

[*From the Proceedings of the Asiatic Society of Bengal, for January, 1870.*]

NOTE ON THE KJÖRKENMÖDDINGS OF THE ANDAMAN ISLANDS,—
by Dr. F. Stoliczka.

On my recent visit to Port Blair, I was informed by Mr. Fr. Ad. de Röpstorff, Extra Asst. Supdt. at Chatham island, of the existence of several kitchen-middens in the neighbourhood of the settlement. The same officer also shewed me a great number of shells and fragments of pottery which he lately obtained from one of the shell mounds. Being personally acquainted with the numerous Kjökkenmöddings on the Danish coast, Mr. Röpstorff readily recognised the identity of both these formations; and the importance of their being subjected to a careful search. I was naturally very desirous to examine some of these mounds, but as my stay was to be only a very short one, Mr. Röpstorff suggested that I should visit a place near Chatham island, the so called Hope Town, and very kindly offered to accompany me to the exact locality which he had previously seen.

Hope Town is a small convict settlement in a shallow bay, north of Chatham island. The inner edge of the Bay is occupied by a mangrove swamp, and in the eastern corner of it, we met with the first shell mound, just behind the mangrove swamp, and at the bank of a small fresh water stream. This Kjökkenmödding, evidently of a somewhat round circumference, was about 60 feet in diameter, and some 12 feet in height, but nearly half of it had been used in making a road which leads close by. This was, in some respects, welcome, because it saved a good deal of digging.

The mound in itself does not present anything extraordinary, it is a simple accumulation of shells intermixed with a great number of bones of the Andaman pig, *Sus Andamanensis*, fragments of rude pottery, and numerous stones varying in shape and size, —such as a Kjökkenmödding near Copenhagen or any other place in Denmark can be observed. A few large trees growing on it indicate that it could not have been much disturbed, at least during the last two or three decenniums.

1. We examined the mound all round and dug up a portion of it, in order to see what kind of shells prevail, and which of them principally served as food to the inhabitants. The most common species appeared to be *Trochus Niloticus*, *Pteroceras chiragra* and *lambis*, *Turbo* (*Senectus*) *articulatus*, *Murex adustus* and *anguliferus*, *Nerita albicilla*, *polita*, *Georgina* and *exuvia* &c. The *Nerite* especially were very numerous; and the last two are mostly found on the branches and roots of the mangrove vegetation close by. Among the first named Gastropods, the specimens of *Trochus*, *Pteroceras*, *Murex* &c., &c., chiefly were of very large size, not many were half grown. Pelecypoda (or Bivalves), as *Spondylus aurantius*, *Arca scapha* and *fasciata*, *Tridacna gigas* and *squamosa*, *Capsa deflorata*, *Paphia glabrata*, &c., &c., are not uncommon, but still far less numerous than the Gastropods. Of *Ostrea crista galli*, L. a. m., a species of quite an ancient type and very closely allied to the jurassic *O. Marshii*, Sow., or *flabelloides*, L. a. m., I have also obtained several valves, and this is one of the very few species which now appears to be rare in the harbour, for I have observed scarcely any live specimen during my stay, while

at the Nicobars I found it to be common. *Spondylus aurantius* is also a rare shell now. All the other species of Molluscs above enumerated, and many others not particularly alluded to, occur in large quantities on the neighbouring coral-reefs, from which they evidently were obtained, with the exception of the *Neritæ* which, as already noted, are generally found on the mangrove vegetation. Of land-shells *Cyclophorus foliaceus* and *Spiraxis Haughtoni*, both extremely common in the jungles all round, were also numerous, and evidently formed an article of food.

Looking at the shell fauna, there is no difference to be observed in the size of the specimens found in the Kjökkenmödding and those at present occurring near the islands. The *Trochi* generally have the top part of the shell broken off, the specimens of *Pteroceras* and *Murex* are broken on the back of the last whorl, where the shell is thin, and other species of Gastropods have been treated in a similar, or slightly different, manner, in order to facilitate the extraction of the fleshy portion of the animal. The valves of Pelecypoda are simply opened, but as already mentioned, they are not equally numerous. Thick shells like *Tridacnæ*, and others, like *Ostrea* and *Spondyli* which live more or less firmly attached to rocks or corals, are not so easily obtained as Gastropods; and if obtained, the valves are sometimes opened only with the greatest difficulty during the life of the animal. Species of *Pinna* for instance, which are easily procured and possess a thin shell, but contain comparatively very little fleshy substance, are hardly represented in the mound! This shews that the Andamanese made, if possible, a judicious selection from the scanty materials available for their table.

2. The large number of bones of the Andaman pig is remarkable. A complete skull obtained from the mound did not exhibit any difference from the living animal, it belonged though to a very small but not a young specimen. Several of the thicker bones which contained marrow, were split and broken up in the usual manner, as has been the practice with ancient people in Europe and elsewhere. I have not observed any other kind of bones of fishes or birds, but they may occur.

3. The fragments of pottery are of a rather thin kind, on the surface roughly grooved or striated, and indicate by their form that

they were derived from cup-shaped vessels of a very simple construction. The scratches or grooves on both the inner and outer surfaces are very dense, crossing each other irregularly; they are mostly straight, and have apparently been made by an obtuse point of a shell or a stone. The material is common clay, mixed with a little sand* and very imperfectly moulded, as seen by the irregular fracture. No potter's wheel has evidently been applied, and the vessels were not burnt but only baked in the sun. On a few of the fragments, which appear to be from near the upper peripheral edge of the pot, a few curved lines are to be observed, but on the whole they are very rudely and irregularly executed.

Regarding the form of the pottery itself, the question was very soon settled. For, on visiting on the subsequent morning, the North Bay with the object of examining a recently made settlement, or rather a small camp, of the Andamanese, Mr. R ö e p s t o r f f found in the jungle, not far from the deserted camp, a large pot which must have been in use only a short time previous. This pot is of a simple cup-form,† rounded below, about 10 inches high, and with a diameter of about 11 inches at the outer margin. The thickness of the material varies from $\frac{1}{4}$ to $\frac{1}{3}$ of an inch; the inner and outer surface is marked with irregular grooves, the perpendicular ones being much more distant than the horizontal. Fragments of this pot are not distinguishable from those found in the shell mounds. The only fire-place near the camp was indicated by a few scattered stones, rather inconvenient for such a kind of cooking pot!

It is not even certain, whether this rude kind of pottery is generally used by the Andamanese, for I have been informed that in some parts of the island their only cooking utensils are large specimens of *Turbo marmoratus*, valves of *Tridacna gigas* and others..

In submitting the rude fragments of pottery, previously mentioned, to an archæologist in Europe, no one would long hesitate in referring them to the stone age, at least to the neolithic period; for, indeed, they are almost identical with the fragments of pottery found in the Danish kitchen middens, though here fragments of pottery are comparatively very rare.

* Derived from the decomposition of tertiary sandstone.

† That no improvement in this very simple kind of pottery has taken place is remarkable, for the Nicobarese are well known to possess good pottery, carrying on a regular trade with it between their different islands.

It is one of the great characteristics of the stone age pottery, that only straight marks, made with the nail, or a piece of shell or stone, are seen on them; irregular curved lines sometimes occur in the neolithic period, or the later stone age; circles and regular curved lines are added to those simplest ornaments during the bronze age, and figures of animals, &c. &c., appear in addition to the former in the iron age.—Thus we may say that we have on the Andamanese potteries patterns represented, which were used in Europe during the neolithic period.

4. The fourth kind of articles found in the Andamanese shell-mounds, and worthy of notice, are those of stone implements. I have already mentioned that there is a large number of stones intermixed with the other things forming the mound. Examining the broken shells and split bones, it became evident that the fractures were made with some kind of a rough instrument, for many of the shells appeared to have been hammered at for some time till they were successfully broken. There was no difficulty in finding among the stones a large number which were evidently employed as a kind of a hammer in that operation, others were much like rude hatchets, knives, &c., &c., used in being fastened to a piece of wood, or such like. It certainly appeared remarkable that nearly every second stone which was picked up, indicated that it had been used some way or other; for the fractures could not possibly be attributed to a mere weathering off the surface. Mr. R ö e p s t o r f f extracted among others on the spot a beautiful polished celt of the usual trapezoid form, about $2\frac{1}{2}$ inches long, laterally compressed, narrower on one end, broader on the other, and with a sharp edge ground down from either side. This specimen was indistinguishable from any of the European, or Indian celts of the so-called neolithic period.

Since this discovery, the same gentleman forwarded to me another specimen, about 3 inches long, nearly of equal breadth on both ends, and with a sharpened edge on one of them. Beside this a small, but typical, arrow head was found. All these materials are of a tertiary sandstone, which is almost the only rock to be met with in this neighbourhood of the harbour. These celts, &c., clearly indicate that they were used by the Andamanese as weapons of the chase, or as implements in opening the shells, &c., &c. They could, however,

hardly be regarded as sufficient for killing the Andamanese pig, as already pointed out by Mr. Theobald, a few years ago.* For this purpose, more effective implements of iron, such as the inhabitants use at the present date, must, no doubt, have been employed for some little time past.

To the east of Port Mouat, there is an extensive Gabbro formation, and in this nests of hornstone occur. It is probable that from this, and similar other localities, the chert chips were obtained, which Mr. Theobald (*l. cit.*) quotes as having been found by Col. Haughton in an Andamanese camp. It is only natural that the aborigines did their best to procure a better material than the sandstone which is the prevalent formation. South of Port Mouat, a small patch of a metamorphic rock occurs, and as some beds of it are rather quartzose and hard, they very likely did not remain unnoticed by the aborigines. Further examinations of the Kjökkenmöddings will, no doubt, prove successful in this respect.

Mr. Röepstorff informs me, that especially at Port Mouat there are in several places very extensive shell mounds, all in similar situations to the one I have described. In fact they are scarcely anywhere wanting near the sea shore, where there is a suitable locality, with a supply of fresh water and with a coral-reef not far distant, from which shells can be obtained. Some of the mounds are still in process of increasing; for the Andamanese always return after a certain time to the same locality, and generally stop as long as the supply of shells and jungle fruits lasts; they do not appear to be very proficient in fishing, at least as far as one can judge from the population near Port Blair.

Viewing the occurrence of these Kjökkenmöddings in the light of what we already know of the very low state of civilization of the Andamanese, there could scarcely be anything very remarkable about them. They shew us that an aboriginal population† was, or still is, very largely subsiding on Molluscs which are either collected on the coral-reefs or in the jungles; that the people hunt down the pig—the only large mammal probably to be found,—extract the marrow from the bones, employ stone axes and other stone

* Vide Journal, Asiatic Society, 1862, p. 326.

† Short people with oval skulls, roundish face, not peculiarly prominent eyebrows, with hairs growing in small tufts, &c., &c.

implements as their daily utensils, that they make a kind of coarse pottery, not burning but only drying the same in the sun, that they do not appear to be acquainted with any sort of grain or other kind of cereals, &c.—However, when we come to compare these few simple facts with what we know of the Kjökkenmöddings of other parts of the world, they become of an intense interest. We could almost verbally repeat the same as the results of the many successful examinations of the Danish and other shell-mounds by Steenstrup, Worsaae, Sir J. Lubbock, Sir Ch. Lyell and many others. In Europe, especially in Denmark, some parts of Scotland, &c., we look upon the kitchen-middens as the pre-historic remains of an ancient population which has entirely disappeared; here we have exactly similar mounds formed by a population which still vigorously strives for its existence with the foreigner. It is only natural to expect, therefore, that a study of the latter will supply the most reliable data in comparing the two thoroughly allied formations, and that thus the archæologist may greatly profit from the researches of the historian.

I cannot, however, venture to enter now upon this large field of inquiry with the very scanty materials at my disposal, but I may be allowed to indicate, at least, a few points which will show how valuable a thorough examination of the Kjökkenmöddings on the Andaman, and other similarly situated islands, can become for the study of European Archæology, and at the same time increase our knowledge of the physical changes of the islands themselves.

The kitchen-middens are always situated close to the sea shore. The occurrence of them far inland would indicate that some terrestrial changes in the islands have taken place. Mr. Kurz in his report on the Andamans, (selection of the Bengal Government 1868), drew the conclusion from the occurrence of some purely terrestrial trees in what is now a mangrove swamp, that the islands are in a sinking state. But from the account which he gives of several conglomerate banks on the western side of the islands, it is clear that the beach must have been locally raised. On some of the Nicobar islands, considerable upheavements along the sea-shore have taken place, as indicated by comparatively recently-formed strata high above the present sea level; and it is very probable that on the

Andamans oscillatory movements of the ground have taken place similar to those known from other parts of the Bengal Bay. It would be interesting to see whether and how far these changes affected the population, the history of which we have very probably to decipher from the few remains, (such as the Kjökkenmöddings) which we find on the islands, for there is, I am afraid, no chance of the discovery of many other kinds of Andamanese libraries!

Of no smaller interest will the examination of the mounds be with regard to the fauna of the islands at large. Perhaps the occurrence of other larger mammalia, than the pig, may be indicated. I have already stated that *Ostrea crista galli* and *Pectunculus aurantius* appear to be at present rare in localities, where those species seem to have been common at no distant time; the demand for the Andamanese table evidently seems to have interfered with their natural increase. A complete series of the shells occurring in the mounds,—some of which are, no doubt, of great antiquity,—may shew similar changes, as those known from the Baltic coast, where *Littorina littorea* and *Cardium edule* never reach now the size which they did, when, thousands of years ago, the ancient population lived upon them.

Again, much has been written for and against the cannibalism of the Andamanese, but direct evidence is in every case wanting. They are reported as the wildest cannibals by some of the oldest Arab merchants,* who had notice of them, while the Nicobarese (on the Lendjebâalous islands) are represented as a quiet people, who approach the foreigners' ship in small canoes, and are anxious to exchange ambergris and cocoa-nuts for iron.—If we find in the Kjökkenmöddings human bones intermixed with those of other animals, and treated in a similar manner as these, we may be permitted to say that the Andamanese were, at one time, or are up to this date, cannibals. In the Danish Kjökkenmöddings researches in this respect were unsuccessful. In fact the occurrence of human bones is there of an extreme rarity, only a few skulls which are believed to be contemporaneous with the shell-mounds having as yet been discovered.

* Géographie d'Aboulféda, &c. &c., par M. Re naud, I, p. CDXIV. The author states that the Andamanese have no canoes; for if they had any, they would eat up all the people inhabiting the neighbouring islands.

The customs now prevalent among the Andamanese islanders, may help us to explain this scarcity of human bones during the stone-age in Europe. The reverence paid by the Andamanese to the dead seems to be the only expression which approaches to anything like a religious view. In case of death the body is buried, and after a year or so dug out, and the bones are divided among the nearest relations. If a married man, the widow, or one of the children, receives the skull, which is painted over with red earth and carried about in a net work, tied with strings round the waist or neck. For this reason it is very difficult to procure a perfect skeleton, and we can hardly expect to obtain human remains of their own tribe in the mounds.—It is just possible that similar customs may have prevailed during ancient times in Europe, for here the occurrence of human bones with implements and other remains is known to be always of extreme rarity.

The Nicobarese, (or Najbárs, as they are called by the most ancient Muhammadan travellers, *vide* Jour. Asiat. Soc., Bengal, V, p. 467), treat their dead in a very similar manner, but whether they brought this custom with them when they spread over the Nicobar islands, or whether they accepted it from the aboriginal islanders which they seem to have nearly exterminated, it is difficult to prove. I don't think there can be a doubt that the present Nicobarese are descendants of the Malays, and they certainly must have immigrated before the Muhammadan creed was spread over the neighbouring islands, which took place in Sumatra as well as in Malacca, &c. &c., before the close of the thirteenth century.* But a comparison of the present very deficient social state of the Nicobarese with the advanced political and social arrangements of the Malays on Sumatra, &c. &c., during the 11th and 12th centuries indicates that their separation is very probably of a much older date. The study of the languages† of those different insular tribes is probably best adapted in approximately deciphering the data, and I only allude to them here because the immigration of the Malay Nicobarese appears to have had a great influence upon the Andamanese themselves.

* *Vide* Reïnaud's Géograph. d'Aboulféda, I, p. CDXXII; Marsden's History of Sumatra, p. 344, &c., &c.

† Mr. Blochmann informs me that he has not been able to find any distinct admixture of Arabic words in the Nicobarese language, judging of course from the very imperfect vocabularies we possess of it.

We know from a few scanty historical records that the Nicobarese were eager to exchange iron for their own produce, and as their wars with the Andamanese are also alluded to, we are perhaps entitled to suppose, that the latter obtained their scanty iron implements from the former. The introduction of iron on the Andamans seems, therefore, to be comparatively recent, and iron implements are even now scarce among the aborigines. It is in fact not known whether the use of iron has become general among all the people who inhabit the different islands of the Andaman group. The parts to the west of Port Mouat are said to be populated by particularly wild tribes, which live almost entirely secluded from the rest, and do not allow even the eastern Andamanese to approach their homes. The examination of the Kjökkenmöddings may also contribute something towards the knowledge of the time at which the Andamanese became acquainted with iron, though it is, as already alluded to, not very probable that many remains of this metal will be found. However, it may be shewn whether the people ever attempted to supply its wants by the extraction of any other metal, or whether the introduction of iron has followed immediately the stone-age.

In conclusion, I may remark that the Andamanese seem to be only a portion of a large aboriginal population, which apparently inhabited the entire tract of the islands from the most northern point of the Andamans through the Nicobars down to Sumatra and other neighbouring islands.

The accounts which we have (from Marsden's History of Sumatra, and other works on the subject) of the true aborigines of the southern islands appear to be in many respects also applicable to the Andamanese. The officers of the Danish Corvette "Galatea" in 1847, tell us, that an aboriginal tribe inhabits the interior of Great Nicobar. The people of this tribe are spoken of by the Malay Nicobarese as perfect savages of a peculiar dark complexion. It is by no means improbable that these are the brethren of the Andamanese, for we do not need to be surprised in not finding traces of the same aborigines on the Northern Nicobar islands. These are mostly very narrow and their interior to a very large extent deprived of forest. Whether forest trees in these parts did exist, or not, seems

problematic. I should be very much inclined to believe that these northern islands were formerly, in spite of the poor soil, covered with a forest jungle, in a similar manner, as parts of them are up to the present date. When staying for a few hours* in the Nangcouri haven, I visited a place of Camorta on the western side of the harbour, where near a small deserted building, a piece of ground about a mile long had evidently been years ago cleared, the forest having been burnt down. Scarcely a single sound tree was growing on the place, but the whole was thickly covered with the same kind of rough Cyperaceous grass, which almost solely occupies the interior portions of the northern island. Looking at this state of things the idea, that the jungles on the northern islands may have been burnt down at a time, when the immigration of the Malay Nicobarese took place, in order to exterminate the aboriginal population, does not appear to be without foundation.

The President said the thanks of the meeting were due to Dr. Stoliczka for his paper. It was a very fitting pendant to the paper of Sir A. P h a y r e which had just been read. That brought under notice a phase of an antique civilization, which had long passed away ; this dwelt upon the features of a primitive civilization, which was still in existence ; for kitchen middens, undistinguishable in character from those of Europe, also appeared to be still growing under Nicobarese habits of life. There could be no inference of identity of race here. It was to be hoped that the acquirements and mode of living of the Nicobarese and Andamanese would be well studied and recorded before their present primitive condition should be altered under English influences.

* In October, 1869, Steamer Scotia, Capt. J. Avern.