Naini Tál. There is also a good cart-road and a bridle road following the valley of the Bāliya river to the brewery, whence there is a steep bridle-path of about two miles to the Talla Tál bāzār (6,400 feet). On the north two roads communicate with Almora; one by Khairnā is level for about 20 miles and the other by Rāngār crosses three separate valleys and ranges before joining the former. The various routes into the interior will be found elsewhere. Supplies of all kinds in any quantity can readily be obtained at Naini Tál at all times.

Mr. Ball in his paper on the origin of the Kumaon lakes notices two theories (a) that they are due to glacial action; (b) that they are hollows of denudation for the most part enclosed by landslips. He notices that the China portion of the ridge at the head of the valley is deeply scarped above with an undercliff much concealed by talus. It consists chiefly of shales with which there are some quartzites, and towards the crest there are limestones which so far as is clearly seen may partake either of the nature of beds or veins. Passing hence round by north to south-east the ridge is mainly formed of shales and argillaceous schists which are much contorted and broken; but the prevailing dip is probably to south-west, the beds striking with the direction of the ridge. An obscurely seen trap-dyke seems to observe the same course. To these two facts the dip of the beds and the existence of a rigid trap-axis the present form of the slope is, Mr. Ball believes, under the influence of subaerial denudation to be attributed and not to the friction of a glacier. The range or the south-west of the valley marked by the Ayārputha and Denpātha peaks is formed of massive limestone, the bedding of which is generally very obscure. There is also some trap, the combined rocks giving a rigid and very steep outline to the range which contrasts most strikingly with that on the north.

Mr. Ball goes on to write:—“All the rocks of this basin, whether shales or limestones, are singularly unsuited to the retention of the minor glacial melt and if glaciation did take place, it may be from this cause that no such traces are now found. From an inspection of the large scale map, it will be at once apparent that the head of the valley has very much the form of a ‘cirque,’ as defined
Mr. Hillebrand, who argues with considerable force that the cirques of Norway and Greenland are due to glaciers. Mr. Bonney, on the other hand, describes Alpine cirques, which he believes to be formed by streamlets pouring down the sides. It has often been remarked how some forms of our Indian alluvia under the operation of heavy rainfalls exhibit in miniature many of the forms of denudation and erosion. Among these forms, cirques and cirque valleys are not infrequently met with. Invariably, they are due not to denuding action from above, but to subterranean springs or streams. To a similar cause may, I think, be attributed cirque-like valleys in rocks formed of loose shales, and, to some extent, even those where the rocks are limestones. The section of the bed of the lake indicates a state of things very different from what might have perhaps been anticipated, but, however the lake has been formed, explanations to account for the peculiarity about to be described can be suggested."

"The soundings from which the section has been plotted have been taken from the Revenue Survey map on the scale of ten inches to a mile. In some cases the exact character of the bottom is given, but not in all. A knowledge of this character is, no doubt, a very great desideratum for the discussion of this question. It would be especially desirable to know the nature of the bottom all across the lake transversely to this line at the point where the shallowest sounding occurs. As represented in the section, the lake consists of two basins, with the maximum depth nearly centrically situated in each case. They are separated by what appear to be a barrier. If it really be so, then it would lend considerable support to the glacial hypothesis. Indeed, if consisting of rock in situ, it would fairly prove the existence of a true rock basin, thus furnishing a strong argument in favor of the glacial origin. Supposing it to be so, the twin basins might be readily explained by the hypothesis that they had been successively excavated by the retreating end of a glacier. Unfortunately the case is not susceptible of so simple an explanation, as the shallow sounding may be caused not by a barrier, but by a mere hummock, which, if (as is possible, so far as is certainly known at present) occurring isolated by deep channels from the margins of the lake, would be, on the other hand, a strong argument against the glacial origin, as such an obstruction must assuredly have been swept away by a glacier capable of scooping out the deeper hollows. Still another view of the nature of the barrier or hummock, be it which it may, is possible. It may be that it is not really formed of rock in situ, but is merely the remnant of an ancient landslip."

"In the present state of our knowledge, therefore, no certain conclusion can be drawn from it. But the peculiar character of the basin still remains a subject for some speculation, the more particularly so when it is remembered that the operations of the present day must tend steadily to obliterate these features by the deposition of silt in the hollows. Passing from the lake itself to examine the nature of the barrier at the outfall, we find that it is formed of a confused mass of debris, in which some very large rock masses, some of them ten feet in diameter, occur. Following down the bed of the stream, rock in situ is not met with till near the waterfall, or at a level which must be considerably below that of the bottom of the lake where deepest. Mr. Blanford, though he does not expressly

1 "Cirques are large spaces excavated from the solid rock, bounded on three sides by an almost semicylindrical steep mountain wall, and with a tolerably flat floor."—Quar. Jour., Geol. Soc., Vol. XXXIII, p. 161.
state his belief that the large blocks of stone are erratics, suggests that they may be derived from the limestone at the ridge at the head of the valley (Deopâtha). He states that his “impression was that the lake was closed by a moraine.” The source of these blocks I believe to be much closer at hand. In great part they have, I think, simply tumbled down from the Ayârpâtha ridge and its eastern prolongation, where not only is similar rock to be seen in situ, but similar detached blocks are found on the slopes; one remarkably fine example being seen in the compound of Welham house. Others, on the other hand, may have fallen from the ridge to the north of the depôt, where the already described lenticular masses of limestone occur. The remainder may, I think, have simply been eroded from their envelopment of shales at, or very close to, the positions where they are now found. Though it is convenient to speak here of these blocks collectively as limestones, they vary much in character, and some are highly indurated, but only slightly calcareous, mudstones. From these varying characters it may be possible, hereafter, to trace their origin individually with considerable accuracy. As to the other characters of the debris at the outfall, I in vain searched in it for evidence of a glacial origin, and am unable to point to any feature which is inconsistent with the idea of its having been formed by a landslip.”

After examining the other lakes (q.v.) Mr. Ball sums up the results thus:—

“Reviewing the whole of the facts which are enumerated above in reference to each of the lakes, and considering the limited zone in which they occur—the probability that they are all the result of one general series of operations impresses itself as being an hypothesis of primary importance. If one of the lakes then exhibits indications which seem to connect it with one particular mode of origin, while others of the lakes do not show such or similar indications, it becomes all-important to submit the former to the severest scrutiny. In this way, I think, the appearances suggestive of a glacial origin, which are perhaps strongest in the case of Naini Tal, lose much of their force when we find that other lakes exist of generally similar character, but in which the special indications are wanting. In the single character of the outfall barriers all the lakes agree; opinions may differ as to the origin of these barriers, whether they are remnants of moraines, or have been formed by landslips, but it is almost certain1 that not one of them consists in any degree of rock in situ, and we therefore have not the positive aid of a rock basin to determine a conclusion.

There is one point geologically which links the three larger lakes together, and that is the occurrence of trap-dykes in the vicinity of each. Now, I do not think it at all probable that the lakes are due to the original outburst of trap. Indeed, the above-described fact in reference to Malwa Tal, where both the inflowing and outflowing streams cut through trap,renders such a view untenable. But it seems not improbable that, when the great upheaval and disturbance of the rocks of this area took place, the existence of comparatively rigid lines of trap may have been largely instrumental in determining the form which the surface assumed, and that on their flanks the soft shales, &c., may have been so much crushed and broken, as to yield more easily to the subsequent operations of denudation, thus affording an abundant supply of material for landslips, which ultimately

1 Careful levelling can only decide this point.
served to close the valleys and form the lakes.\textsuperscript{1} Or even supposing the outburst of trap to have accompanied the upheaval and disturbance, its effect in determining the subsequently established lines of denudation could not fail to make itself felt. This explanation, in part suggested by Mr. Medlicott’s observations in his well-known paper on the Alps and Himalayas,\textsuperscript{2} seems to me more in accordance with the known facts regarding the whole series of lakes than any glacial theory can be.”

The year 1880 will ever be memorable in the annals of Naini Tál for the great landslip which was attended with such melancholy loss of life.\textsuperscript{3}

Landslip of 1880.

The rain commenced to fall steadily and without cessation from Thursday the 14th September, 1880, until Sunday evening, the 19th. During Friday and Saturday 33 inches of rain fell, of which 20 to 25 inches had fallen in the 40 hours preceding Saturday evening. The rain was accompanied by violent gusts of wind from the east; the roads were injured, the water-courses choked, and there was a general saturation of the soil in all places where the loose debris of rotten shale, of which the northern range is composed, allowed the water to penetrate. There was much clearing of new sites during the previous year and the builders did not always provide for the derangement of the natural drainage channels. In many places the water was allowed to sink into crevices in the hill and find new outlets for itself, and this it did with a vengeance.

In 1866, a slip occurred to the west of the present one destroying the old Victoria hotel. In 1869 this was enlarged and the scored sides of the ridge below Alma bear witness to its extent. On the site where the slip of 1880 occurred was the Victoria hotel and its offices, and below it was the temple on the margin of the lake, and close to it Bell’s shop, and further on the assembly rooms also on the margin of the lake. About 10 a.m. on Saturday morning the first slip occurred in a part of the hill-side immediately behind the Victoria hotel, carrying away a portion of the out-houses and of the western wing of the hotel and burying in the ruins an English child and its nurse and some native servants. Working parties were called for and Mr. Leonard Taylor, C.S., Mr. Morgan, Overseer, and a party of soldiers and officers from the depot set to work.

\textsuperscript{1} It is possible that the basin of Nairi Tal may be connected with some local faulting, the existence of which is implied by the sulphur spring at the outfall. That a fault occurs all along the centre of the valley is, however, scarcely probable, as did one exist, it would show in the scarp of China, the beds forming which appear to be continuous across the head of the valley. \textsuperscript{2} Geol. Journ. Geol. Soc. February, 1868. \textsuperscript{3} From personal observation and Mr. Conybeare’s narrative.
to dig out those that were buried. In the meantime, all the residents in the hotel removed to safer quarters except Colonel Taylor, R. E., who retired to a small detached room below the hotel generally used as a billiard room, and Major and Mrs. Morphy with Mrs. Turnbull, who came to offer their assistance, proceeded to the assembly rooms. All had made preparations to leave as nothing more could be done, and about twenty minutes past one I passed from the hotel to the bazaar, and whilst passing with Mr. Wright, heard a noise and saw a large boulder falling from the cliff above towards the hotel. I thought nothing of it and went on. In another ten minutes the landslip took place.

The whole hill-side was one mass of semi-fluid matter and required little to set it in motion. The state of the hill has been described as in dry weather a mass of the consistence of oatmeal which when mixed with water spread out like porridge. The motive power was a shock of earthquake, a very common occurrence in these hills, and which was felt on that day by competent observers in the Bhábar below and in Naini Tal itself. This set the fluid mass in motion, and the result is thus told:

"A rumbling noise, similar to that occasioned by the falling of large masses of earth, was heard by many in the station; and such as had an opportunity of looking towards the direction of the crash could plainly see vast clouds of dust rising from the situation above described. It was apparent that a large portion of the hill behind the hotel, from the upper mall, disunited, had descended with enormous velocity and violence, had completely buried the hotel, and had dashed together into an unrecognisable heap, the orderly room, the shop and the assembly rooms. The wave of earth and water, making a clean sweep of the extensive hotel premises, had apparently driven the shop on to the assembly rooms, carrying forward the massive building over 60 yards on to the public rooms, a portion of which were buried into the lake and the remainder reduced to a heap of ruins. The catastrophe, as far as can be ascertained, was the work of a few seconds only; so that escape on the part of any who happened to be in the course of the avalanche was practically impossible."

Another account runs:

"Through the dripping rain came the sound of crackling trees. Some oaks on the hill-side, about 400 feet above the Victoria, were observed falling forwards. A boulder or two descended, and a shout of "Run for your lives!" was heard ringing up from the hotel. It was followed by a noise which to those near suggested the rumbling crash of thunder, and to a witness not far distant the hoarse roar of cheering for some person rescued. By others on the ridge above and on the south-eastern edge of the lake this noise was not heard at all; but it meant that
the hill-side had fallen. In less than half a minute the last stone had splashed into the lake. Several great waves rolled down its surface, whilst a cloud of light brown dust concealed its north-western side and the site of the Victoria from view. As to what had happened in the interval no two witnesses are exactly agreed. For the close observation of details both the time and the mood were wanting.

But here are some extracts from the statements of selected eye-witnesses:—

“With one fell swoop and awful crash,” writes the Rev. D. W. Thomas, “the Victoria hotel, Bell’s shop, the assembly rooms, and a throng of human beings were almost instantly buried beneath the rocks and the lake. The hotel moved forward, foundation and all, at least a hundred feet before it collapsed; and Bell’s shop about the same distance. When the slip commenced there were a large number of natives and five or six (British) soldiers passing along the Mall below; most of whom were buried beneath the shale and rocks.” Mr. Thomas adds that the Victoria and the Hindu temple were carried directly into the lake. The only trace of the hotel main building is the fragment of a pillar; but this lies on the play-ground, as far distant from the lake as any part of the débris. Remains of the temple and its occupants have been dug from the southern end of the assembly rooms.

Mr. W. Gilbert says:—“I was startled by a thundering noise behind me, and on turning round saw that the Victoria Hotel had disappeared. An immense, dark, moving object was passing over its site, reaching the lake in a very, a very short time, carrying everything before it, and crushing up mighty trees like matchsticks. For about a second of time Bell’s and the assembly rooms were overshadowed; and then there was a tremendous crash, followed by a splash in the lake. The mass of mountain which had detached itself came down with such velocity that for the moment the impression on my mind was that a huge promontory from 30 to 40 feet high had leaped out from the hill-side into the lake, disappearing a few seconds after the awful splash. I am sure I could not have run over twenty paces on open ground and in the best form within the same time.”

Rev. N. Cheney, who was standing about 30 yards from the course of the slip, was startled by hearing above a noise which seemed “to mingle the report of a muffled explosion with what sounded like a high-toned piercing cry. The trees shook and withered; the hill-side burst; the whole mass fell in a headlong avalanche, and rushed down the slope towards the Victoria Hotel. The bursting of the hill was with an upward as well as an outward leap, as if some interior power had accumulated until it could no longer be confined. The hotel was not crushed from above, but was struck near its foundation; and fell back on, and was carried forward by, the advancing slide. Its roof appeared to turn upside down for the rafters were for an instant plainly visible in a vertical row. A cloud of dust obscured from view the destruction of Bell’s shop. I was nevertheless able to discern that the central column of shale, in which the greatest velocity and power were exhibited, passed over the Mall at the entrance gate of the hotel, and thence in the shortest line plunged into the lake. It is my judgment that the time from the bursting of the hill to the descent into the lake was not more than eight seconds.”

The dead and missing numbered 151, of whom 48 were Europeans and Eurasians, including Colonel Taylor, Major Morphy,
Captains Balderston, Goodridge and Haynes, Lieutenants Halkett, Sullivan, Carmichael and Robinson; L. Taylor, C.S.; Rev. A. Robinson, Doctor Hannah, Messrs. Noad, Bell, Knight, Moss, Tucker, Morgan (two), Sheils (four), Drew, Gray, five non-commissioned officers and nine privates, Mrs. Morphy, Mrs. Turnbull and two children and 108 natives. The escapes were many and narrow. Sir Henry Ramsay whilst directing operations at the east end of the lake was overtaken by the great wave caused by the _ddbris_, swept into the lake and though at one time waist-deep, succeeded in reaching safety on an ascent off the road; but a British soldier and several natives were swept away close beside him. A Mr. Walker was covered up to his shoulder by the outer fringe of the mud torrent, but escaped. A soldier and a native lad were swept into the lake and escaped by swimming. Mrs. Knight and Mrs. Gray were in the upper story of the building known as Bell’s shop, and were carried with it and found amid the girders of the iron roof landed on a heap of the _ddbris_ almost unhurt. Immediately after the landslip jets of water poured forth from reservoirs within the hill on the newly made face and for some time maintained a direction and volume which showed the great quantity and force of these factors in the landslip. I will pass over the Saturday night when no one knew whether there would be another slip as the rain never ceased and boulders continually came crashing down from the hills above. Great cracks opened up and became more easily traced: one from the Mayo hotel up to Saint Loo cottage, the wall of which was fissured sufficiently to admit of a person walking through and across Government house, an arch in which was cracked, and over the northern slope of the hill. Another line further west split in two a rock on the summit of the little ridge above Fairlight; a third line proceeded from the Club to the end of the China ridge by the road west of Fairlight. All these were caused by the earthquake, which was as destructive on the northern slopes of Alma and China as within the valley. Sir H. Ramsay ably aided by Mr. Willecocks, C.E., and Mr. Lawder, C.E., set to work and soon placed the roads and drainage on a better footing than before.¹

¹ Rs. 60,000 were distributed by Sir H. Ramsay as chairman and myself as Secretary of the ‘Relief Fund’ amongst the families of those who perished in the landslip.
From its vicinity to the plains Naini Tāl enjoys the benefit of the breeze which usually springs up in the evening and in the hottest seasons is never oppressively warm. In the monsoons it receives more rain than Mussoorie and nearly twice as much as Almora, which is only 30 miles off; the Gāgar range intercepting the clouds before they reach the latter place. Although records of rainfall have been kept for many years, they do not appear to me to be trustworthy.

The water-supply of Naini Tal is good except in one point, viz., that the water is very hard and contains a considerable amount of soluble earthy salts, derived, no doubt, from the magnesian limestone of the hills. Such waters are not generally preferred, as it is believed they are likely to induce diarrhoea in those using them.

The result of Dr. Murray Thomson’s analysis of the potable waters at Naini Tal, 1866-67, is as follows:

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The first specimen was taken from a small masonry tank near the centre of the convalescents’ barracks, which receives a part of the overflow from the lake. The water before entering this cistern is passed through a large charcoal filter. The second was taken from the surface of the lake about forty feet out from the entrance of the small stream which forms its chief feeder, and the third was
from the centre of the lake opposite the Smuggler's rock. In all three the physical properties of the water after passing through filter paper was good and the reaction neutral. Soda was found chiefly in the form of sulphates with a much smaller proportion of chlorides.

Naini Tál is mentioned in the Mánasa-khanda of the Skanda Puráña under the name Tririkhi-sarovara, or the lake of the three Rishis, Atri, Pulastya and Puláha. The legend runs that these sages on their pilgrimage came to the peak of the Gégar range now called Chína and were thirsty and found no water. On this they thought of Mánasarovara and dug a large hole, which was at once filled with water from Mána, and hence the lake thus formed by them was called 'the lake of the three Rishis.' It is added that he who bathes in it derives as much benefit as those who have visited Mána itself. The name Naini is derived from a temple to that goddess built on the borders of the lake and destroyed by the landscape of 1880. Traill merely mentions the name of the lake, and the first account of it is found in an issue of the *Englishman* (Calcutta) at the end of 1841, which announces 'the discovery of a lake in the vicinity of Almora.' This was followed up by a letter to the *Agra Akhbar* by Mr. P. Barron of Sháljahánpur under the name 'Pilgrim' who gives an account of a visit to the lake then almost unknown.¹ He describes the lake and its outlet and then the present site of the recreation grounds:—‘An undulating lawn with a great deal of level ground interspersed with occasional clumps of oak, cypress and other beautiful trees, continues from the margin of the lake for upwards of a mile, up to the base of a magnificent mountain standing at the further extreme of this vast amphitheatre, and the sides of the lake are also bounded by splendid hills and peaks, which are thickly wooded down to the water’s edge. On the undulating ground between the highest peak and the margin of the lake, there are capabilities for a race-course, cricket ground, &c., and building sites in every direction for a large town.’ He approached Naini Tál from the Khairna side and returned by Rámgár, the natives at first refusing to guide him and denying the existence of a lake.

¹ His letters were collected and published at Agra in 1844,
In 1842 Mr. Barron again visited Naini Tal, and notes that about half a dozen sites for building had been applied for or granted, and Mr. Lushington, the Commissioner, had commenced the erection of a small house. Rules were drawn up in 1842 for the grant of lands for building purposes at a small ground-rent to be paid by the occupant as long as the land was used for the purposes for which it was required. The lease, too, contained clauses binding the lessee to the observance of such rules as the local authorities with the sanction of Government should from time to time prescribe.

Before 1842 there was not even a hut in the valley, which was only visited by the neighbouring villagers at a festival held once a year in honour of Naini, at which the usual sports and recreations of a small country fair in the hills took place. Mr. Lushington allotted sites for a bazar, public buildings and a church, erected by public subscription in 1843 at a cost of Rs. 15,000 and dedicated to "St. John in the Wilderness." Mr. Barron launched the first boat on the lake, and amongst other incidents records the death of a bear at Smuggler's rock and the wounding of a tiger, which fled to the recesses of Ayārpātha. Leopards, langur-monkeys, chamois and javau-deer were amongst the other animals found here. As late as 1845, the site of the present upper bazar was filled to a great extent with ringal (bambu) jungle, which even then harboured tigers. Madden records1 a visit to Naini Tal at the end of 1846, when houses had begun to spring up, and Captain Arnaud began to build at Gaiwāla-khet, now occupied by the Diocesan school.

Amongst the more common trees and plants recorded by Madden are the cypress, surai (Cupressus torulosa); pine, chūr (Pinus longifolia); ash, anū (Frazinus floribunda); hornbeam, chūmḥarḥ (Carpinus viminalis); cherry-alder, puya-udesh (Betula acuminata) alder, uṣṭh (Alnus nepalensis); five kinds of oak, ḍanaj (Quercus incana); Karṣh (Quercus semicarpifolia); ḍanaj (Quercus lanuginosa); tīnaj (Quercus dilatata) and pāvatas (Quercus annulata); maple, patsūṅg (Acer oblongum); lodh (Symcopic paniculata); būrās (Rhododendron arboreum); aydr, (Andromeda ovalifolia) after which Ayārpātha is named; holly (Ilex dipyrena and L. odorata); jhātola (Prunus utilis); jāmuna (Cerasus cornuta); mehol or pear (Pyrus variolosa); guḍalā mekal (Pyrus bacoata); guṅdr (Cranispyrus pyracantha); rau (Cotoneaster basilaris); gari (Cotoneaster microphylla); sānd (Photinia dubia); Paeonia emodi; būrāu (Albizzia wightii); chūmha (Populus ciliata); guṅ赕-paṭta (Sukinna laeureola); makola (Coriaria nepalensis); chōtra (Berberis aristata); set bārūma (Daphne papyracea); khalīya (Daphne serica); anāri (Abelia triflora); Potentilla nepalensis and

1 J. A. B., Ben., 1869, p. 135.

2 The botany is recorded in Gaz. X.
splendens; Agrimorie nepalensis; jhār (Spirea cuneifolia; Rubus tiliaceus); Fragaria indica and subbella; Rosa brunonii and macrophylla; kāshu (Corunus macrophylla and oblonga); rae, upayya-gāhē (Ruta albisepala); dhālau (Rhus vernicifera); timūr (Xanthoxylon hostile); indigopora dosua and pulchella; Desmodium elegans, hexagonum and parvifolium; Astragalus leucopcephalus, chlorostachys and senbanodes; Primula floribunda and speciosa; Androsace sermentus; Sedum sinuatun; Thalictrum rupestre; Aquilegia pubiflora; ghantidī (Clematis velutina); bānda, (Loddia helix); majestī (Bubia undulifolia); jhī (Jasminum grandiflorum); sur-māti (Jasminum dispersum); Geranium lucidum, nepalense and wallichianum; chalmori (Oxalis corniculata); akūmu (Rhamnus virgatus); box (so called) (Myrsine bifaria); bhungu-riya (Elsholtzia polyantha); ganiya (Salvia lanata); ban-tulai (Origanum narnale); bhilora (Colquhounia vestita); Platystemma violaceum; Cynoglossum canescens; kāpā-mālī (Strobilanthes glutinosus); mirc-h-nāl (Erigena roylei); patī (Artemisia indica); chireita (Uphelia pauculata and others); padariya-lahaan (Allium wallichianum); minjālā (Arundinaria falcata); dhāmāi (Satyrium nepalense) and mārkēla (Marandra roylei) besides some one hundred others of the list given in a previous volume, but this is enough for a student to commence with.

The following are some of the birds observed in the neighbourhood of Naini Tal and Almora: Black vulture (Gyps fulvus, 2), large tawny vulture (Gyps fulvus, 3) long billed brown vulture (G indicus, 4), white-backed vulture (G bengalensis, 5), white scavenger vulture (Neophron percnopterus, 6), bearded vulture (Gyps hus barbatum, 7), the kestril (Tinnunculus alaudarius, 17), white naped pigmy falcon (Hierax ernouletus, 20), crested hawk eagle (Nisaetus bontii, 33), crested hawk-eagle (Limmatus cristatus, 35), white-eyed buzzard (Pulsarion tessae, 48), common parakeet (Milvus gosindra, 56), tawny fish-owl (Ketupa flavipes, 73), common swallow (Hirundo rustica, 82), wire-tailed swallow (H. rufoeclipse, 84), red-rumped swallow, (H. daurica, 88), common Indian swift (Gyps holboellii, 100), alexandrine parakeet (Pulicaria alexandri, 147), slate-headed parakeet (P. schisticeps, 150). Of the Picidae or woodpeckers, the himalayan pied woodpecker (Picus himalayaus, 164), the brown-fronted woodpecker (P. brunneifrons, 159), the rufous-bellied pied woodpecker (Hyopicus hyperythrus, 161). Of the Cuculidae or cuckoos, the European cuckoo (Cuculus canorus, 199), the pied crested cuckoo (Coccyx melambeius, 219), the Indian koel (Eudynamis orientalis, 214). Of the Nectarinidæ or sun-birds the purple honey-sucker (Arachnothera asiatica 234), the himalayan tree-creeper (Certhia himalayana, 263), the white-tailed nuthatch (Sitta himalayana, 268) the European hoopoe (Upupa epops, 264). The more remarkable game birds are the pukra (808); manāl (806) lungi (806) and chi r (809) pheasants: the snow-cock (816); snow partridge (817); black-throated partridge (824); woodcock; snipe and quail. The kaliā pheasant (819) and chakor partridge (820) are both found in the neighbourhood of Naini Tal.

Najangār, a confluence of the Kāli near Golam-la in patti Chaudāna and pargana Dārma of the Kumaon district, takes its rise in

1 Brooks, His, 1869, 43, numbers given refers to Jordons' Birds, besides those given here. Brooks mentions about 60 others for which reference must be made to the article quoted. See further, Jordons' Birds.
the Yirgnajang peak. It is a most impetuous torrent, falling in cascades rather than rapids, over a very steep rocky bed, through a deep ravine flanked with precipitous mountains, on the other side rises the Naunjang peak on the left close over the Káli, and the Lingaru to the right some 18,500 feet high: while behind the great peak of Api rises to 22,799 feet. The Tampagáur stream rises from a glacier under Lingaru plainly discernible from Golam-lá. The Najangáır is crossed by a sanga bridge about a mile above its confluence with the Káli. Still further north is the Malpagáır, another small rapid which also joins the Káli (Sirachey).

Nákúrí, a patti of pargana of Dánpur in Kumaon is bounded on the north by Dánpur Bichhla; on the west by Talla Dánpur; in the east by Púngaraun of Gangoli, and on the south by Dúg. Nákúrí was separated from Talla Dánpur at the recent settlement. The assessable area comprises 3,126 báis of which 1,468 are cultivable and 1,658 are cultivated (939 irrigated). The land-tax yielded Rs. 667 in 1815: Rs. 1,136 in 1820 and Rs. 1,452 in 1843. The existing land-revenue is Rs. 3,167, which falls on the whole area at Rs. 1-0-2 per acre and on the cultivated area at Rs. 1-14-7. The population comprised 1,923 males and 1,567 females at settlement. Eight villages were received from Pungráon. The patwári lives in Maholi and there is a school in Saneti. The village of Nákúrí is ten miles from Kapkot on the Jalath road and the same distance from Tejam: elevation about 5,000 feet.

Nalapání or Kalanga, about three miles north-east of Dehra in Dehra Dún on the western boundary of Tihri in north latitude 30°-20'-25" and east longitude 78°-8'-30", noticeable for its protracted defence1 in 1815. The hill on which the fort is built is about 600 feet above the lowlands and has a plateau on its summit about three quarters of a mile long and very difficult of access from the steepness of the ground. Nalapání is also a station of the G. T. survey with an elevation above the sea of 3,286 feet and is so named from a spring which supplies good drinking water. The remains of the fort are about a mile above the spring.

Nandák, a patti of pargana Badhán of British Garhwal is bounded on the north by Malli Dasoli and Talla Painkhanda, on the

1Gaz. XI. 436.
west by Talli Dasoli and Kapri; on the south by Karakot and Pindarpur and on the east by the same patti and Talla Painkhandha. It is occupied by the upper valleys of the Nandak and Chukla. The Mokh stream is fed from the northern slopes of the Baidiana (8,589 feet) Bujgala (9,286) and Khariupani (8,594 feet), peaks. See Banjugh. The patwari of this patti lives in Pharkhet and collects the land-revenue of patti Malli Dasoli also; both aggregated in 1864 Rs. 1,519 for land-revenue and saddbart and Rs. 84 for gunth paid by 3,967 souls. The higher villages are little better than sheep-farms, being too high for cultivation, and on this account the assessment is low when compared with the area. There are iron mines at Mokh, Kalban and Peri and old lead mines at Mokh.

Nandakini, a river rising in the glaciers on the western slope of Trisul in Patti Nandak and parganah Badhan of the Garhwal district has its principal sources in north latitude 30°-16’-10’ and east longitude 79°-46’-5’ north. High up the source there is a temple to Nanda Devi and beyond the temple, a large rock, both of which are visited by pilgrims. The temple is situate near Tantarakharak above the village of Satol whence tracks lead to the grazing grounds in the neighbourhood. To the west of Satol at Nandgarh-kharak passes the road from Almora by Baijnath to Ramni where again the road from Nandprayag to Tapuban is met with in the heart of the most picturesque tract in the Garhwal hills. The Nandakini receives on either side numerous torrents and eventually joins the Alaknanda on the left bank at Nandprayag on the Badrinath road. It is crossed by an iron suspension bridge at Nandprayag and by a spar-bridge at Ghat on the road to Ramni from Lohba. In 1857 there was a heavy landslip at Jakhana in Malli Dasoli which blocked up the river for three days.

Nandprayag, a small trading mart in British Garhwal, is situate at the junction of the Alaknanda and Nandakini rivers in Patti Dasoli Tali and parganah Dasoli in latitude 30°-10’-56’ north and longitude 79°-21’-29’ at an elevation of 2,805 feet above the level of the sea. The road hence from Karnprayag is nearly level, lying along the left bank of the Alaknanda river, close to Karnprayag, the river is crossed by an iron suspension bridge. The villages of Bansauli Khali, Langasu and Sunta are passed on the road and the several streams are bridged. Nandprayag is a little over nine miles from Karnpra—
yāg, and it is usual to pass on to Pursaribugr close under Mathána, about 1½ miles further on, crossing the Nandákiní by two bridges, one of 78 feet span. There is a temple here dedicated to the Nág Taksha, hence the place is often called Takshaprayāg; there is a school here in the cold weather; many of the Mána and Níti Bhótíyas dispose of the Tibetan salt and borax to the local traders here, who send the borax on to the refiners in Rámnagar, where it is sold to traders from Farukhabad. The trading time lasts from the middle of November to April, and during this time immense numbers of sheep and goats laden with Tibetan produce, or returning with grain, tobacco, and unrefined sugar may be met along the road; a road here branches off by Bánjbugr to Almora.

Nanda Devi, a group of peaks in Patti Malla Dánpur of parganah Dánpur in Kumaon of which the principal peak is situated in latitude 30°-22′-34″ and longitude 80°-0′-46″ with an elevation of 25,651 feet according to the Kumaon and Garhwal survey, 25,749 feet according to the old survey and Strachey’s map. It appears like a spire of greyish rock sprinkled with snow, lying to the north-east of Trisul and north-west of Nandakot, the sides forming angles of about 70° and rising far above the similarly-formed snow-clad summits which surround it. The summit is altogether inaccessible; but over a mile below it, a meta or religious festival is held every twelfth year, though access to the spot is so difficult that it is reached by scarcely fifty of the pilgrims who make the attempt. Further progress is impracticable, in consequence of the mural cliffs of ice which on every side enlace the peak. The natives maintain that smoke is sometimes seen to issue from its summit, which they regard as the kitchen of the local deity; but there is no good evidence of volcanic action in the higher masses of the Himálaya, and the appearance probably results from the forms given by currents of air to clouds resting on the mountain and to snow taken up in whirlwinds.

Náráyanbugr, a halting place on the route by Lohba to Nandprayág and from the latter place to Baijnáth, is situated on the right bank of the Pindár river in latitude 30°-8′-5″ and longitude 79°-25′. The route from Lohba leaves the Karnprayág road at Gair or Gwár, and then turns north-east ascending the watershed between the Pindar and Rámganga
rivers by the Inorakhál pass between Kánpur (9,522 feet) on the east and Kandal (8,553 feet) on the west. Thence the road passes by Kandauali and Búnga down the valley of the Agangár to its confluence with the Pindar at Nárâyánbugr where there is a bridge. From Karnprayág a road follows the left bank of the Pindár river eastwards by Simli to this place and thence on to Bánjbugr by Ming and Ira.

Naukúchiya Tál, or the lake of the nine corners, is situate in parganah Chhakhláta of the Kumaun District, distant 2½ miles from Bhím Tál and 14½ miles from Náini Tál, in latitude 29°-19'-20" and longitude 79°-37'-38" at an elevation not exceeding 4,000 feet. There is a travellers' bungalow and a shop for the sale of grain at Bhím Tál. The lake is of an irregular shape, somewhat resembling the ace of clubs, elongated at the north-western corner near the temple. On the west it is covered over with weeds and lotus plants to a large extent. It is fed by streams from the neighbouring hills but neither springs, outlet nor current, were detected by Dr. Amesbury at his survey in 1871. The length is 3,120 feet from north to south and the breadth from east to west 2,270 feet. It has a superficial area of 538,833 yards, or 111.35 acres. The greatest depth of 134½ feet is found in the middle near the intersection of the lines of greatest breadth and length, and the least depth of seven feet close to the northern end. "Its shape, the nature of its surroundings, and the narrow winding course of the outfall," writes Mr. Ball, "all seem inconsistent with the view that it is of glacial origin." It is hotter than Bhím Tál but very picturesque and pretty, and when the lotus is in flower well worth a pilgrimage. Fish of various species from one to twenty pounds are found in the lake. The water is of a rich bluish-green colour, clear and still and apparently pure and wholesome. The hills around are thickly clothed with forest which gives cover to kúkar, gúral, wood-pigeons and pheasants. There is every reason to believe that in former years the lake covered a very large extent of surface, some twenty or thirty times its present extent, as exhibited by the surrounding country which bears every appearance of having been subject to the action of water. The waters would appear to have escaped through the lower strata of the hollow now occupied by the lakes—Náukuchíya and Bhím. Tradition has it that if any one sees the
nine corners of the lake at one time he will die within the year, but happily the feat is impossible. An embankment was tried at the apparent outlet, but it was found of little use as the water escapes by subterranean channels.

NAUKUCHIYA TAL.
Area 49 49.500 S.F.
Scale 1000 Feet = 1 Inch

Temple

Nawáda, or Nágsiddh as it is sometimes called, is a well-wooded hill in the Eastern Dún of Dehra about five miles south-east of Dehra with the Súswa river flowing along its southern base. On the hill close to the village of Nawáda are the ruins of a building said to have been the palace of the old Rájas of the Dún. In the village itself is a rest-house for fakirs and a temple to Mahádeo at which
the people of Debra and the neighbouring villages assemble annually on every Monday in the month of Súwan (August).

Nayades, a patti of parganah Shor in Kumāon is bounded on the north by Kharaṇdes; on the west by Mahar; on the east by the Káli river, and the south by Saun. The road from Pitthoragarh to the Jhúlaghát across the Káli to Nepál runs through this patti from east to west by Khil and Biskoli. The principal villages are Bhuteri, Bugurtoli, and Gauryáth. The assessable area comprises 1,197 bāris, of which 359 are culturable and 837 are cultivated (218 irrigated). The land tax yielded Rs. 292 in 1815: Rs. 425 in 1820: Rs. 508 in 1843 and at present its Rs. 1,272, which falls on the whole assessable area at Rs. 1-0-8 per acre and on the cultivation at Rs. 1-7-6 per acre. The population at settlement numbered 1,063 males and 892 females.

Nayán Palla, a patti of parganah Páli Pachhán in Kumāon, is bounded on the north by Talla Chaukot; on the west by Malla Sult; on the east by Nayán Walla and on the south by Walla Sult and Talla Kakala Saun. This patti was separated from Nayán at the recent settlement. It lies along the right bank of the Rámganga river and is traversed from north to south by a mountain ridge containing the peaks of Mandhil (6,214 feet) and Puriya-ke-Chauki (5,737 feet). The principal villages are Kúrbidhár, Buriyán, Buserhi, Músýoli and Dúngra. The temple of Nauleswar is situated here at the junction of the Gágás with the Rámganga. The road from Rámnagar to Mási follows the left bank of the Rámganga which is here fordable except during the rains. The statistics of the Palla and Walla patti may be shown thus:

<table>
<thead>
<tr>
<th>Nayán</th>
<th>Assessable area in bāris</th>
<th>Cultivable</th>
<th>1815</th>
<th>1820</th>
<th>1843</th>
<th>Culturable</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palla</td>
<td>2,510</td>
<td>13</td>
<td>1,963</td>
<td>534</td>
<td>786</td>
<td>1,344</td>
<td>1,406</td>
<td>2,206</td>
</tr>
<tr>
<td>Walla</td>
<td>2,829</td>
<td>25</td>
<td>1,167</td>
<td>616</td>
<td>1,465</td>
<td>2,167</td>
<td>2,132</td>
<td>2,680</td>
</tr>
</tbody>
</table>

The assessment on the total assessable area falls in the Palla patti at Rs. 0-14-1 per acre and in the Walla patti at Rs. 0-14-4
per acre; on the cultivation only the incidence is Rs. 1-1-10 and Rs. 1-2-4 respectively per acre. The patwari resides in Jhāmār.

Nayān Walla, a patti of Pāl Pachhāon in Kumāon, is bounded on the north by Tallā Giwār; on the west by Tallā Chaukot and Palla Nayān; on the east by Tallā Dora and on the south by the Gagās river, which separates it from patti Tallā Silaur. This patti was separated from Nayān at the recent settlement. It lies along the left bank of the Rāmganga river south of the Jhaurkot-gadh. The principal villages are Bārhikot, Bāman-Chaunda, Inda, Naikana, Naula and Bhikiya at the confluence of the Gagās with the Rāmganga. This patti lies along the left bank of the latter river containing, however, few important villages. The statistics are given under Nayān Palla. One village was received from Giwār at the recent settlement. The patwari resides in Bhikiya-Sain.

Nilang, a village in Thri, which gives its name to the passes at the source of the Jādh-Ganga or Jāhnavi (q.v.) into Tibet, is situate in north latitude 30°-6′-30″ and east longitude 79°-3′-5″ at an elevation of 11,310 feet above the level of the sea. The village gives its name to the entire valley from Bhairongbāti to the passes into Tibet. It is known as Chongsa by the Huniyas. Mr. Kinney visited it in 1878 and from him we learn that—

The features of the Nilang valley correspond with the general physical characteristics of this portion of the Himalayas as observed in other similar valleys. The main line of water-parting is, as a rule, lower and the slopes about it easier than in the southern belt marked by the highest groups of snowy peaks. Here as elsewhere the groups of snowy peaks forming the line of highest elevation lie to the south of and dominate the line of water-parting and are separated from each other by lateral valleys more or less open towards their heads and, as a rule, contracting into stupendous gorges as they pierce through the snowy range and debouch amongst the lower mountains. The entrance to the valley from Bhairongbāti up to near the village of Nilang is through a gorge which may be called terrific. Snowy peaks from 20 to 21,000 feet in height tower apparently immediately overhead, the river-bed having here an elevation of 11,000 feet. Falls of 9,000 to 10,000 feet in a horizontal distance of under three miles are not uncommon while sheer precipices of in one or two cases over 3,000 feet overhang the stream. The valley preserves the same characteristics for a distance of about fifteen miles up past the village of Nilang to the junction with the Māna-gādh. Above this junction, the valley gradually opens out and

1 Report on the survey of the western sources of the Ganges, particularly the Jādh-ganga or Nilang valley, in 1878: by Mr. T. Kinney, G.T.B., 1878-79.
2 See Bhairongbāti.
the hills assume a softer and more gentle aspect: though the declivities are still steep they lose the bold, abrupt and craggy appearance of the gorge lower down, and in some places the ascent from the stream to the ridge is over comparatively gentle slopes covered up to a certain elevation with short grass and in places blooming with flowers and a sort of heather. The grass and heather have a peculiar sickly scent which producing a certain sense of faintness, adds to the difficulty of climbing due to the rarified air. With some people who appear to be peculiarly subject to its influence this faintness becomes overpowering and hence its name amongst the natives 'šiś-k-i-husnu' or 'poisonous air.' It occurs all over the hills at similar elevations and produces violent headache, sickness at stomach and a total inability for prolonged exertion. Above the limit of vegetation, here about 17,000 feet, the hills become steeper again, the surface being a strangely confused mass of loose rocks of all shapes and sizes, intermixed with patches of snow and ice, a perfect chaos of broken fragments. Deep down between the crevices of these rocks appeared solid masses of ice and frozen snow which, melting in the day, made the footing difficult, so that the stones and rocks give way when trod upon and causing others to move create a small avalanche, to the danger and discomfort of the traveller. From the water-parting at the head of the valley the ground slopes down to the Hop-gādh, an affluent of the Satlaj.

There are here two passes into Hundes, that to the west known as Thāgā-la and that to the east called Taṅg-chok-la. There is a third pass from Raithal to Hundes, but it is seldom followed now. The boundary of Hundes leaves the main line of water-parting near Taṅa peak and runs along the ridge dividing the Māna gādh from the Māna valley proper and from the Gangotri valley. It then crosses down the glacier opposite Nilang and across the Jādhang to the Basāhr frontier. The Tihri Rāja formerly claimed up to the water-parting at the passes but his customs' post is now at Nilang. There are but two villages in the valley, Nilang and Jādhang, the former with some thirty families and the latter with about ten families. Nilang is within Basāhr but its cultivation is partly in Tihri and partly in Hundes. Jādhang, ten or eleven miles further on, is in Hundes. The two villages belong to the Jādha, who are here the carriers and brokers with Hundes, like the Bhotiyas of the Kumaon valleys. The sayās of Jādhang is subordinate to the sayās of Nilang and both pay collectively to Tihri Rs. 84 a year, to Hundes, Rs. 100 a year and to Basāhr a capital tax of a ādā (about eighteen inches) of the local woolen stuff in addition to a small sum in coin altogether valued at about Rs. 60 a year. As is the custom in the Kumaon valleys, the Jādha migrate southwards in the winter to Dhūnda on the Bhāgirañthi, some seven or eight marches below Nilang.

On the trade between Nilang and Chaparang (Tsāparang)

Mr. Kinney writes in 1879:—

"The estimated value of the trade across the passes at the head of the Nilang valley is from Rs. 25,000 to Rs. 30,000 yearly. Of this amount from Rs. 16,000 to Rs. 20,000 passes through the hands of the Jādha, the balance being accounted for by the trade of the Khampas and Garhwālis. The Rāja of Tihri formerly levied an ad valorem duty of one anna in the rupee on all imports, equal

1 About thirty miles from Bhāgirañthi.
to 6½ per cent. In 1876, however, a new impost was made of a tindrak on each bag of salt, which is equal to about 20 per cent., wool and other imports being taxed proportionate. The tax is farmed out to a Ti Hort official, who appoints his own collectors. The Jadhis complain bitterly of the new arrangement, and consider themselves a ruined community. They had to borrow money in 1877 to pay up the tax, which they have not yet been able to repay; indeed, they had again to borrow a sum of Rs. 4,000 towards the end of last year. Unless they pay up the year’s demands in full the Raja of Tihri does not permit them to move down to their winter quarters on the Bhagirathi at Dhunda.”

The following are the statistics of trade for five years:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Exports</th>
<th>Imports</th>
<th>Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>1878-79</td>
<td>Rs. 8,234</td>
<td>Rs. 7,753</td>
<td>1879-80: Rs. 4,166, 7,553</td>
</tr>
<tr>
<td>1880-81</td>
<td>Rs. 4,540</td>
<td>Rs. 3,754</td>
<td>1881-82: Rs. 4,616, 7,828</td>
</tr>
<tr>
<td>1882-83</td>
<td>Rs. 5,163</td>
<td>Rs. 4,966</td>
<td>1883-84: Rs. 4,145, 9,146</td>
</tr>
<tr>
<td>1884-85</td>
<td>Rs. 6,355</td>
<td>Rs. 4,256</td>
<td>1885-86: Rs. 5,385, 8,193</td>
</tr>
</tbody>
</table>

The exports in 1881-82 comprised cotton goods valued at Rs. 520; (grain, 3,840 maunds) worth Rs. 10,852; metals valued at Rs. 787; oil-seeds worth Rs. 286 and sugar worth Rs. 140. The imports during the same year included salt weighing 4,506 maunds and valued at Rs. 18,024, wool worth Rs. 3,696 and borax worth Rs. 750. In 1882-83 the exports were cotton goods worth Rs. 1,060; grain Rs. 19,061 (7,145 maunds); metals, Rs. 1,105; oil, Rs. 327; oil-seeds Rs. 1,434; sugar Rs. 476 and tobacco Rs. 870. The imports during the same year were 9,746 maunds valued at Rs. 38,984 and wool and woollen manufactures valued at Rs. 8,800. The trade through the passes to Tsáparang or Chaprang is chiefly in the hands of the Jadhis, though Khampas from Basahr and a few of the Garhwális from the upper villages also trade with the Húniyas. The Basáhri Khampas have permission to travel all over Tibet without question. The Jadhis go to Toling, Tsáparang and Garto while the Garhwális are seldom permitted to go beyond Dokpa-Aur, or, if they do, only under the escort of Jadhis or Basáhri.

Niti, a village of patti Painkhand in Garhwál, is situate thirteen miles to the south of the pass of the same name which lies in north latitude 30°.57’-59” and east longitude 79°.55’-5” at an elevation of 16,628 feet above the level of the sea (others 16,570 feet).

The village is built at an elevation of 11,464 feet on the left bank of the Dhamli and at the feet of a ridge which sweeping round defends it on the north and north-west from the violent storms which blow from those quarters. There
are a few flat pieces of terraced ground bearing scanty crops of buckwheat and barley, but here, as in Mâna, the Bhôtias pay little attention to agriculture. Moorcroft found the temperature in the middle of June to vary from 40° to 50° at sunrise and at mid-day from 70° to 80°. In consequence of this the Dhasali and other streams are swollen in the advanced part of the day by the melting of the snows and shrink considerably during the night. During Moorcroft’s stay the high mountains were towards the close of day regularly enveloped in clouds, from which snow descended on the more elevated parts, and gentle rain on the valleys. Much of the snow was melted by the heat of the sun during the next day, and again replaced during the succeeding night; and these successive depictions and meltings continued throughout the warm weather. Such great changes affect the health of natives as well as strangers with catarrhs and fevers, active in their effects for a short time, but neither dangerous nor of long continuance.

From October until May the inhabitants of the Dhasali valley migrate to lower situations, completely deserting their villages. The whole country at that season is covered with deep snow. In summer, however, notwithstanding the elevation exceeds 11,000 feet, the land in the neighbourhood of the villages produces crops of barley, amaranth and buckwheat, and the hills and mountain sides yield excellent pasture to large flocks of goats and sheep and a few yaks and jumbu. The route from the village to the pass is up the course of the Dhasali, which rises on the southern side of the pass. After the track diverges from the Dhasali the ascent becomes very steep and encumbered with the detritus from the neighbouring hills. The pass itself once crossed leads by a gentle declivity for some distance to the plains or undulate country of Tibet which even at this elevation produces crops of ma-yau (Hordeum himalayense). Webb who visited the pass towards the end of August reports that there was not a vestige of snow on the pass nor on the shoulder of the hill which rises some 500 feet above the pass on the left side. The tableland near the pass is very stony and barren, producing only mosses and prickly shrubs resembling ferns and intersected by numerous ravines, the channels of torrents discharging themselves into the Satlaj. The rocks scattered over the plain are of blue limestone abounding in fossil remains especially ammonites of which some account has already been given. The north-east Kailas may be seen (see Kailas) but from the great general elevation of the country and the distance which is not much under one hundred miles, its apparent height is inconceivable.

The Niti pass is esteemed the easiest and safest from Garhwal into Tibet and is open from the latter end of June until the second week in October.

1 Gez. X, 2151-16.
not go on, and returned to the crest of the pass. One man accompanied me; and
he and I went gouging along at a snail’s pace, on a level, and yet in great agony.
Angina pectoris I now consider nothing in comparison. I felt the pain most at
my chest, and suffocation seemed to threaten me at every step." At the same
time others who have travelled over the same tract have assured me that they
felt no ill-effects and that the complaints of the Bhotiyas are directed to extract
the gift of a bottle of brandy. There are two other passes from Niti, one leading
by the Malchâk pass and Kûnân to Holâ or Râj-Holâ and the Tunsum-La (Ting-
Jung) pass into Tibet and the other by the Chor-Hotî. Both these passes were
visited by Lieutenants H. and R. Strachey in 1848, and the river at Hotî was ex-
plored as far as was practicable. They describe the river as exactly correspond-
ing with those crossed on the road from Milam to Hundes by Unts-Dhûra. The
road by Chor-Hotî runs due east and it takes two marches to get across it, but
there is always danger from avalanches, while the pass ends in an abrupt slope
down which men and animals must slide, though it is not any great length.
These difficulties cause this pass to be less used. The regular pass, though only
about sixteen miles long from Niti, from the badness of the road and difficulty
of travelling in such rarified air takes three days to get through; but it is not a
difficult one. In addition to the common wild flowers found all along the road up
to Niti, there is a regular "gorse" with a yellow flower growing all over these
mountains from Malâri to the Tibetan boundary. The new road or rather an
improvement of the old road, is completed up to the village of Niti, and is a
great boon to all the traders with Hundes rendering the carriage on animals much
less risky than it used to be; and also benefiting the animals themselves who can
travel even longer marches with less tax on their endurance. The usual march
for laden sheep is six miles a day.

The following account of Mr. Batton's visit to the Niti pass
is the best that we yet possess:—

"Near Joshimath and the whole way to the junction of the Bini river, which
comes from the north-west face of Nandi Devi, this glen is characterised by the most exquisite
scenery; the southern mountains sloping down to the river covered by forests of
Quercus semicarpifolia, Rosa Webbiana (wild red rose), yew, horse chestnut, alder,
poplars and elms, interspersed with pretty villages of which the chief ornament,
are the fields of red mandra (the battu of Bishahr) a species of amaranth, while the
high craggy northern mountains and pêks, that form the separating ridge be-
tween Badrinâth and Niti, come down to the Dhauli in the most terrific precipices.
Above the Bini, both sides of the glen assume the regular Himalayan features of
wild sublimity, although villages are everywhere seen perched upon seemingly
inaccessible heights. The river remains broad and deep, though often broken
into cataracts. The road is carried on either side of the river as most easy, and
is crossed by fine Sargos or spar-bridges. There is a very dreary glen without
villages for ten or twelve miles separating upper from lower Painkhandas, or as

1 A.S. Ben. XVII, 4: XII, 399; J. A. S. Ben. 1878, p. 313.
2 J. A. S. Ben XIX, 79.
3 J. A. S. Ben. VII, 310; Trail's intended visit (in letter to Government, 12th December, 1817 and 22nd September, 1818), was to the Gar-
pun at Déba.
they are sometimes, but improperly, called upper and lower Niti. After leaving the oaks and elms, &c., the wood becomes entirely cypress, and from summit to base of the mountains no other tree is seen. The larger trees attain not unreasonably enormous size, some of them having a girth of 27 feet. At Juma Upper Painkhanda is entered, and then the scenery, retaining all its grandeur, also becomes exquisitely lovely. Villages of the true Swiss character are seen on every open spot, surrounded by cedar trees and overhung by crags of the most stupendous character wooded up to the snow which abides on their summits, with similar trees and birch, which latter as well as the sycamores have at this season the true autumnal tints, contrasting finely with the dark branches of the deodar. The bridges now become very frequent; and the river, though still unfavourable, becomes a torrent falling over rapids.

Malári is next entered, a very large village. After leaving Malári we marched up a glen of the most beautiful kind, the deodar trees (all of spreading shape) coming down to the waters' edge, and now beginning to be mingled with chila pines (Pinus excelsa, not unlike the chir at a distance), and rągha fīr (Abies Webbiana): a set of large villages is then entered, Bamps, Gamsáli, &c., all varying in elevation from the sea from 10,200 to 11,000 feet and upwards, the highest of which is Niti. At Bamps, the deodar end, and no other tree is seen save birch and Pinus excelsa, but the ground is covered, as well as the surrounding heights, with beds of ground cypress, gooseberries, currants, furze, (Astragalus Roylei) Webb rose, sweetbriar and juniper. The furze is especially plentiful, but there is no heath the Andromeda fastigiata of Royse as at Badrinath. Up to Gamsáli the rocks have been quartz, mica, schist and gneiss, with granite blocks in the river beds, fallen from the peaks, except in the neighbourhood of Malári where argillaceous and talcose schist is the chief rock. At Gamsáli the granite is met with in situ, pervading gneiss and mica schist.

Gamsáli.

The breadth of the veins is sometimes very thin, but sometimes the granite spreads into great broad patches. It is a reddish variety in general, but a highly quartzose variety with large school or tourmaline crystals is very common. Just above Gamsáli the river runs through tremendous gneiss and granite precipices, and the road is carried along scaffoldings. After turning this corner and ascending to Niti village, the Himalaya peaks are all turned, not one is left to the north, though some of the north-west and northeastern, heights are within perpetual snow limits. Niti limestone (not crystalline) and argillaceous schist, chiefly the latter, are the rocks. After arriving at Niti I proceeded on to the junction of the Ganesh-ganga with the Dhauli where I met with the first snow near Gildung, more than 14,500 feet high, and this snow was merely a snow-cave in the river, the leavings of last winter. A few masses of gneiss and granite were still to be seen in the bed of the Dhauli, the debris of some of the southern precipices through which I could see the granite veins running along, argillaceous schist and quartz were the rocks of the surrounding hills. There is one very bad gorge between Gotting and Gildung pastures, where there was some trouble in making a road, but after Gildung the hills are round and smooth up to the pass. They were covered with grass and Saussurea flowers, the grass of very peculiar kinds and noted for its goodness.
The rivers Ganesh-ganga and Dhauli are mere streams, and were half frozen above Gilding at their junction, but near Goting, the Railkunda joins the main river with a large body of water, arising at this season from a glacier, and up to this point, the Dhauli may be said to be unfordable, except at one or two rocky points near Niti. The Ganesh-ganga may be said to arise from a snow-bed, for I saw snow-saves towards its source, but the Dhauli or forthest branch of the Ganges certainly rises from a spring at the southern face of the pass when on the 11th October there was not even a speck of snow. After leaving the source of the Dhauli, the ascent was very steep through crumbling crags of blue limestone which now succeeded to the round clay-slate hills; but the top of the pass was round and open, the limestone interspersed with arenaceous quartz rocks.

The first object that caught my eye was the Kailās peak standing up in the east-north-east. Right in front stretched a dreary plain, shrubless, treeless and houseless, terminated along its whole northern side at a distance of about twenty miles from my position by a low range of rounded brown hills, utterly without shrub or tree or justing rock, but very broken into ravines and perpendicular faces on this their southern side. The plain is broken into ravines and river-courses running down to the Satlaj which flowed (not visibly as to water) in a deep ravine not far from the base of the round hills. I found the ammonites lying about in hundreds on the top of a small ascent just as the road wound through a kind of pass between two hillocks, before it descended to a ravine. The distance from the Niti pass was about three miles, but at this point the continuation from that pass of the crags forming the first rise of the Himalayan mountains was not very distant. The rocks surrounding the fossils were a kind of mottled grey limestone, i.e. the white veins were more frequent than in ordinary limestone. Tibet is, in fact, entered very soon after leaving Niti village and the peaks seen so grandly towering in the south are the real beginning of the Himalaya mountains and not the crest of the pass. It is possible that fossil ammonites can be found on the south face of the Niti pass, which is in my idea only the highest portion of the Tibetan plain running up to the Himalaya peaks. Even at Niti there are peaks 23,000 feet high due south; and there as well as at the pass itself the spectator wonders how one is to thread one's way into Hindustan through them, no gorge or glen being visible, that seems to be like an introit or exit. Behind Malārī the hills become round and Tibetan also, as well as behind Niti, but being higher and within the limit of perpetual snow, they are difficult to cross, and the pass following a river-bed is preferred. The time to visit Niti is from the 20th September to the 10th October. In May, Malārī even is hardly reachable, and the snow does not melt in any part of Upper Pamikanda till the end of that month. The pass is not open till July. On the evening of the day (11th October) on which I visited the pass, the first snow fell. All night it snowed heavily and next day I could hardly reach Niti. Such are the vicissitudes at this season. At 3 p.m., when the wind got up, the thermometer was 30° in the shade and 42° in the sun at the crest of the pass. On the morning of the 13th, in my camp at 14,500 feet, the thermometer was 16° in the air and 22° at my bedside."

Niyā-dhūra, or Neo-dhura, a pass into Hundes in Patti Malla Dārma of Kumaon, is often called the Dārma pass and lies in north
latitude 30°-27'-10" and east longitude 80° 35' at an elevation of 18,510 feet above the level of the sea. It is much frequented by the Bhotiyas by the route up the Dhaulig valley, though considered more difficult than the adjacent pass to the east, the Lunpiyalekh at the head of the valley of the Kuthi-Yánkti, as the glacier lies at the Hunders side of the pass. In 1846, a Bhotiya with a flock of 100 laden sheep were swept away in an avalanche at Dawa encamping-ground at the foot of the pass in the Dhauli valley. Kachh is the name given to a second pass a little to the west of the Nýo-dhúra and which leads into the glen of the Dárma-yánkti in Tibet. It is very little used, as being both dangerous and difficult.

Nyár, or more correctly Nayár or Sáni, a river formed by the confluence of its eastern and western branches at Bhātkulu in patti Manyárasyún of pargana Bárabásyún of British Garhwal.

The eastern branch rises on the north-western slopes of the Dódá-ke-toli range in latitude 30°-5'-30" and longitude 79°-10' at an elevation of between 7,000 and 9,000 feet. It follows a course at first south-westerly then south and then due west, to its confluence with the western Nyár or Chhipaliṅghát river near Bhātkulu in patti Manyárasyún. Thence the united streams under the same name flow north and west and fall into the Alakamanda at Byáns-Ghát in latitude 30°-3'-40" and longitude 76°-33'-30" at an elevation of 1,542 feet above the level of the sea. From their source to their junction both branches have a rapid fall, after which the united rivers show a succession of deep pools swarming with fish, and in the rains form a ready means of transport for the timber of the forests along their banks. The total length to its longest source according to Herbert is about fifty miles. Where crossed by Webb in April, at about five miles above its mouth, the stream was forty yards wide, twenty-six inches deep and running at the rate of eight miles an hour. There is a bridge across the stream on the Síngágar and Kódwára road at Sangúrásara also known as Belkhet. There is also a road which goes by Marwára separating from the Belkhet road at Bánekh-khál three miles beyond Pûrya-ke-manda. The bridge at Marwára consists of a sanga having a span of 97 feet. It is also crossed by an iron suspension bridge of 92 feet span at Byáns-ghát on the road between Síngágar and Hardwá. The eastern branch flows through pargana Chandpur, Chaundkot, Mallá Salán and Bárabásyún and forms the boundary for a short distance between pargana Chaundkot and Talla Salán and from the junction it is the boundary between the Ganga Salán and Bárabásyún pargana. It is crossed by a bridge on the Almora and Páori road at Kálór; on the Páori and Dháron road by a good ford between Kálór and Chauná in patti Iriyakot of pargana Mallá Salán and by the Kótswára and Khátalí road at Dhúra where there is a bridge of 62 feet span. The streams which unite to form its headwaters near Marwára in patti Choprakot are the Syonei, Khirganga, Ladboli, Durnghi and Pathargadh. The principal feeders on the right bank are the Móssetigádh and the Machhiád which drains the eastern patti of pargana Chaundkot.
and at its junction forms the boundary between Kolagár and Gurásyún, the left side of the Eastern Nyár receives the Khášigadh which rises near Lakhora in Kumaon and drains Patti Khášali. Next to it comes the Madi which drains the entire valley of Kauriya Walla, and the upper portions of Malla Sila. There are some large villages close to the banks of the eastern Nyár amongst which may be mentioned Marwára and Hansâri in Patti Choprakot, Gopâla and Kulwâri in Irlyakot and Kandúl, Babina and Tolâ in Malla Budalpur.

The northern branch of the Western Nyár takes its rise near Khand in Patti Kandárayún of parganah Dewâlgarh and flowing in a south-westerly direction unites with the southern branch near Pâlthanâ in the same patti. The latter drains the high lands of Patti Dháiłî and is the more considerable of the two, flowing for about ten or twelve miles north-west. Thence to their junction with the Eastern Nyár the combined stream forms the boundary between the syáns or pattis of Chaunâdot and those of the Bârâhsyún parganah. The Western Nyár is crossed by the Pâori and Dhíran road at Jwâlpa by a bridge of 67 feet span. It receives numerous feeders draining the slopes on either side of the tract through which it flows among them—the Pasû, Koth and Ira streams flow into it on the right bank and the Pen, Kul and other minor torrents on the left bank.

Pâchhu, or Pâncchhu, a village in patti Malla Juhár of Kumaon is situate in north latitude 30°-24′-10″ and east longitude 80°-11′-30″ at an elevation of 11,060 feet above the level of the sea on the right bank of the Gori and about three miles from Milan. The village possesses an assessable area of 42 báris and a population of 228 souls. It is situate on the left bank of a torrent proceeding from a glacier on the eastern slope of Nanda Devi of which there is a grand near view: on the right bank is Gánagarh. Pâchhu is held free of revenue, on condition of supplying food and shelter to pilgrims proceeding to Mánasarwar in Tibet. Gánagarh on the opposite side has a population of 122 and some 25 acres of arable land: a fair is held here every year in the rains. The rock here where weathered becomes a reddish brown clay but grey in the fracture. Many of the fragments contain ore in some quantity and all have descended from the heights above.

Paidúlsyún, a patti of parganah Bârahasyún in British Garh-wál, is bounded on the north by Nâdalsyún; on the south by Kap-holesyún; on the east by Khâtsyún, and on the west by Patwálsyún and Gangawârsyún of the same parganah. The patwari resides in Pâori and collects the land-revenue of patti Patwálsyún; both aggregated Rs. 2,173 in 1864 with a population of 4,466 souls. There is a school at Kamâra. This patti comprises the upper valley of the Ira stream along the right bank of which runs the road from
Jwálpa to Srinagar joining the Kotdwára road to the same place at Bóbah-khál near Páori.

Painun, a patti of parganah Talla Salán of British Garhů vál, is bounded on the north by Badalpur Malla and Iriyakot; on the west by Badalpur Talla; on the south by the Pátli Dún and on the east by Búngí. The road from Páori to Dhúron passes through this patti. There is a school at Badiyargaan on the Páori road where the patwári lives. The land-revenue for 1864 amounted to Rs. 1,841 and Rs. 55 for gánth and resumed revenue-free grants. From Mr. Batten’s remarks it is clear that this patti must have made considerable strides since 1840. Elephants do not now intrude on the cultivation and tigers are rare. The climate is hot and the soil is rich except about Jhirt the valley is not unhealthy. The rock is limestone and slate. A small iron mine is worked at Agarwára. The forests comprise oak and dwarf sdí.

Painkhanda, a parganah of Garhů vál, occupies the extreme north-easter portion of the district and is divided into two pattis or sub-divisions the Malla and Talla. Its fiscal history and general description will be found under the article Bhotiya Maháls. Mr. Traill describes it in 1816 as containing—

"Twenty two villages, of which ten are situated in the snowy mountains and are inhabited solely by Bhotiyéś. In the year 1811 A.D., this sub division was assessed at Rs. 4,081 Gk, half to be paid in money and half in merchandise at a fixed and specified price. A lease for the year 1816 was granted in the first instance to the saydnás on the standard of the receipts of 1813 A.D. at Rs. 3,500 Gk = Rs. 2,925 Fd., with the usual agreement in regard to money and merchandise. On the payment by the saydnás of the first installment at Srinagar, it was found that for many of the articles given in there was no sale in that town, while of the others the market price was far below the rates specified in the engagement rendered. Under these circumstances, the saydnás were directed to pay in lieu of the half in merchandise one-third of its amount in Government rupees the other two-thirds being granted as a deduction for probable loss in sale, this arrangement reduced the net assessment to Rs. 1,750 Fd.""

The present assessment amounts to Rs. 2,656. In 1841, the population numbered 4,603 souls, of whom 2,154 were females; in 1853, 6,358 souls (2,079 females); in 1858, 5,959 (2,909 females); in 1872, 6,388 (3,150 females) and in 1881, 7,513 (3,731 females).

Painkhanda Malla, a patti of parganah Painkhanda in British Garhů vál is bounded on the north by Tibet on the west by Tihri, on the south by Parkandi, Malla Nágpur and Talla Painkhanda,
and on the east by the Kumaon parganah of Juhár. It occupies the upper valleys of the Sáraswati by which the route by the Máná pass crosses into Tibet and the valley of the Dhauli forming the route by the Niti pass. The principal places in the former are Pándukésvar, Kalyánkoti, Badrináth, Máná, and the pass itself. Along the Niti road are Ríndi, Jhelum, Malári, Bampa, and Gámsúli. Near the latter is Niti village below which the route diverges one road passing by Húnikharak and Kála Juhár across the Chorhoti pass to Rúnkún and thence to Hoti, a second crossing direct by Míchak to Hoti and the third passing up the Dhauli valley by Bompás, Damchen, Khorbasiya and Kyuolung to the Niti pass.

Paínkhanda Talla, a patti of parganah Paínkhanda in British Garhwál is bounded on the north by Paínkhanda Malla; on the west by Malla Nágpur; on the south by Dásoli and on the east by Juhár. This patti lies along the lower course of the Dhauli river or farthest branch of the Ganges before its junction with the Bishnuganga at Joshimath and also for a few miles along the united river henceforth known as the Alaknanda. It also includes the tract lying along the western slopes of Nanda Devi and Trisúl and drained by the Ríniganga. It is more fully described under the article Bhotiya Málás. The patwári resides in Urgam: one-third of the villages are held in gúuth.

Pa láín, a river rising on the southern slopes of the ranges in the eastern parts of Malla Síla and Badalpur Talla of British Garhwál in about latitude 29°-1', and longitude 78°-45' flows in a southerly direction. Its eastern branches known as the Khohban, Búdh-ka-sot and the Haldgadi-sot flow south-west and join the western branch known as the Khansur river at Kákarbári. The Dhargan range (3,908 feet) forms the water-parting between the Paláin and the Mandhíl while the Siddh-ka-danda range separates the Khansur valley from the Mandálíti valley on the west. Further south on the left bank it receives the Bhiáliyádl stream and on the right bank near Chawalthúra the Mandálíti draining the Chokum Dún hence the united streams are known as the Taimuriya which receives the Bahlíádl on the left bank. It eventually joins the Rám-ganga on the right bank near the middle of the Pátí Dún a few miles east of the Bogsárhb bungalow in latitude 29°-31'-35° and
longitude 79°-50'-30". A good road crosses the Taimuriya near its junction with the Râmganga and recrossing at the Sidhbgâr passes north again near the Bahliâd. It again crosses to the right bank as far as the Bhagtuwa-chaur and then keeps to the left bank as far as Am-Sot beyond Chawalthâra, hence it keeps to the right bank to Kâkarbâri where it crosses the Khansûr and turning sharp to the east follows the course of the Haldgadi branch on to the Mandhál valley. During the dry season the Palâin hardly flows, but it has numerous deep pools or kunds throughout its course. It is a slow flowing river and is rarely more than 24 feet broad, but its bed is deep. Except near its source it is very little used for irrigation, as for the greater portion of its course it runs through uninhabited forests.

Pâlbelon Malla, a patti of parganah Káli Kumaon in Kumaon, is bounded on the north by Chárâl Talla; on the west by Sipti and Pâlbelon Talla; on the south by the latter patti and on the east by the same patti and Tallades. This patti was separated from Pâlbelon at the recent settlement. The statistics of the Malla and Tallas pattis may be shown thus:

<table>
<thead>
<tr>
<th>Pâlbelon.</th>
<th>ASSESSABLE AREA IN biss.</th>
<th>ASSESSMENT IN RUPEES.</th>
<th>POPULATION.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Cultivated.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Irrigated.</td>
<td>Dry.</td>
<td>Culturable.</td>
</tr>
<tr>
<td>Malla</td>
<td>611</td>
<td>81</td>
<td>336</td>
</tr>
<tr>
<td>Tallas</td>
<td>2,756</td>
<td>159</td>
<td>2,460</td>
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</tbody>
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The land-tax falls at Rs. 1-0-9 per cultivated acre in the Malla patti and at Rs. 1-1-7 in the Tallas patti. Two villages were transferred to Sipti and three to Assi at the recent settlement. The pâwâris lives in Bâyalâ and there is a school in Palaun.

Pâlbelon Talla, a patti of parganah Káli Kumaon in Kumaon, is bounded on the north by Sipti and Pâlbelon Malla; on the west by Talli Bao of parganah Dhúnirau; on the south by Tallades Bhâbar and on the east by Tallades. This patti was separated from Pâlbelon at the recent settlement. The statistics are given
under the Malla patti. The united patti lies west of Chárál and Tallades and extends to the Bhábar, much is high and billy but not too much so for the growth of turmeric, whilst along the lower slopes and in the valleys all the best grain crops can be raised. One village was received from Tallí Rao at the recent settlement. The patwári lives in Dyúri and there is a school in Dhúragaon.

Páli, a considerable parganah of Kumaon, comprises nineteen pattis each of which is separately noticed, viz:—

Chaukot Malla, Bichhla and Talla; Dora Malla, Bichhla and Talla; Giwár Palla, Talla and Walla; Kákalasaun Malla and Talla; Nayán Palla and Walla; Silaur Malla and Talla and Sult Malla, Palla, Talla, Walla. The land-tax at the various settlements has been assessed thus:—

<table>
<thead>
<tr>
<th>Year</th>
<th>Current</th>
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<tbody>
<tr>
<td>1815</td>
<td>Rs.</td>
</tr>
<tr>
<td>1817</td>
<td>Rs.</td>
</tr>
<tr>
<td>1818</td>
<td>Rs.</td>
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<tr>
<td>1820</td>
<td>Rs.</td>
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<td>1822</td>
<td>Rs.</td>
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<tr>
<td>1823</td>
<td>Rs.</td>
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<tr>
<td>1833</td>
<td>Rs.</td>
</tr>
<tr>
<td>1843</td>
<td>Rs.</td>
</tr>
</tbody>
</table>

21,050 21,166 22,769 31,235 32,694 32,746 33,349 33,892 57,320

The revenue now falls on the whole assessable area at Rs. 0-14-8 per acre and on the cultivation at Rs. 1-1-7 per acre. The whole assessable area amounted to 62,641 báis of which 10,406 are cultivable and 52,235 are cultivated (2,294 irrigated). Besides this, 1,304 báis are held as temple endowments and 97 are free of revenue. There are 773 maháls or estates comprising 1,048 villages of which the population at settlement numbered 48,054 males and 44,304 females and in 1881 there were 52,062 males and 53,581 females.

Páli possesses no very lofty ranges and is chiefly remarkable for the broad valleys of the Western Rámganga and its tributary the Bino, which unite near Briiddh Kedár, and the wide lateral glens of the Khatsari, Kotlár, Naurár and Degádá streams. To a traveller coming from Garhwal they would suggest that he is leaving the hills altogether. Not less surprising is the aspect of many of the smaller ridges of the hills themselves, especially in the sub-divisions known as Malla and Tallá Dora covered from base to summit with villages and terraced fields, and separated from each other by a succession of highly cultivated table-lands and valleys, both small and large. Of these last the course of the Gágás river and its affluents presents favorable examples. Of the former Dwára Hát and its neighbourhood is a well-known illustration. The tributary Náihal from the west also reaches the Rámganga through a fertile and populous country, but less flat than the tracts above named. Khatsari in Giwár owes its redemption from waste and a fatal climate in quite recent times to the zeal and industry of

1 In 1815 there were 603 villages and in 1821 there were 942 villages. To Government 14th March, 1821.
the principal padhán and his cultivators, having been fostered and encouraged by Mr. Trall. It immediately borders on the Garhwál pattí of Lobha, the fort of that name overhanging the frontier line, and its iron mines are the most extensive and productive in the province. The pilgrim road from the northern shrines here enters the parganah and leaves it again at the points where the narrow ridges of Buret and Kath-ki-nau form the only barrier which separates the waters of the Rámganga and Kosi. The name of the parganah is derived from the village of Páli, which is situated on a low spur of the Naithána ridge above the Rámganga in Tallá Dora, and which was formerly the residence of a Gorkhálí officer, and, in the earlier part of our rule, of a British tabaládár.

Mr. Batten further remarks that though Páli more resembles a plain than a hill parganah, it has already sufficiently paid for the reputation of superiority; and perhaps has borne a burden which, if equalization had been possible of attainment, ought to have been more generally distributed. After all, in a mountain parganah, where nearly every village has been cultivated to the utmost, where the population is increasing without many outlets for its surplus numbers, where the most productive soil is most precariously situated, whence the markets for produce can only be reached by personal human labor without any artificial means of transport, and, finally, where the wages of labor at Nainí Tál and Bánikhet, or of service as sepoys and chaparasis is considered by the heads of villages as far more certain assets than the prices of produce, the present settlement may be thought a hard one. Our successors in the province will require no written English reports to make them rapidly acquainted with the people of Bárakmandál and Páli. Three-fourths of the litigation in the Court belong to these parganahs.

Panar, a river rising in Patti Mallá Sálam of Parganah Chaugarkha in Kumaun in latitude 29°-27' and longitude 79°-47', drains the southern declivities of the mountain range running north-east from Julna on the Lohughát road to the Mathurapurí (6,897 feet) peak and thence south-east by Dúrga, Páli (5,010 feet) to Gaulikhán (4,591 feet) forming the water-parting between the Siniáon and Panár. It flows circuitously but generally in an eastern direction forming the boundary between the eastern half of Mallá Sálam and Tallá Sálam and between Itangór on the north and the Cháisi, Gangol, Sui-Bisung and Regarubán pattís of parganah Káli Kumaon on the south to its junction with the Barju on the right bank above Rámsvar in latitude 29°-31'22" and longitude 80°-7'25". The total length of its course is about twenty-five miles. Buchanan states that he heard that gold was found in its channel, but he alone mentions it.

Pandukeshwar, in British Garhwál on the route from Srínagar to Húndee by the Máná pass, lies 54 miles north-east by east of the former in latitude 30°-37'59" longitude 79°-35'30", and nine miles north of Joshimath, being half way between that place
and Badrináth. The temple of Yog-badri, one of the Panch-badri, is here. The name of the village is said to have been given it on account of the Pándavas who, after making over Hastinapur to Parikshit, retired to this place to worship and die. The population at the census of 1872 numbered 267 souls. Some of the treasure belonging to the Badrináth temple is kept here. The villagers trade a little with the Bhotiyás and also open shops during the pilgrim season. Elevation above the sea 6,300 feet.

Panthi, a village and encamping-ground in patti Pindarwár of parganah Badhán in Garhwál on the route from Karnprayág to Bágewar, is situate on the left bank of the Pindar river in latitude 30°-7'-45" and longitude 79°-25'-40": distant 10 miles, 4 furlongs and 35 poles from Bugoli and 13 miles 1 furlong 7 poles from Jolabugr.

The road hence to Jolabugr continues along the left bank of the Pindar river to the junction with the Kaub river (2,715 yards), to the Ming rivulet, tolerably level, 1 mile 6 furlongs 34 poles from Panthi. Thence by the Ira (Era) and Kolári rivulets to Langaunda, 4 miles 5 furlongs 20 poles. Hence across the Kimani and Raikholi rivulets to the Tháráli bridge leading by Dúngari and Bánjbugr to Nandprayág, 2 miles 3 furlongs 57 poles. From Tháráli where there is a Baniyá’s shop the Deorasa and Tirwakot rivulets are crossed and the road, still tolerably level, passes by Koteullbugr to Jolabugr, 3 miles 6 furlongs from Tháráli. The encamping-ground is close to the bank of the Pindar, but it would be better to march two miles further on close to the first tea-garden, whence there is an undisturbed view of Trisúl from base to summit.

Panuwa-Naula, a halting-place, village and traveller’s bungalow on the route from Almora to Pithoragarh, situate in patti Talla Lakhanpur of parganah Chaugarkha in Kumáon, lies in latitude 29°-38'-35" and longitude 79°-51'-15" at an elevation of 6,489 feet above the level of the sea and a few hundred feet below the summit of the ridge: distant 13 miles from Almora, 40 miles from Pithoragarh and 8 miles from the next stage at Naini. The bungalow has a watchman but no cool king utensils or table attendant; supplies may be obtained at the grain shop here.

The road hence to Almora winds along the slopes of the valleys of the headwaters of the Bhadarwa-gách, a tributary of the Suwáli, crossing by an iron suspension bridge and then ascending again to the ridge above the valley of the Suwáli itself. This river is here crossed by a bridge and a very steep ascent leads round by the Sintola and Hiradángari hills to Almora. The rock mica, schist, with one or two small patches of granite under Sintola. The road throughout is devoid of forest and shade and is exceedingly hot in the summer. This march
should be made in the early morning, if possible, as, owing to the open nature of the valley, the sun’s rays are present the whole way.

Páori, or Páuri, a village in patti Nádalayún and parganah Bárabahún of Garhwal, is situate in north latitude 30°-8’-59” and east longitude 78°-49’-8”, at an elevation of 5,350 feet above the level of the sea, distant 7 miles 2 furlongs 4 poles from Srinagar; 11 miles from Karsu; 12 miles 1 furlong 28 poles from Toli; 11 miles 6 furlongs 39 poles from Puriya-ke-manda on the road to Kotdwâra; 10 miles 14 poles from Simkbhet on the old or middle line to Almora; and 9 miles 6 furlongs 20 poles from Sirobugar on the line to Kedârnath. Páori is built on the ridge separating the head-waters of the Kandui-gadh from those of the Randi river. It is chiefly distinguished as the seat of the civil administration of Garhwal and the court of the Assistant Commissioner. There is a station of the American Episcopal Methodist Mission, established in 1864, in Chopra, one mile from Páori.1 The mission has prospered fairly in the work it has set before itself, though not making many converts. There is a good school with branch schools at Srinagar and Dandamandi and small vernacular schools in some of the villages around Páori. The head-school at which a good English education is given has been a great boon to the people and improves every year. There is also an orphanage attached to the Mission. A large school-house, towards the erection of which Government gave a grant-in-aid, was completed in 1872, and there seems every prospect of this Mission becoming very prosperous and doing a much-needed work. Government had a large tea-garden at Gadoli about three miles from Páori on the same ridge to the south-east. It was purchased for a lakh of rupees by a planter, who has given up working a great portion of the tea-land, and now gets but a small yield from what used to be considered one of the best plantations in these hills.

Though not very high, from its aspect and situation Páori is cool, and in the winter very cold, as it loses the sun early in the afternoon. The country in the vicinity is thickly and highly cultivated and is connected with the plains and the interior generally

1 It is in the middle of the district, taking it from north to south, and is most centrally situate for all except Badhán and Lohba. It would not be wise to leave Páori without an European officer, even should the head quarters be removed to Lohba. The buildings at Páori could be utilised for the civil courts now at Srinagar.
by good roads. It has been proposed to remove the public-offices from here to Lohba, which has a better site and climate; but other considerations have hitherto prevented this being done. The station is built on the northern side of a high ridge culminating in the Kankwála peak (6,651 feet) and faces the snowy range looking up the Ganges valley. There is an excellent garden here containing English fruit-trees of all kinds which is used as a nursery for their distribution over the district.

Parkandi, a patti of parganah Nagpur in British Garhwal, is bounded on the north by Káliphát Malli; on the south by Káliphát Talli and Nagpur Bichhla; on the west by Bámsu, and on the east by Nagpur Malla. The road from Chamoli on the Alaknanda in Dasoli by Gopeshwar and Tungnáth passes through the eastern part of this patti across the Agaskámini stream to the Kedáránáth road, which follows the left bank of the Mandákiní river. The patwári of Malli Káliphát, resident in Guptkáshi, collects the land-revenue of this patti also, which is all alienated in saddár for charitable purposes. The villages are of good quality, some of them growing sugarcane, but they deteriorate as they ascend the valley. The prevailing rocks are granite and slate.

Pátli Dún, or Bhábar, one of the largest of the valleys or Dúns formed by streams in British Garhwal flowing between the main ranges of the hills and a lower range of clay and sandstone immediately bordering on the plains, is bounded on the north by Ajmere, Síla Malla, Badalpur Talli and Paiúün; on the south and west by the Bijnor district, and on the east by the Kumaon Bhábar. To the west lie the Chokum and Kotri Dúns, which are included in the Pátli Dún or Garhwal Bhábar for all purposes.

Along the plains boundary a fair road runs in the Bijnor district and, commencing on the west, a road runs to Kotdwára by the Kauriya Chanki along the foot of the hills. Another runs up the Siya Sot by the Sanai peak (1,008 feet), passing Kotri in the Kotri Dún and bifurcating at Lánkatta, whence the western branch goes on to Dogadh and the eastern by Dimki to Kusumghát in the Chokum Dún, also in a westerly direction. From Dimki a light track passes down the Mandáki river eastwards and joins the Páori road at Chawalthúra. Parallel with this, a track passes down the Kotri Dún from near Kotri, crossing the watershed between the Siya Sot and the Sona Nádi by the off-shoots of the Satarkári range and joining the Ráma-gar road by Lakhrighát, near the confluence of the Sona with the Rámganga. Midway this road is connected with the plains by a road from Moti-Sáli to Káli-Shahíd, about five miles. The plains are again connected with the Pátli Dún by three roads;
the most westerly follows the right bank of the Râmganga to its confluence with the Sona, thence crossing the Sona once and the Râmganga twice, it passes up the Tamriya and Mandâlti to Chawalihura, whence it proceeds up the bed of the Pakhîn as far as the Khanâr river; here it turns suddenly east and passing by Haldgadi and Jhîrî joins the Pêleri road at Kartiya. The Pêleri road enters from the plains by the Kanchanghâli pass and crossing the Râmganga in the Dûn runs directly north by Semalkhaliya, Kotri and Unait. Further east, the Kainâr and Dhâron road pierces the outer range by the Dînapâni pass and runs north through Tuliya and Konda, while the Rânmagar road runs directly east along the left bank of the Râmganga from the Bogîrîh bungalow through the middle of the Pâtli Dûn. This tract is therefore well off for means of communication; the stages and distances on the principal lines are given elsewhere.

The whole tract may be divided into three. The Chokum Dûn immediately under the greater ranges of the Himâlaya to the extreme west is separated from the Kotri Dûn by a range of hills attaining an elevation of over 3,000 feet and known as the Râmıkot, Hatbhûn, Kâli Harâpâl and Deo-kânda range. This forms the watershed between the Mandâlti which drains the Chokum valley on the north, and the Sona, which drains the Kotri valley on the south. Both these rivers run eastwards and fall into the Râmganga in the Pâtli Dûn. At the western end of both the Kotri and Chokum valleys a ridge runs north and south which sends the western drainage into the Siya Sot, running south and debouching on the plains at Banpî, while the eastern declivities of this ridge form the sources of the head-waters of the Mandâlti and Sona. To the south the Kotri Dûn is separated from the plains by a low sandy range attaining a height at Girîjâwlâ of 2,723 feet. At the eastern end of these Dûns commences the broad expanse of the Pâtli Dûn, through which the Râmganga flows. This valley is also separated from the plains by a low range of hills and receives the drainage of these hills and on the north those from the watershed separating it from the Mandâlvalley. In fact the whole tract is one mass of water courses, here called ânts, pouring down to the main drainage arteries and all eventually swelling the waters of the western Râmganga, which join the Ganges in the Fährkhabad district. The hills descend to the river in broad steppes covered with sâl, cotton-wood, and other trees, many of which are very valuable. It used to be cultivated, and was also used as grazing land for large herds of cattle; but when Government took up the direct management of the forests, cultivation and grazing were both stopped. A large saw mill, which was to have been worked by water power taken by a canal from the Râmganga, was erected under the superintendence of Captain Reid, but it was found that the expense of working it would be too great, and the sâl forests had been so recklessly cut that no wood remained to be worked up. The place at which it was erected is called Bogîrîh, where there is also a bungalow still used by forest officers. Cutting in this Dûn has been prohibited for some years, and the sâl forests are visibly increasing and ought to become the best block west of the Sârda river. This and other Dûns are the hiding places of elephants and other wild animals; tigers are especially numerous, being driven there by increasing cultivation in the plains and Bhûbar. The patti was formed in 1864 from the Pâtli Dûn and the forest portions of Painûn, Badsalpur, Silâ, Karamrud, Ajmerâ and Udaipur, comprising what is styled in the forest records, the Kotri and Pâtli Dûns and Bhûbar Rawâsanpâr and
wár. All the villages interfering with the sal reserves were removed and the people were compensated or given lands in exchange in Bijnor.”

Patwálsyún, a very small patti of parganah Bárahsyún in British Garhwal, is bounded on the north by Gangwárasyún and Paidúlsyún; on the east by the latter patti and Aswálsyún; on the south by the latter patti and Manyársyún, and on the west by the latter patti and Gangwárasyún. The patwári of Kapholsyún, resident in Sakhyána, collects the land-revenue of this patti also. Patwál-syún, so named after the clan that colonised it, contains the upper waters of the Khar-gadh. The road to Kotdára by Mohripáni post-house passes through it and it possesses some oak and pine forest.

Phaldakot, a parganah of Kumaon, comprises six pattis, each of which is separately noticed, viz:—Chaugán, Dhúraphát, Kosyán Malla and Talla, Kandárkuwa and Malli Doti. The assessment at each settlement has been as follows:—

<table>
<thead>
<tr>
<th>Year</th>
<th>1815</th>
<th>1817</th>
<th>1818</th>
<th>1820</th>
<th>1823</th>
<th>1828</th>
<th>1833</th>
<th>1843</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
<td>Rs.</td>
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<tr>
<td>5,884</td>
<td>6,139</td>
<td>6,691</td>
<td>7,001</td>
<td>7,404</td>
<td>7,404</td>
<td>7,528</td>
<td>7,565</td>
<td>10,346</td>
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</tbody>
</table>

The incidence of the current land tax on the whole area assessable to revenue is Rs. 1.0-10 per acre and on the cultivation is Rs. 1.5-1 per acre. The assessable area comprises 9,832 bási, of which 1,996 are cultivable and 7,836 are cultivated (703 irrigated) and about 50 are held as temple endowments. There are 128 maháls or estates comprising 151 villages. The parganah reaches from Siyáhi Devi along the southern slopes of the ridge separating the drainage of the Kosi from that of the Ramganga as far as Bina. Westward of this, the mountain ranges are included in Páli, but in patti Kosyán the parganah stretches along the Kosi as far as Seti where it marches with the Kota parganah. With the exception of a few places in Kosyán there is little level and irrigated land, and some of this was injured much in the floods of 1880. All the upland pattis are similar in character to Dhaniyákot. It was formerly held by Káthi Rajpúts and named after the fort occupied by them. Batten writes:—

“ar villages are for the most part large, well-inhabited and thriving, but the soil in the upper parts is not very favourable for the production of the best grains. The people of this parganah however are great traffickers, and with their neighbours of Dhaniyákot almost monopolize the trade in borax, &c., between Bágaswar and Ramnagar, as also the cloth and sugar trade between Almora and Káshipur. The
principal refining furnaces for borax at Râmnagar itself belong to hill-men of Phaldâkot. The Pândes of Pândekota are a principal clan in Mâli Doti, unaddicted to mercantile and carrying pursuits, while they afford village accountants, soldiers and messengers to Government."

The population at the current settlement numbered 8,582 males and 8,289 females, and in 1881, 9,406 males and 6,136 females.

**Pharka**, a very small patti of parganah Kâlî Kumaon, in Kumaon was formed from Sipti-Gangol at the recent settlement. It is bounded on the north by Asi and Gangol; on the west by Asi; on the south by Sipti, and on the east by Gangol. It contains the tract around the village of Pharka on the road between Lohughât and Almora and contains the villages of Batûla-bânj and Mârgaon. The patwârî lives in Pharka. The assessable area comprises 145 bâsis, of which 63 are culturable and 82 are cultivated (10 irrigated). The land-revenue amounted to Rs. 37 in 1820, Rs. 75 in 1843, and now stands at Rs. 112, which falls at Rs. 1-5-9 per acre on the cultivation and at Re. 0-12-4 per acre on the total area. The population at settlement numbered 27 males and 35 females.

**Pharka**, a halting-place and former travellers' bungalow in the patti of the same name and parganah Kâlî Kumaon of Kumaon, is situate in north latitude 29°-22'-48" and east longitude 80°-1'-54", at an elevation of 5,854 feet above the level of the sea; distant nine miles from Lohughât and 13 miles from Devi-thûra. The bungalow has neither cooking utensils nor attendants, but there is a grain-shop. There are several good groves of deodâr in the vicinity: one at Dana near Dornâth, another at Lâliyâ, and a third near the Pharka bungalow. There are several villages scattered over the neighbouring valleys, most of which are alienated in gâth to the Bâzînâth temple at Almora. Much rice is grown in the swampy bottoms whose streams join the Lâdhiya at Kela-gât. The rocks consist for the most part of granite in a state of complete disintegration.

**Pharkiya**, or Phurkiya, a halting-place on the route to the Pindari glacier, 5 miles from Diwâli, 69 miles from Almora and 8 miles from the glacier; see Dûgli and Diwall. There is a bungalow without attendants or supplies here.

**Pindar**, or 'ganger' from Sansk 'pad,' 'to go,' a river of Kumaon, takes its rise in a glacier in a hollow bounded by snowy
peaks over 20,000 feet high at an elevation of 12,088 feet above the level of the sea. The glacier is situated in north latitude 30°-15’-30” and east longitude 80°-2' in patti Malla Dánpur. The Pindar springs up at once from the foot of the glacier and has a course generally south, passing by Martoli, Phurkiya and Dúgli to Diwálí, where it is joined on the left bank by the Kuphini. Thence it bends to the south-west by Kháti to Wáchham, near which it receives on the right bank the Sundardhúnga and further on at Kanwári on the Garhwál frontier the Bháiganga on the same side. The course is thence more due west to the confluence with the Kailganga on the right bank at Talor in patti Pindarwár, where it bends southwards before again resuming its western course at Tharáli; it receives on the right bank the Goptára-gádh, and at Paitháni the Toligár stream, whilst on the left bank it receives numerous small torrents all along its course and at Simli the Bhárárigá. It joins the Alaknanda on the left bank in north latitude 30°-15’-43” and east longitude 79°-15’-29” at Karnprayág, at an elevation of 2,000 feet above the level of the sea. The Pindar is crossed by suspension bridges at Karnprayág and Naráyanbugr and by an iron wire-bridge at Tharáli. Some account of the Pindari glacier has already been given.1 From Diwálí, at the confluence of the Pindar and Kuphini, the glacier of the former is distant a march and a half, and of the latter one march. ‘Pindar’ means an affluent or feeder, whilst ‘Pindal’ is a bridge or causeway or passage over a river or ravine.

The following account of the journey from Dúgli to the glacier is from Major Madden:—

"In the north-west Himálaya, contrary to the fact here, the passes are all gained by the north-west banks of the streams; here, in general, the eastern bank is most accessible. One circumstance remains constant, which is the comparatively level bed of the river below the glacier. From its source to the cave nearly, the Pindar flows along a wide channel, overspread with gravel and stones, the product doubtless of the glacier, which has no terminal moraine; its waters are exceedingly turbid, and though diminished above by the dozen of cascades, which of all sizes, and at all distances rush down from the snow, are quite impassable. The spot called Pindari is rather an open, undulating piece of ground, covered with grass, docks, and the ubiquitous shepherd’s-purse, in an amphitheatre of crags, with many snow-beds along these bases; the ascent is rather steep, over rough, and occasionally pasture land, covered with Sibbaldia, Salix Lindleyana, a low shrubby Astragalus, the yellow aromatic Tanacetum, the

1 Gaz. X, 182. 2 J. A. S. Ben., XVI (1), 256.
dwarf white *Helichrysum*, a garlic-like *Allium*, and two most abundant and beautiful blue Gentians. The glacier lay to the west, and between us and it rose a lofty moraine, along the higher or east base of which flows a considerable stream, the source of which is much more remote than that of the Pindar, which it joins one or two hundred yards below its exit from the ice. Having ascended perhaps a thousand feet and striking to the left crossed the moraine, which is here about 150 feet high, descend to the glacier, a few hundred paces towards its head, where it commences in huge broken tiers of the purest snow.

The moraine is constituted of gravel, mud, and blocks of stone imbedded in ice; the stones are very small. There is a very steep descent to where the river issues from a cave in the face of the glacier, about 20 feet high, by perhaps 90 wide; the impending roof is riven into four or five successive thick ribs of ice. The recent heavy rains had thoroughly washed the Pindari glacier, and its surface exhibited a sheet of the purest ice, except on and near the terminal escarpment, which, being covered with rubble, resembles, at a short distance, a steep bank of mud, and such is said to be the appearance in May and June of the Milam glacier. But to make quite sure fragments have frequently been broken off which everywhere were perfect ice, the only difference perceptible, between this and the Alpine ice, being a coarser granular structure here. It is intersected by the same fissures, has the same rib and texture, and from its origin in the snow to its termination above the cave, falls in a series of the most beautiful curves. That the mass is moving downwards seems confirmed by the form of the snow at its head, viz., a succession of terraces, with steep walls, just such as clay, &c., assumes on its support being removed. The glacier may be about two miles long, and from 300 to 400 yards broad, and probably occupies the interval between the levels 12,000 and 18,000 feet above the sea; owing its existence to the vast quantities of snow precipitated from Nanda Devi and the other lofty mountains above, which, melted by the noonday sun, is frozen at night. It must be observed, too, that, in spite of theory and observation elsewhere, the perpetual snow appears here to descend to the level of 13,000 feet: far from the head of the ice to the crest of "Traill's Pass," the col which may be considered as the root of the glacier—there is an uninterrupted surface of snow, and that from its low angle, except for the lowest thousand feet, evidently in situ.

None of the culminating pinnacles of the Himalaya are visible from Pindari; though a great peak is immediately above on the east, but its northern shoulder, a massive snowy mountain, forms a grand object to the north-east, and this, passing the depression forming Traill's Pass, is continued in glorious domes and peaks to the left, where a beautiful pinnacle terminates the view, apparently the eastern most of the two lower peaks of Nanda Devi. The adytum of the goddess herself is utterly concealed. Amongst some great rocks on the east of the moraine, numbers of the curious *Scutigera oblonga* are found, called the "lalwadi" or lotus of Nanda Devi; near it grows the *Oleocoma macrocephala*, another sacred plant, bearing the strange name of "hala tager," or black Tabernosanthes; and the common rhubarb (Rhëum *Rheum* *Bawadi*) here called "dola." The rocks in situ about the glacier are mica-slate and gneiss, but on the moraine, the fragments consist also of crystalline and slaty quartz, the latter often considerably colored with iron between the layers; hornblende rock is also common; and masses of the same granite which forms the great range at least
up to Gangotri. Though it exhibits quartz, felspar, and mica, the felspar is in such excess to the other minerals, and large crystals of black schorl are so abundant, that Captain Herbert probably did not recognize it to be granite, and hence his denial that this rock is found in the snowy range. It certainly differs much in appearance from the more authentic granite which is found north and south of the great chain, in Kunáor and Kumaon."

Pindarpár, a patti of parganah Badhán in British Garhwál is bounded on the north by Nandák; on the west by Karékot, on the south by the Pindar river, which separates it from Pindarwár and on the east by Kumaon. The patwári resides in Tharáli. The land-revenue and sadabart in 1864 amounted to Rs. 2,320 and the gánth to Rs. 41 paid by 4,802 souls. The villages are good and bad, varying very much; they lie for the most part in the valleys of the tributary streams and there is much waste. There are iron mines at Kheta-Wudur worked and old mines of the same metal at Bulán, Mandaúli and Súya, and lead mines at Jákh never yet worked.

Pindarwár, a patti of parganah Badhán in British Garhwál, is bounded on the north by the Pindar river, which separates it from Pindarpár of the same parganah; on the south by parganah Páli of Kumaon and patti Lobba of Garhwál; on the west by Sirgur and on the south-east and east by parganah Dánpur of Kumaon. It lies almost entirely among the high mountains bordering on the Pindar river and contains the source of the Gumti. The patwári resides in Kulsári. The land-revenue and sadabart in 1864 amounted to Rs. 2,240 and gánth to Rs. 29 paid by 5,652 souls.

Pingala Pakha, a patti of parganah Chaundkot in British Garhwál is bounded on the east by Taláin of parganah Malla Salán and on all other sides by pattis of its own parganah. It is drained by a tributary of the Machhlád river. The patwári resident in Kánde collects the land-revenue of patti Gurárzúy and Kimgadigár also, which in 1864 aggregated Rs. 2,351 plus Rs. 183 for revenue-free and gánth lands assumed.

Pinnáth, a temple and village in patti Borárau Palla of parganah Bárahmandal in Kumaon is situate in north latitude 29°-50'-45" and east longitude 79°-35' about 32 miles from Almora by Dwárábá and seven miles from the latter place. It is built on a spur from the Gopálkot peak (9,050 feet) overlooking the upper portion of the Kosi valley. A colony of Gosainas reside here and
a number of their mahants lie buried close by, each with a small
dome over his remains surmounted by a miniature ling. The
Gosins possess a grant engraved in metal conferring lands on
Siva as Pinakeswar, ‘Lord of the trident,’ executed by Udyot
Chand, Raja of Kumaon in 1613 sam. (1691 A. D.) and another
by Bas Bahadur Chand and his consort bearing date 1654 A. D.

“The temples are situated about half way up the hill above the village. The first
is a small conical structure, eight to ten feet high, dedicated to Bhalram. The main
temple is close to this on the north, a square, slated edifice, with the door facing
the south, and figures of raajas, &c., sculptured on the walls. The roof of the
portico is formed by the Indian arch, and on its sides are represented the five
Padavaas; the adytum is small and contains nothing but one or two images of
Mahadeo and Devi; about eighty years ago the original pile was nearly all over-
thrown by an earthquake. The place is only frequented in the rainy season and
autumn, when in October there is a fair. The want of water is poorly supplied
by a cistern and several wells, twelve to fifteen feet deep, excavated in the rock.
So far the rock is quartz and slate, but onwards quartz only, disposed in vast
beds, the outcrop of which faces west-south-west. The area of this summit is not
above fifteen feet across, with precipitous glens all around, and an exceedingly
narrow rocky ridge connecting it with Bhatkot (2,066 feet) bearing south-west.
The Bhrapinath range is continued north-west in a very lofty and comparative-
ly level spur, called Birchhwa (8,012 feet), excessively precipitous to the left or
west-south-west. In this is the main source of the Kosi, which hence flows nearly
due east for about five miles, its northern bank being formed by the slopes of
Gopalkot, on whose craggy summit the Katyur Raja had a stronghold in which
their treasures were deposited” (Madden).

Pipalkoti, a village and halting-place with dharmadalas and
grain-shops on the route from Almora to the Niti pass, is situated
on the left bank of the Alakanda river in latitude 30°-25'-50" and
longitude 79°-28'-20" in patti Talli Dasoli of parganah
Dasoli in British Garhwal. It is distant 7 miles 6 furlongs from
Mathana (1½ miles beyond Nandprayag) and 11 miles 3 furlongs
and 34 poles from Hilang, the next stage. The road from Mathana
lies along the left bank of the Alakanda to Chimoli, about four
miles, where there are dharmadalas, a dispensary and grain-shops.
Here the Alakanda is crossed by an iron suspension bridge and
the new road follows the right bank to Hât, where it re-crosses and
continues on the left bank to Pipalkoti. A stream that carries off
the surplus waters of the small Diuri lake is crossed on the right
bank. On the left bank by the old road the Khanyûri-gadh is
crossed at Bhotiya bazár, the Biri-ganga at Biri and the Gât-gadh

¹ J. A. J. Ben. 1848, 619: Gaz. XI, 815, 793, 848, 856, 569, 591.
near Hát. This was abandoned owing to the floods in the Biri-
ganga in 1869, which swept away the bridge there and at Chimoli.

Pithoragarh, or Pithauragarh or Shor, a village in patti Mahar
and parganah Shor of Kumoon, is situate in north latitude 29°-
35'-11" and east longitude 80°-15'-9," at an elevation of 5,334
feet above the level of the sea, lies 16 miles west of the Káli river
and 55 miles east from Almora. The station now occupied by one
company of the 3rd Gorkhas from Almora lies nearly in the centre
of the valley with a population in 1881 numbering 255 souls.

The Shor valley itself is about five miles in length by about three in breadth,
dipping gently to the south-east and bisected into north and south by a tabular
ridge of slate, limestone and greenstone originating in the mountains to the north-
west and branching down to the south-east. On the south-western exposure
stands fort Loudon on a mound apparently artificially scarped, about fifteen feet
high, crowned by a loop-holed wall, seven or eight feet high, with platforms for
guns, a few houses for barracks and a reservoir for water that is now empty.
On a commanding point to the north-west is a small square tower about fifteen
feet square, also loop-holed for musketry and known as Wilkiegarh. These are
now uninhabited and the barracks of the Gorkhas lie to the east of the fort.
There is a school and police-station here. In former times the site was consider-
ed unhealthy and gave rise to fevers and bowel complaints during the rains. In
1873, in common with the rest of eastern Kumoon, cholera visited the valley and
took a virulent form while it lasted.

The whole valley lies prettily dotted with small villages, generally placed on
eminences and surrounded by the only trees visible, except the distant forests of
Bisbár and Thákiil. The land is often nearly quite
level for extensive tracts, and is carefully cultivated
with wheat, &c. The soil is a stiff clay, which, after
ploughing, requires to be broken up by wooden mallets. The people do not emi-
grate to the Bisbár, which, with the fertility of the soil, is the cause of the abundance
and cheapness of provisions compared with Lohughát and Almora. Each
section of the Shor valley has its stream: that to the south, named Chandrabbága,
flows along the south end, and, joined by the branch from the north-west, escapes
south to the Káli by the temple and glen of Chaupakhya. The outline of the
enclosing mountains is extremely bold and varied, their sides sloping and grassy
in some parts, steep as walls in others. To the east is the Durga range about
7,000 feet high, connected on the north with the remarkable summit of Dhuj,
8,149 feet high, with a contour exactly similar to a section through a parquet. To
the south-south west appears the long ridge of Thákiil, with its three summits.
To the north-north-west are the mountains over which goes the direct road to
Almora, and north-north-east is a bold and lofty cone, the Koteswar peak, but
better known to the English residents as the 'Drill' hill. It is reported to bear
this last appellation from the tradition that, in days of yore, the colonel of the
regiment stationed here was accustomed to punish delinquents by ordering them

1 Some derive the name from 'Swarga-robin,' but the process is not clear.
to trudge, in full panoply, to the top of this hill, their commanding officer, telescope in hand, superintending the distant penance, in his own verandah. In this direction runs the road to Byans; the Chhipula mountain, 13,500 feet high, the last ramification of the Panch-Chûla, closes the horizon. About sixteen miles east of Pithoragarh, the Kâli is passed, by an iron suspension bridge, the boundary between the British and Nepálese territories, where each nation has a guard. The river is said to be there confined to a very narrow width between limestone cliffs. Dr. McClelland found precious serpentine at Gûrat village, on the way down from Pithora.” (Madden).

The people of Shor have a general impression that the prevalence of goitre in their valley is owing to the presence of so much limestone, and one may occasionally hear a hill-man object to Naini Tâl on the score of the water there being impregnated with lime. Dr. McClelland has adopted this opinion and endeavours to prove by an induction from particulars that where the springs are in limestone, the disease prevails: where in slate, that it is unknown. There is not a trace of lime at Almora, yet the malady has shown itself there in several sepoys, natives of the plains, as well as in European children, none of whom could have had any hereditary predisposition. Dr. Dollard found the case the same at Lohughât. For an account of Dr. McClelland’s researches see “Some inquiries in the province of Kumaon,” Calcutta, 1855; by Dr. J. McClelland, page 254. Pithoragarh is a station of the American Episcopal Methodist Mission, which supports a dispensary and school here. For the road to Almora, see Bâns: to Lohughât, see Gûx: hence to Bégeswar, by Beninâg 10 miles; to Sanudiyâr 6 miles; to Bégeswar 7 miles. That is distant from Pithoragarh 19/1 miles.

The following table supplied by Mr. Beckett gives the marches from Pithoragarh to the Dârma and Byâns passes:

**Piúra**, a traveller’s rest-house, on the upper road between Almora and Naini Tâl, is situate in north latitude 29°-30°-23’, and east longitude 79°-39°-23’, at an elevation of about 5,692 feet above the sea, distant 8½ miles from Almora, 23 miles from Naini Tâl, and 10 miles from Râmgûrâ. It command’s a particularly fine view of part of the Snowy Range. Being on the northern face of the mountain, it is very cold in winter. About five miles to the south-east is the Mukteswar peak covered with *Quercus dilatata*, which shelters one or two shrines of Mahâdeo, Sain and Goril. On the crags a little below are certain marks which the people believe to be the foot-prints of elephants, horses, and camels, the army of a certain deity who, wishing to pass this way, was opposed by the local demon. The latter obtained deliverance (*mokshâ*) by being sent to live amongst the Agaris and hence the name Mukteswar. From Piúra there is a very long descent to the junction of the Sûwâl and the Kumniya, which is crossed by an iron suspension bridge, and then a steep and tiresome ascent up a baro
rocky hill for 1,600 feet to Almora. Of a hot day this is one of the most trying ascents for its length in the hills. The rocks are quartz, mica-slate, gneiss, and finally granite, which forms an entire hill south-west of Almora, and has apparently lifted up and in some places contorted the others to a remarkable degree. To the south, indeed, the strata appear to dip under the granite; they also contain in this neighbourhood quartz dykes supposed to indicate the action of granite. The quarries of micaceous and quartzose rocks supply excellent materials for building and roofing.

Pungaran, a patti of parganah Gangoli in Kumaon, is bounded on the north by Dânpur Bichhla; on the east by Mâli of Sira and Tallades of Juhâr; on the south by Baráun, and on the west by Nákûri. This patti comprises the valley of the Birar-gâr, an affluent of the eastern Râmganga on the right bank. To the north it is bounded by a range extending from Kâlinûg (7,317 feet) westwards, and on the south by a similar range extending from Chaukori (6,553 feet) by Khanlek (6,847 feet) eastwards to the Râmganga. Paths connect the villages with the road from Bâgeswar to Tejam on the north and to Nava Thal on the Râmganga just outside the boundary of the patti on the east. The assessable area comprises 2,499 bisis, of which 1,252 are culturable and 1,247 are cultivated (932 irrigated). The land-tax yielded Rs. 414 in 1815: Rs. 546 in 1820: Rs. 689 in 1843, and is now assessed at Rs. 2,417, which falls on the total assessable area at Rs. 0-15-6 per acre and on the cultivated area at Rs. 1-15-0 per acre. Some 59- bisis are held free of revenue. The population at the time of settlement numbered 2,466 souls, of whom 1,314 were females. The patwâri resides in Saugor, where there is a school.

Râjpur, a village in the western Dân, with a fixed population of less than 2,000 souls, is situate at the foot of the Himalayan range on the road from Dehra to Mussoorie, six miles from Dehra and seven miles from the Landaur post-office. The site has an area of 1,018 acres, the highest point being about 3,000 feet above the level of the sea. There is a perceptible difference between the climate here and that of Dehra, a difference also marked by the vegetation. Râjpur possesses two hotels, a police-station, post-office, and a dispensary. The last is largely made use of by the considerable floating population employed in the carrying trade
between the valley and Mussoorie. An old canal repaired and made available in 1840-41 runs from the head of the Rispana torrent to the east of the town, and supplies the people of Dehra with drinking water.

Rākas Tāl, a lake of Tibet adjoining Mānasarovar, is situate in north latitude 30°-44' and east longitude 81°-16', at an elevation of 15,300 feet above the level of the sea. It is also known as Rāwan-hrad and Cho Lagan or Langa by the Tibetans. The journey by the Lunpiya-dhūra pass from Kuthi as far as the Larcha or northern foot of the pass is described elsewhere. The journey thence to Rākas Tāl, also taken from Captain H. Strachey's journal, is described as follows⁴:

Proceeded from the Larcha to Bhāwiti (15,750 feet), a short distance beyond this on an eminence 250 feet higher than Bhāwiti and 500 feet above the Dārmā-yākti is a small flat covered over with religious structures called Choktān or Manpadni, little towers of stones, stuck about with dirty ragged flags said to have been erected by some Lāma, hence the name Choktān-Lāma. Hence to the north is a low plain expanded to a considerable size, and to the east contracted to a mere valley, a mile wide, receding south-eastward behind the Choktān hill. Beyond this valley, north-eastward, the ground is occupied by lofty hills or low mountains not easily reducible to a regular plan, but the general tendency of them seem to be in parallel ranges running north-west and south-east, the most distant of them, the highest slightly tipped with snow in streaks here and there, and beyond these lines the lakes, entirely shut out from view.

In the low plain to the north-eastward, ten to twelve miles off, rises a small isolated hill, on the top of which was once a fort, called Nimakhar; Bhotiyas call it, Gyānama; there is no village or fixed habitation here, but it is a considerable resort in the summer for the salt and grain traffic of the Bhotiyas from Dārma and western Byāns. It lies on the road from Purāng to Gūng, and one way to Garthoh, and on the road from Chirchua to Gāngri. Immediately beyond Gyānama a long narrow sheet of water is visible; it is a sort of lake called Tāra-chu receiving the drainage of the low plain and the adjacent hills on the east, and giving off its surplus water occasionally into the Chugir westward. Beyond this again rises a range of hills concealing the bed of the Tirthapuri Sat-laj. Gyānama belongs to Kyungluug. Wild geese and ducks breed upon the lake during the summer, and the people of Kyungluug take the eggs. From Lāma-Choktān the path descended into the plain by a long, but easy declivity and crossed the flat where it is about a mile and a half wide; reaching the middle of which, it extends many miles in a long valley confined between the base of the Byāns Himalayas, and the ranges of the lofty hill which is visible from Lāma-

¹ This account is epitomised from H. Strachey's journey in 1844, he left the Larcha, October 1st: Therm. sunrise, 14°; 9 a.m., 29°; 12nd, 7 a.m., 20°; 3rd, 9 a.m. 30°; 4th, 6 a.m. 20°. See further Kailās; Mānasarovar.