The village Patne (Lat. 20°21'N and Long. 74°50' E; 1" Survey Sheet No. 46 L/15) lies 13 km south of Chalisgaon, the taluka headquarters and a railway station on the main line of the Central Railway. It is situated on the left bank of the Ad Nala, a feeder stream of the river Tittur that meets the river Girna which in itself is one of the major southern tributaries of the river Tapti. From the river Girna the village lies 32 km to its south.

The village is situated on a wide fluvial flat at a height of 411.480 m (1350 ft.) above mean sea level. One-and-a-half kilometers south of the village abruptly rise the Ajanta Hill Range which bounds the Tapti rift on its south. In the northern flanks of the Ajanta Hills watershed rises the Ad Nala at a height of 762 m (2500 ft.) above mean sea level. After draining the Ajanta Hills upland for 10 km it plunges over a precipice at Kedarkund Falls and enters an amphitheatre-like depression (called hereinafter only amphitheatre) carved in the northern

1 In the medieval period Patne was a capital of the Nikumbhas, the feudatories of the Yadavas (11th-14th cent. A.D.) as has been testified by the inscriptions found in the ruins of the Old Patne which lie about 1.5 km south of the present Patne village, between Area A and Area B where the excavation of Stone Age remains was conducted.
scorched face of the Ajanta Hills. In this amphitheatre, it receives from the north, near the temple of Devi, two small streams known as Dhavateertha Nala and the Landari Nala, in the ravine carved by the former, about 3 km south-east of this confluence, on the topmost terrace of the Hill Range, being located the famous Buddhist rock-cut caves of Pitalkhora dating from the 2nd cent. B.C. to the 6th cent. A.D. From the site of the confluence the Ad Nala takes a northerly course to meet the river Tittur at Chalisgaon.

Within the above mentioned amphitheatre and all along the northern foot of the Ajanta Hill Range, south of the village, occur massive colluvio-alluvio deposits. The Ad Nala and the numerous hill-streams have deeply cut into these deposits. My examination of the sections exposed thus and those of the recently dug wells as well as the bore-hole data from a locality in the amphitheatre kindly supplied by the Public Works Department suggest that at places the deposits are over 20 m thick. The deposits occurring in the reserved forest area, the boundary of which lies about 1 km south of the village, are comparatively much better preserved than those occurring in the area under cultivation, the latter presenting more or less a bad-land topography.

B. GEOLOGY

The area of Patne forms part of the Deccan Trap region of Maharashtra. The Trap rock here formed the main source of raw-material for manufacturing tools in the
Lower Palaeolithic times. The secondary minerals such as jasper, chalcedony and other allied silicious rock-materials occur in abundance in the traps as veins or small lenticular bodies. They were mainly exploited by man for preparing tools in the Middle Palaeolithic, Upper Palaeolithic and Mesolithic periods.

C. GEOMORPHOLOGY

The landscape at Patne, as elsewhere in the Central Tapti basin, has been developed upon the Deccan Trap. The beginning of the evolution of the landscape, therefore, has to be traced from the origin of the hills by the accumulation of the lava flows in the Cretaceous - Eocene times. Sometime after the formation of the Trap the landscape witnessed a major earthmovement in the form of rifting of the valley, at times called the great Tapti Rift (Deshpande, 1946: 148). The origin of the pre-alluvial topography on the northern side of the escarpment is in response to the formation of the Tapti rift.

The Ajanta Hill Range has preserved plateaux at 762 m (2500 ft.) and 670.860 m (2200 ft.) and has a very gentle slope on its southern side. On the other hand the northern slopes are precipitous, within half-a-mile there being a drop of 304.800 m (1000 ft.). The source and the upper course of the Ad Nala is in this Ajanta upland. This stream has a very steep gradient, 141.176 ft. per mile, from its source in the upland of the Ajanta Range up to Area A (Fig.2). The occurrence of waterfall, 76.200 m (250 ft.) high, at Kedar Kund clearly suggests rejuvenation
FIG. 2. LONGITUDINAL PROFILE OF THE ṢAḤ NALA
of the stream and the encroachment of the northerly drainage of the Girna on the southerly drainage of the Godavari.

The village Patne and the excavated Stone Age site in Area A are situated on a wide fluvial flat between 396.240 m (1299 ft.) and 411.480 m (1350 ft.) elevation while the excavated site in Area B occurs on a much smaller narrow flat lying between 441.360 m (1446 ft.) and 457.200 m (1500 ft.). Further northwards of Patne village the rocky plain drops gently and merges imperceptibly with the alluvial plain of the river Tittur, a tributary of the river Girna.

As evidenced from the borings by the P.W.D., my examination of the newly dug wells, my observations during the explorations and the evidence from the excavation the thickness of the deposits around Patne ranges between 10 m and 20 m. The pre-depositional rocky topography was very irregular showing highly dissected appearance than the present one. At the time of the occupation of the area during the Lower Palaeolithic the streams were flowing with steep gradients, the topography was uneven and there was very little sedimentation in the foot-hill portions. The irregular surface of the Lower Palaeolithic times was gradually filled up during the Middle Palaeolithic times by the quantities of fluvial material derived from the upstream region in the form of cone or fan deposits. The steep slopes below the waterfall favoured the formation of the fan or cone deposits. The resulting topography thus assumed a more subdued form.

In the main Tapti valley after the major Middle Palaeolithic phase there occurred a tectonic movement of
intense magnitude causing folding, faulting and tilting of the alluvial deposits (Sali, 1973a). What kind of effects of this tectonic movement were felt in the Patne area has not been properly understood. But the available evidence suggests that the process of aggradation was continued with some intervening erosional phases during the Advanced Middle Palaeolithic, Upper Palaeolithic and the Neolithic occupation.

This has been very well revealed in the excavation carried out for the Stone Age remains. The accumulation of the sediments in the cones and fans had taken place at different stages and with different intensity and facies, e.g. a series of gravels, sands, silts and clays were laid down under the fluvial processes.

The laboratory studies of the soil samples collected from the excavated trenches and field observations have shown that the area had witnessed four breaks in the fluvial depositional processes. They occurred, (1) after the deposition of the gravel of the Advanced Middle Palaeolithic, (2) when the fossil soil, (layer (7)) over the fissured clay was formed, (3) when another fossil soil represented by layer (3) was formed and (4) when the loessic deposit (layer 2) was formed (Fig. 17). Of these four, those represented by the fossil soils (layers (7) and (3)) seem to mark major rejuvenation phases in the sequence of the events shaping the landscape.

Interestingly enough in the long profile of the Ad Nala there occur two major breaks (Fig. 2). The first rejuvenation has left a break in the long profile at an altitude of 441.960 m (1450 ft.) just near the amphitheatre.
The second rejuvenation corresponds the second break in the long profile occurring at an elevation of 350.520 m (1150 ft.). It is difficult at this stage to equate a specific phase of rejuvenation occurring in the stratigraphic sequence with that in the long profile. Because at times such breaks in profile are merely knickpoints and do not necessarily represent a regional character. However, their occurrence is noteworthy.

The main stream in the region is the river Girna. The changes in the grades of this river have direct bearing upon the changes in the grades of its tributaries like the Tittur of which the Ad Nala is a feeder. The two rejuvenations may thus be related to the base-level changes in the Girna proper. Incidentally, it should be mentioned, the entire drainage is under the direct influence of the Tapti.

The problem of rejuvenation of streams due to changes in the discharge load relationship is highly complicated. It is, therefore, not possible to interpret the available evidence in terms of climatic changes.

The rejuvenation of streams was replaced by a dominant process of valley filling as is indicated by the occurrence of gravel formation over the fissured clay. This filling episode continued up to the end of the Early Mesolithic. The forces that were responsible for such changes occurring towards the end of the Late Pleistocene have not yet been understood. As the sedimentological studies do not bring out any marked changes in the climate which could have affected the stream behaviour it appears that there are
certain other factors such as tectonics which might have influenced the sedimentary processes in this area.

D. CLIMATE, VEGETATION AND ANIMAL LIFE

The climate of the Patne area can be described as of semi-arid type. It receives a rainfall between 50 and 60 cm per year. About 80% of the rains are received in the four months of the South-West Monsoon season, between June and September. Generally the tremendous heat of summer, at times the temperatures fluctuating between 46.1°C (115°F) and 47.7°C (118°F), for which the region of Khandesh is well-known, is not experienced at Patne and the maximum summer temperatures in the months of April and May do not cross 43.7°C (110°F). Similarly in the winter the biting cold experienced in several parts of the Tapti basin is not felt at Patne. The minimum temperature in winter in the months of December and January remains between 10°C (50°F) and 15.5°C (60°F). Both the forest vegetation and the bare precipitous cliffs of the Ajanta Hill Range have helped keep a check on the extremes of temperatures and maintain moderate climate at Patne.

The reserved forest at Patne is of dry deciduous type. The chief trees in the forest are anjan (Hardwickia binnata), Khair (Acacia catechu), Dhavada (Anogeissus latifolia) and

1 The region known under the name Khandesh includes the present administrative units of Dhule and Jalgaon districts of Maharashtra both falling in the Central Tapti basin.
and Bor (*Zyzyphus jujuba*). The Salai (*Ruswella serrata*), Chandan (*Santalum album*), Teak (*Tectona grandis*) and Kahu (*Tectona grandis*) are found sparsely grown. Of all the above mentioned species that of Anjan (*Hardwickia binnata*) is the most dominant at present.

About thirty-touncy years ago, according to the local information, the forest at Patne was teemed with wild animals. Indiscriminate hunting has reduced their number and some of the animals such as tiger and wild boars, have disappeared from the area now a days. Among the animals which are to be seen in the forest are deer, rohi, hyaena, jackal, wolf, monkey (langur and macaque), hare and medad (मेदद) (an animal looking like a deer but which is not a deer and has only one horn in the centre of the forehead). Very occasionally herds of wild oxen and cows are also found roaming in this forest. Among the birds the most notable are peacocks and parrots. The peacocks are occasionally hunted by the local Bhils for food especially in the months of April, May and June when these people face an acute shortage of foodgrains and also the fish after the pools in the nala bed are almost completely dried up.