The origin of man has been a subject of great facination to men of science and laymen alike. The most tangible evidences, in the form of petrified fossil remains, to demonstrate the human evolution as a continuous biological phenomenon are furnished by palaeoanthropology. A study of fossil bones enables the formulation of ideas regarding the morphology and in broad terms the behaviour of our ancestors. It is generally accepted that man evolved during the last two million years during the Pleistocene Epoch. Highly unstable Pleistocene environment played a major role and exerted an enormous amount of evolutionary pressure on early hominids by ruthlessly selecting out those forms which could not adapt to the
changing conditions. In essence, human evolution is essentially a record of the series of changes and modifications that various hominid types have undergone in response to the changes in their environment. Therefore, it is as crucial to study the past ecology and environment as the fossils themselves. Information regarding the past ecology can be extracted by a thorough study of the fossil biota of a particular time period. A better knowledge of the fauna with which earliest hominids and hominoids interacted and lived in harmony can add a new dimension to the understanding of human evolution. Thus, the recovery and careful examination of various death assemblages (thanatocoenoses) - of which primates formed a part - is indispensable to decipher the palaeoecological conditions which so greatly influenced the course of human evolution. In this regard, palaeoanthropology draws upon the conceptual and methodological framework of palaeontology. Besides, a study of extinct as well as extant fauna elucidates their role in human evolution and reveals man's true place in nature. In this context, the Śivalik Group

* At least five different spellings of the term Śivalik exist in literature, viz., Sivalik (Falconer and Cautley, 1835-1836; Medlicott, 1864), Sewalik (Cautley, 1836; Murchison, 1868), Siwalik (Cautley, 1836; Lydekker, 1876-1885; Pilgrim, 1908-1944), Shivalik (Sahni and Khan, 1961) and Śivalik (Chopra, 1974). Following Chopra (1974), in the present work this term has been spelled as Śivalik for it appears to be more appropriate and phonetically correct.
in the Sub-Himalayan belt of India and Pakistan is reckoned as an immensely significant area that has helped us in the better understanding of the earliest phase of hominid evolution by putting at our disposal a number of primate fossils, besides yielding a plethora of mammalian forms.

*Sivalik Group and its palaeoprimatology:

Since the last century, the rich mammalian, particularly primate, assemblages of Sivalik deposits have been in focus for a number of palaeontological and geological investigations. The Sivalik Group constitutes a thick sequence of continental molassic sediments occupying the foot-hills of Himalaya and associated ranges in north-western India and Pakistan. These deposits which stretch for about 2400 km between river Indus in the northwest and river Brahmputra in the east, derive their name from the Shiva temple near Hardwar (U.P.) where they were recognised for the first time in 1839 by Falconer. Since its exposure to the scientific world, the Sivalik Group, ranging in age from Miocene through Pleistocene, has acquired the reputation of richly fossiliferous rocks with abundant mammalian fossil wealth. Of particular interest are the primates, especially Ramapithecus which is widely believed to be the earliest recognisable hominid. Besides, a sequence of primates namely, Palaeotupaia, Indraloris, Indoadapis, Sivaladapis, Papio, Macacus, Procynocephalus,
Dryopithecus, Sivapithecus, Gigantopithecus, Sivasimia, etc. have been uncovered from these deposits. A careful examination of fossil mammals shall reveal that these deposits present a well documented primate record to elucidate parts of differentiation and radiation of hominoids and hominids.

The sediments referrable to Sivalik Group are over 7000 m thick and are predominantly fluvial in origin (Johnson & Vondra, 1972; Johnson, 1977). They originated as detritus shed by the rising Himalaya - a product of the collusion of the Indian subcontinent with Asia (Gansser, 1966; Powell & Conaghan, 1973). The deformation of Sivaliks is an attribute of further movement of the Indian Plate.

Sivaliks have acquired the shape of low hills - varying in height from 3000 to 4000 feet above sea level (Colbert, 1935) with a general northwest-southeast trend, almost parallel to the Himalayan ranges. The typical Sivalik rocks approach a badland topography with cuestas, dipslopes and steep scarps. These hills are arranged roughly in the form of series of parallel to subparallel ridges, occasionally with narrow valleys or dunes and with a number of rivers cutting across the general trend of the ranges by narrow gorges eventually to enter the plains to the south.
As regard the stratigraphy, the Sivalik Group is divisible into three subgroups namely, Lower, Middle and Upper. These subgroups are further divided into formations, majority of which derive their names from the type areas. Out of the various subdivisions proposed for Sivaliks by different workers, the biostratigraphic divisions proposed by Pilgrim (1913) are widely accepted, though with some modifications (Table-1).

There exists a considerable confusion regarding the stratigraphic nomenclature of Sivalik rocks and various names have been used for them, e.g., Series, Group and System for Sivaliks as a whole, and Formation and Zone for lesser units. The author has preferred to use the term 'Group' for the Sivalik sediments and the term 'Formation' for lesser units of Sivaliks, following the 'Code of stratigraphic nomenclature' (1961, pp.645-665) and 'Code of stratigraphic nomenclature of India' (1971, pp.1-28). Various subdivisions of Upper Sivalik Subgroup have been differently named in the past by various workers, most of them using regional names. Sahni and Khan (1964) designated the upper part of Tatrots as 'Guwanwala Zone'. Pandey (1973) referred Upper Pliocene beds of Sivaliks to 'Masol Member', equivalent to the lower part of Tatrot Formation of the type area. Similarly, Boulder Conglomerate Formation has been named as 'Tawi' and 'Rupar Member' by Lewis (1937) and Pandey (1973), respectively. On the whole
the scheme proposed by Pilgrim (1913) for the classification of Śivaliks is followed in the present work, except for some changes in the ages of various formations.

Lithologically speaking, the Śivalik sediments generally comprise clay, silt and sandy-silt units in various shades of orange, brown and grey alternating with greyish or brownish sandstones. These folded, faulted, cross-bedded and lenticulated units from lower to higher beds, though display a change in sedimentation from finer to coarser sediments, the change is gradual and intergraded (Colbert, 1935).

Śivalik Palaeoprimatology:

Though the palaeoprimatological record from the Śivalik Group dates back to the first half of the nineteenth century, it was only in the first half of this century that consequent to the concerted efforts of interested researchers, the profound variety of Śivalik fossil primates started unfolding. The first announcement of fossil primate from the Śivaliks was made by Falconer and Cautley in 1836 (De Terra and Patterson, 1939). However, Lydekker (1879) - who described a partial palate of a hominoid, viz., Palaeopithecus - was perhaps the first person to describe a fossil primate from the Śivaliks.

Among the other early students of primate palaeontology, mention may be made of Pilgrim (1910, 1915, 1927),
Brown (1924), Gregory and Helman (1926), Lewis (1933, 1936), Gregory et al. (1938) and Wadia and Aiyengar (1938), who reported various primate taxa, viz., *Sivapithecus*, *Dryopithecus*, *Falaesomia*, *Palaeopithecus*, *Hylpopithecus*, *Sugrivapithecus*, etc. from the Śivalik sediments. The most significant primate find of the early part of the twentieth century is *Ramapithecus* which is now widely accepted as the earliest known hominid. *Ramapithecus* was for the first time reported by Lewis (1934) who assigned his material to two species, namely, *R. brevirostris* and *R. hariensis*. Further contributions to the stratigraphic emplacement of this find were made by Lewis (1937) and Hooijer and Colbert (1951). The details of these earlier studies on primates can be found in a paper by Chopra (1974) who has presented an exhaustive review of these early works.

Subsequent to these earlier contributions, Prasad (1961, 1962, 1964, 1968, 1969) made significant additions to our knowledge of Śivalik anthropoids by describing additional primate remains from the Nagri beds at Haritalyangar, viz., *Sivapithecus aiyangari*, *S. indicus*, *S. sivalensis*, *Sugrivapithecus gregoryi*, *S. salmontanus* and *Dryopithecus punjabicus*. Prasad (1969) proposed a generic distinction for *Sivapithecus* on the basis of his detailed morphological, biometric and X-ray studies. Simons and Pilbeam (1965) proposed a preliminary revision of dryopithecines and included all known hominoids from Śivaliks into two genera,
Among the outstanding exponents of Sivalik palaeo-primatology, mention may be made of Chopra (1968-1980) who brought to the notice of palaeoanthropological world, a number of significant finds. His researches have greatly helped us to further our knowledge of the evolution of the order Primates which includes our own species. Chopra (1968a, 1968b) for the first time announced the discovery of Gigantopithecus bilaspurensis from the Dhokpathan Formation of Sivaliks exposed at Haritalyangar (H.P.). Details of this significant find were subsequently published by Simons and Chopra (1969a, 1969b). Additional information regarding the morphology and stratigraphic occurrence of this important discovery was provided by Chopra (1974). Chopra (1976, 1978) made further contributions to the fossil primate record from the Indian Sivaliks, besides discussing the problem of the evolution of early man in India. Chopra and Kaul (1975) placed on record new and better preserved Dryopithecus material from the Nagri beds at Haritalyangar (H.P.), India. A new hylobatid, Pliopithecus krishnii, was formally announced by Chopra (1975) and subsequently described in detail by Chopra and Kaul (1979). Recently, fossil tree-shrews were authentically introduced to the world, for the first time, by Chopra et al. (1979). More complete tree-shrew material was published by Chopra and Vasishat (1979) who assigned it to a new genus and species,
Palaeotupaia sivalicus. Chopra and Vasishat (1980a) recorded the first occurrence of a new Mio-Pliocene adapoid, viz., Indoadapis shivaii, from the Indian Sivaliks. New Indraloris material was very recently reported by Chopra and Vasishat (1980b) from the Sivalik sediments at Haritalyangar, India. In the same paper they also commented on the taxonomic status of the procyonid genus Sivanasua. In July 1980, at the International Primatological Congress held in Florence, Chopra announced the recovery of a new fossil orang, Sivasimia chinjiensis from the Chinji sediments at Ramnagar (J & K).

Tattersall (1968) communicated on the Sivalik lorisid, Indraloris, and discussed its affinities. Tattersall & Simons (1969) published notes on some rare and least known primates from Indian Sivaliks. A beautifully preserved mandible with a full complement of dentition of a new cercopithecoid, viz., Procynocephalus pinjorii was placed on record by Verma (1969) from the Pinjor Formation of Upper Sivaliks at Bunga (Haryana). The other primate fossils from Pinjor Formation of Upper Sivaliks include Papio subhimalayanus and Papio falconeri which were recovered from near Dehradun. Pandey and Sastry (1968) reported a new species of Sivapithecus lewisi from the Indian Sivaliks. Gupta (1969) recovered Sivapithecus indicus from the Lower Sivalik deposits of Kangra. This report has been recently reviewed by Kaul and Vasishat (1981) who have proposed a revision
in the taxonomic status of this find. Gupta (1977) communicated in a note M¹ and M² of a cercopithecoid resembling the African form Theropithecus (Simnopithecus) from the Boulder Conglomerate Formation of Upper Sivaliks near Mirzapur. Among the more recent workers of Sivalik Primates, Sahni and Dutta need mention. Sahni et al. (1974) recovered Dryopithecus (Sivapithecus) material from the Lower Sivaliks of Nathupani in Garhwal (U.P.). Dutta et al. (1976) placed on record additional Ramapithecus material and some pongid remains from the Lower Sivalik sediments exposed at Ramnagar (J & K).

Recently, Pilbeam et al. (1977) conducted extensive explorations of Neogene Sivalik deposits of Pakistan and collected a number of Primates. During this study, which is of immense palaeoanthropological interest, they reported about 86 cranial as well as post-cranial specimens of Sivalik hominids and hominoids including Gigantopithecus, Ramapithecus and Sivapithecus. On the basis of these finds they suggested some changes in hominid classification.

Other persons who have contributed to Sivalik palaeoprimatology, mention may be made of Koeningswald (1949), Pilbeam (1966, 1968), Simons & Ettel (1970), Simons and Pilbeam (1973), Pickford (1977a, 1977b), Gupta et al. (1979) and Gingerich and Sahni (1979).
Though the Sivalik fossil assemblages came to the knowledge of the scientific world in the first half of nineteenth century, nevertheless the ancient people were aware of vertebrate fossils and they nursed superstitious ideas about them. The primal record of Sivalik fossils is to be found in the 'Compendium of History of Moghul and Pathan Emperors' written in 1360 by Ferishta and cited in his 'Palaeontological Memoirs' by Falconer in 1868.

Webb (vide Colbert, 1935), a geographer and explorer, was perhaps the first person who made a serious attempt to obtain fossils from local inhabitants, while surveying the heights of Himalayan Mountains. These fossils were subsequently referred to as bones of horses and deer by Buckland in 'Reliquiae Diluviane', published in 1823. In a letter to the editor of 'Journal of Asiatic Society of Bengal', Falconer (1832) announced the discovery of vertebrate fossils from the Sivalik Hills, stretching between river Ganges and Jamuna, recovered by Cautley. No further details of these fossils were furnished by him.

Baker and Durrand recovered numerous vertebrate remains from the Sivalik Hills ranging between Markanda pass near Nahan and Pinjor.
of their collection comprised of the specimens purchased from villagers. These fossils were published in 1834-1836, without any generic or specific identifications.

Falconer and Cautley conducted extensive surveys of Sivaliks and collected a plethora of fossils from numerous localities - a number of them from Upper Sivaliks. They published a series of papers (1836a, 1836b, 1836c, 1836d, 1836e, 1837) on various species of Hexaprotodon, Felis, Ursus, Camelus, etc. In years to come, Falconer and Cautley (1845-1849) produced a monumental work on Sivalik vertebrates, in the form of 'Fauna Antiqua Sivalensis'. The illustrations and photographs of a variety of mammalian groups, namely, proboscideans, equids, camelids, rhinocerotids, suids, etc., were adequately supported by explanations in this monograph. Thenceforth, Falconer carried on contributing to the Sivalik mammals through the 'Palaeontological Memoirs'. In 1868 Falconer touched upon the problem of Sivalik stratigraphy and assigned a Miocene age to his Sivalik beds - Upper Sivaliks of today. However, first preliminary account of Sivalik geology was put forth by Medlicott (1864), who divided Sivalik deposits into Lower, Middle and Upper divisions, on the basis of lithology.

Another pioneer of Sivalik fossils was Lydekker (1876-1898) who supplemented Falconer's work and brought out excellent monographs on Tertiary and Post-Tertiary vertebrates, in Palaeontologia Indica. A number of his
papers also appeared in the Records of Geological Survey of India. His papers (1877, 1878, 1879, 1883) and the catalogues of fossil mammals in the British Museum (1885, 1886) exhibit considerable refinement and scientific advancement over the earlier works. He proposed a two-fold division for the Šivalik rocks, viz., Lower and Upper divisions, and assigned a Pliocene age to them.

Contributions made by Pilgrim (1905-1944) to the study of Šivalik vertebrates have their own palaeontological and geological significance. He extensively explored all the subdivisions of Šivaliks and his comprehensive monographs on fossil Giraffidae (1911), Suidae (1926), Carnivora (1932) and Bovidae (1939) are self-speaking evidences of the monumental work done by this devoted student of Šivalik palaeontology. In 1913 Pilgrim established a complete sequence of Šivalik rocks and proposed a three-fold division for these fresh-water deposits. On the basis of fauna he divided Šivaliks into Lower, Middle and Upper divisions. He showed the occurrence of three distinct and successive faunas, two of which were already known to Falconer and Lydekker. Subsequently, Pilgrim (1934) proposed further subdivisions of Šivaliks, which even today are followed by many students of Šivalik geology and palaeontology without much alteration. His
revised classification of Sivalik deposits can be summarized as under:

<table>
<thead>
<tr>
<th>Indian Stage</th>
<th>Approximate European equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boulder Conglomerate</td>
<td>Late Pleistocene</td>
</tr>
<tr>
<td>Upper Sivalik</td>
<td></td>
</tr>
<tr>
<td>Pinjor</td>
<td>Upper Pliocene (Val'd'Arno)</td>
</tr>
<tr>
<td>Tatrot</td>
<td>Middle Pliocene (Montpellier)</td>
</tr>
<tr>
<td>Middle Sivalik Group</td>
<td></td>
</tr>
<tr>
<td>Dhokpathan</td>
<td>Pontian (Pikermi)</td>
</tr>
<tr>
<td>Nagri</td>
<td>Sarmatian (Sebastopol)</td>
</tr>
<tr>
<td>Lower Sivalik</td>
<td></td>
</tr>
<tr>
<td>Chinji</td>
<td>Tortonian (Grive St. Alban)</td>
</tr>
<tr>
<td>Kamlial</td>
<td>Helvetian (Sansan)</td>
</tr>
</tbody>
</table>

The Boulder Conglomerate stage was further subdivided into Lower Boulder Conglomerate and Upper Boulder Conglomerate by Pilgrim (1944).

In the year 1922, Brown made a fine collection of fossils from Sivaliks for the American Museum of Natural History. During his field-work he visited many Upper Sivalik localities in the area under study. He described a new cervid, *Cervus punjabiensis*, from 2 km west of Chandigarh – Chandimandir of today. Wadia (1925) published a report on the occurrence of *Stegodon ganesa* from the Sivaliks of Jammu (J & K).
Matthew's critical observations on Sivalik mammals is one of the most significant contributions to Sivalik palaeontology and stratigraphy. While analysing these collections Matthew (1929) laid special emphasis on horses and some other definitely invading types, for the purpose of correlation.

Osborn (1929, 1936, 1942) made several valuable contributions to Sivalik proboscideans. He reported a new elephantid, viz. *Platelephas platycephalus* from Upper Sivaliks exposed at Siswan, which forms a part of the terrain investigated by the author. He critically examined the Sivalik proboscideans in the American Museum collection and embodied the results in his monograph, 'Proboscidea', which is a brilliant piece of work on proboscideans. Mook (1933, 1935) studied the Sivalik reptiles housed in the American Museum of Natural History.

Colbert (1933-1942) conducted a detailed study of the Sivalik mammals in the American Museum of Natural History and brought out a series of papers and an exhaustive memoir. His memoir, published in 1935, contained details of a number of fossil forms, many of which were collected from Upper Sivalik localities falling within the present area. Some observations on the Upper Sivalik Formation and Late Pleistocene deposits of India were also made by De Terra and Chardin (1936).

Prasad (1961-1975) has been constantly engaged in the systematic study of Śivalik mammals, and has made miscellaneous contributions to the geology and fossils from all the three formations of Śivaliks. In 1970 he published a detailed memoir on the Upper, Middle and Lower Śivalik mammals from Haritalyangar (H.P.), which included some rare and new finds.

After Colbert (1935), the Upper Śivalik deposits in and around the area under investigation were explored by Sahni and Khan (1961a, 1961b, 1961c, 1961d, 1961e) who
published a series of papers on fossil vertebrates. Subsequently, they (1964) discussed at length the stratigraphy, palaeontology and structure of Upper Šivalik deposits of this tract and, for the first time, established the occurrence of Tatrots in this tract. Sahni and Khan (1968a) shed further light on the boundary between Tatrots and Pinjors of this region. In the same year they (1968b) also reported a new bovid genus, Probison dehmi, from Upper Šivaliks. Sahni and Mathur (1964) presented a detailed review of Upper Šivaliks and commented on the environment of deposition and facies changes in these sediments.

Khan (1962) made extensive collection from the Upper Šivalik rocks of this region and reported a number of mammalian forms, besides touching upon the stratigraphy. Khan (1968, 1970) also published papers on the stratigraphy of Pleistocene deposits of India. In 1971 he recorded a new rhinocerotid genus, viz. Punjabitherium from the Upper Šivaliks near Chandigarh. A paper describing a skull of Crocuta from Upper Šivaliks was published by him in 1972, which also incorporated a comparative study of various species of Crocuta.

Collections from the Upper Šivaliks of Pakistan were made by Bakr (1966) who placed on record three new elephantids. Later on, Bakr (1969) recovered a new feline genus, Sivapardus punjabiensis, from Upper Šivaliks at Sar Dhok, Pakistan.
A new taxon of fossil turtle recovered from the Pinjor Formation of this region was placed on record by Tewari and Badam (1969). Tewari and Sharma (1972) contributed to the fossil charophytes from Upper Śivaliks of the area under study. A small note on the biostratigraphy of the Upper Śivaliks in the east of Chandigarh was published by Tewari and Nanda (1969). Kharakwal (1969) published a petrological analysis of Upper Śivalik deposits near Chandigarh. Chaudhry (1970) inferred from a detailed petrological analysis of Śivalik sediments, that Middle and Upper Śivaliks were derived from metamorphic, plutonic, sedimentary, and trap rocks of adjoining Himalaya and were deposited in a shallow fast sinking basin.

Among the more recent contributors to the palaeontology and geology of Upper Śivaliks, mention may be made of Gupta, Bhatia, Mathur, Badam, Nanda, West, Johnson, Keller, Sharma, Gaur, Sarwar, Vasishat and Yokoyama. Gupta (1970-1977) contributed to varied aspects of Upper Śivalik palaeontology and geology. He (1970a, 1970b) published papers on the fossil mammals from Middle and Upper Śivaliks of Kangra district. In his book on Cenozoic stratigraphy of India, Gupta (1976) dealt with the problem of Śivalik stratigraphy. Gupta and Badam (1971) discovered more mammals, including Ursus arctus and a Sorex from the Upper Śivaliks of Kangra (H.P.).

Sivalik mollusks, ostracodes and charophytes.


boundary in Sivaliks and placed a tentative boundary in the Upper part of Pinjor Formation.

Contributions to the magnetostratigraphy of Upper Sivaliks were made by Keller et al. (1977) who studied the magnetic polarity of a part of the Sivalik deposits in Pakistan. Johnson et al. (1979) carried out magnetic reversal stratigraphy of the Upper Sivalik deposits in the east Salt Range and southwestern Kashmir (Pakistan), and examined the rate of fluvial sedimentation. Opdyke et al. (1979) conducted the magnetic polarity stratigraphic investigations of Upper Sivaliks of northern Pakistan and assigned it an age of 5.5 million years B.P. to 0.6 million years B.P. They further suggested that the change from Pinjor to Tatrot occurs at about 2.47 million years B.P. The only available record of magnetic polarity study of Upper Sivaliks of India is of Yokoyama (1979), who made a preliminary investigation of a part of Upper Sivaliks in the north of Chandigarh.

Gaur et al. (1978a) conducted a study of the palaeoenvironments of Sivalik Formations in a part of Bilaspur District of Himachal Pradesh and suggested that the lower Upper Sivaliks in this region experienced relatively wet conditions and the rest of the Upper Sivaliks experienced colder conditions and were deposited by high energy environment. Gaur et al. (1978b) published a note on a new charophyte locality in the north of Chandigarh and
reported some charophytes which were earlier unrecorded in the Pinjor Formation. The vertebrate fossil communities of Upper Sivaliks of Indian subcontinent were described by Gaur et al. (1978c). In the same paper they also discussed the ecology and environment of Upper Sivalik deposits. Very recently, Gaur et al. (1980) have, for the first time, recorded the genus *Dorcatherium* from Pinjor Formation, near Moinnand (Haryana).

Gupta et al. (1978) placed on record a new rodent species, *Rhizomyoides saketiensis*, on the basis of a mandibular fragment recovered from Tatrot Formation near Saketi, Sirmur District (H.P.). In recent years, Suneja and Singh (1979–80) have worked on varied aspects of Plio-Pleistocene sediments at Jammu. On the basis of fauna, they equated the Nagrota-Khanpur deposits of Jammu, with the Tatrot and Pinjor Formations of Upper Sivaliks. Significant contribution to the fossil mammals from the Sivaliks at Haritalyangar (H.P.) have been recently made by Vasishat (1979), who reported many mammals from Upper Sivaliks, particularly the rodents. Vasishat et al. (1980) recorded, the occurrence of the genus *Gazella* for the first time from the Pinjor deposits in the east of Chandigarh. Verma and Khanna (1979) recorded the occurrence of *Archidiskodon* from the Upper Sivalik deposits 1 km northeast of Sansarpur, Hoshiarpur district, Punjab. West (1979) presented a paper on the Plio-Pleistocene vertebrates and
biostratigraphy of Bhittani and Marwat ranges in northern Pakistan. He correlated the assemblages of these ranges with Pinjor fauna and assigned it a date of 1.8 million years.

Besides palaeontology, a few archaeological studies have also been conducted by some workers, namely, Verma et al. (1969) and Sharma (1977), on the Upper Sivalik deposits of this area.

A careful examination of the earlier studies mentioned in the preceding pages reveals that despite these works on the Upper Sivaliks of the present area, there still exist many lacunae unfilled. Most of the studies have been restricted to the systematic description of the fossils, and no concrete attempt have been made to reconstruct the palaeoecology and palaeoenvironments of the Upper Sivalik deposits of this area. The picture of the Upper Sivalik fossil assemblages, of the tract under study, organised around a community framework is lacking. The importance of microfossils, plant remains, invertebrate fossils and sedimentary structures, to infer the past ecology and environments have not been properly realised. Though a variety of mammalian fauna has been reported from Upper Sivaliks in the northeast of Chandigarh, primates, rodents, small carnivores and suids are poorly represented.

Present investigation was undertaken with a view
to recovering the fossil remains of primates and some poorly recorded fossil groups such as small carnivores, suids and rodents from the Plio-Pleistocene Upper Śivalik deposits of the terrain under study. It was also resolved to reconstruct the palaeoecology and palaeoenvironments of the Upper Śivalik sediments under investigation. In spite of the extensive exploration of the rock exposures of these deposits, unfortunately no fossil primate could be recovered. A new species of a suid namely, Sus pinjorensis is reported from Pinjor Formation. Besides, a rare suid Potamochoerus theobaldi has also been recovered, for the first time, from the Upper Śivaliks of this area. A new species of a small carnivore, viz. Vishnuictis choprii and a new variety of Equus, i.e., Equus sivalensis minor are reported from Pinjor Formation of this area. Among the rodents, only an isolated lower third molar of a small murid was collected. On the basis of fauna - both mega and micro - and flora, recovered by the author, an attempt has been made to reconstruct the palaeoecological set-up of Upper Śivalik deposits exposed in the northeast of Chandigarh.