

Human Remains from the Grøfte Dolmen

by PIA BENNIKE

The skeletons from the dolmen at Grøfte in Sorø county, excavated in 1946, derive from the Early Neolithic period (c. 3400 BC) (1). Until excavation occurred, the dolmen had apparently remained undisturbed since it was sealed 5,000 years ago. The two burial chambers also contained artefacts clearly dating them to the Early Neolithic period. Chamber A contained, besides two lugged flasks and half a halberd, 23 identifiable human bones and bone fragments. Chamber B contained, besides a lugged flask, likewise a score of human bones and fragments.

Chamber A

The 23 bones and fragments from chamber A proved to derive from *at least two individuals*.

From both shape and size it was evident that the bones were from two men. One of these was in fact so heavily built that his bones could be isolated on appearance alone. The bones of the two skeletons are marked on the diagrams, fig. 1.

In addition to the 23 identifiable bones and fragments, 3 teeth were preserved, one of them in a piece of the lower jaw. This tooth, -7, was somewhat worn on the occlusal surface. It clearly belonged to an adult person, but the material unfortunately does not allow a more exact age determination. The other teeth consisted of two loose crowns of lower molars, almost without wear. They must have belonged to another person, hardly more than 20 years old. It cannot be decided to which of the two men the teeth belonged, and they could indeed theoretically have belonged to a third and fourth person. It is clear, however, that they come from two different persons, a young person aged between 15 and 25 years and an adult.

Chamber B

20 identifiable bones and fragments were found in chamber B. All were slender, and there was no dupli-

cates of either bones or teeth. This would suggest that only one person was represented, a woman. However, the difference in tooth attrition in the upper and lower jaws was so large, and largest frontally, that it became doubtful whether the two jaws were from a single individual. Both jaws were so slender that they must come from women, and a pronounced loss of teeth in the lower jaw and marked tooth attrition in the upper jaw suggest that they were from a middle-aged woman aged between 35 and 55 years. Several specialists have offered opposing opinions as to whether the two jaws were from a single individual. However, after considering the circumstances of the find, the fact that both jaws were from middle-aged females and that the type of attrition showed a mechanical use of the teeth, this author has concluded that both jaws belonged to a single individual.

Several skeletal joints were marked by osteoarthritis and the vertebrae by spondylosis. These bones must also derive from a middle-aged or older individual. All bones from dolmen chamber B have therefore been marked on the same diagram, fig. 1, as belonging to one person.

In the above, it is apparent that at least 3 adult individuals were interred in the two chambers: 2 men in chamber A and 1 woman in chamber B, but both on account of the degree of fragmentation and the position of the bones, it is not possible to decide whether more persons were interred in the barrow.

Stature

Only very few bones were fit for the usual anthropological measurements. Those measurements that could be taken must be treated with a certain degree of caution on account of the poor state of preservation. They will be included in a future survey of all Early Neolithic skeletal finds from Denmark.

The stature of prehistoric man is particularly interesting. The height of the heavily built man from

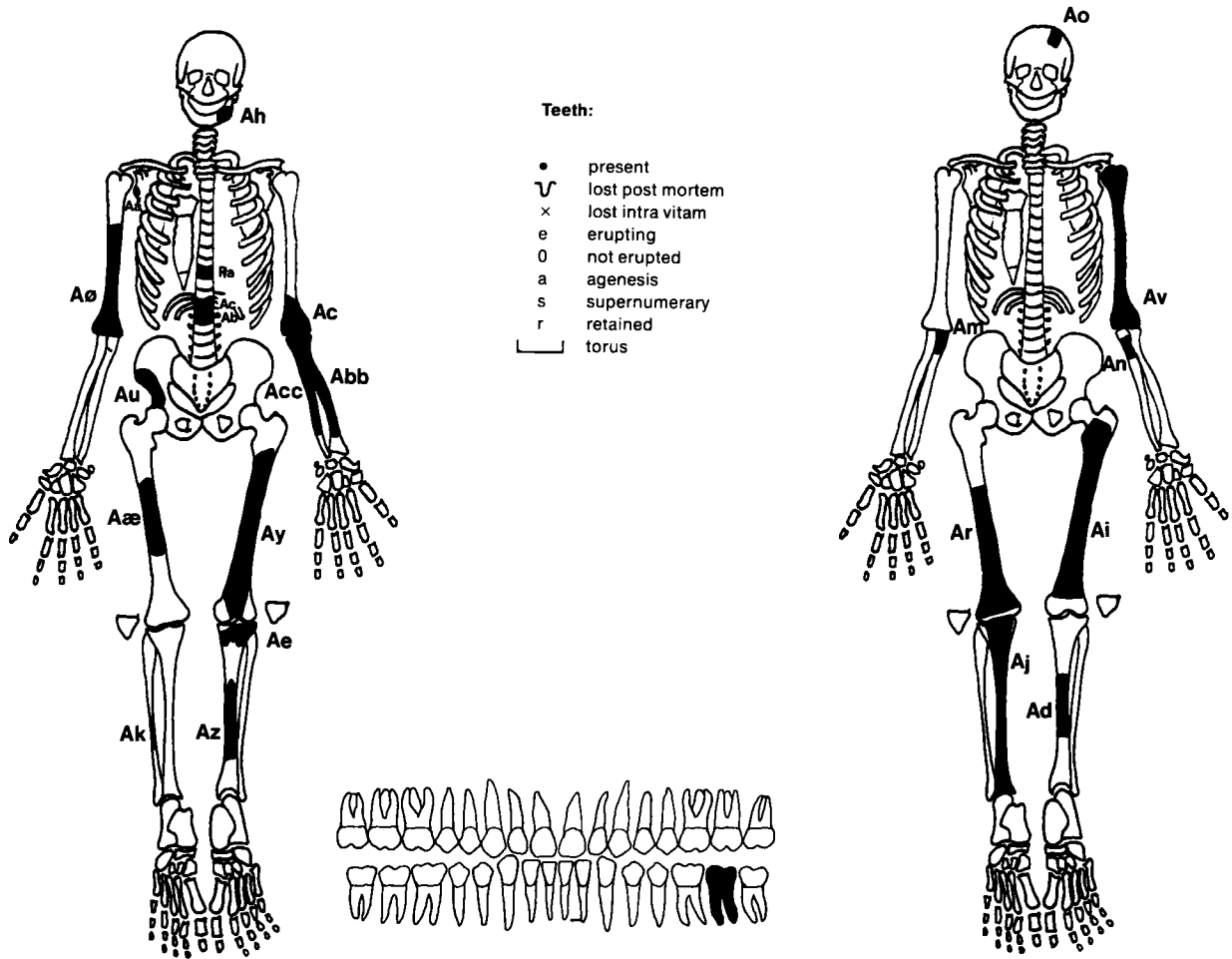


Fig. 1A. Diagram of skeleton with the individual bones from dolmen chamber A marked. The two skeletons both derive from adult men. Of the two detached molars, which cannot be assigned to either of the pair and are therefore not marked, one was from a young adult man, about 20 years old.

chamber A and of the woman from chamber B was in both cases derived from the approximate length of the humerus and femur, yielding an average figure.

Thus the man was quite tall, at least in relation to his contemporaries. He measured about 172 cm, whilst the average height for male Early Neolithic skeletons as a whole is only about 165 cm (Bennike 1985).

The woman from dolmen chamber B, however, does not differ from other Early Neolithic women – at least with respect to height. She would have been about 152 cm tall – the average height of the other female skeletons of the period.

Danish skeletal finds show that male stature gradually increased from the Mesolithic to the Bronze Age, whereas female stature seems to have fallen slightly

through the two early periods of the Neolithic, after which it increased at the end of the Neolithic. It should be remarked, however, that the changes in stature in these earliest periods cannot be statistically confirmed, due first and foremost to the limited number of skeletons available for study.

Skull measurements

An attempt was made to measure the length and breadth of the female skull from chamber B, and the measurements obtained, which are attended by some uncertainty, show it to be dolichocephalic, with a cranial index of 71.0. The average cranial index for skeletons from the Early Neolithic is within the dolichocephalic

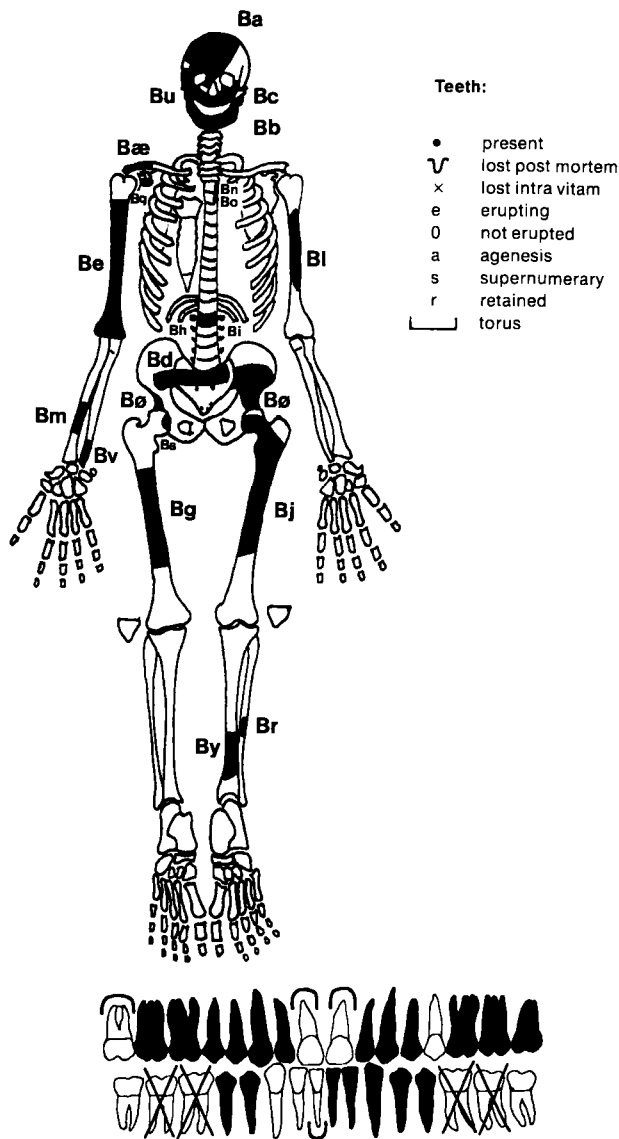


Fig. 1B. Diagram of skeleton with the individual bones from dolmen chamber B marked. All bones derive from an adult woman. There are no duplicates of bones. The dental wear on the two jaws differs so much that it has been doubted whether they represent one or two persons.

phalic category, so also in this respect, the skeleton from chamber B follows the averages of its contemporaries.

There seems to be a tendency for Mesolithic skulls to be shorter than the Early Neolithic skulls (but only mesocephalic). From the Early Neolithic to the Late Neolithic the skulls would again appear to have become

shorter (but still only mesocephalic) (Bröste et al. 1956). Not until the Iron Age is there a change to a generally more dolichocephalic shape (Sellevold et al. 1984).

This shows that there have been continual changes in the shape of the skull throughout antiquity, and similar observations have been made with regard to stature.

Position of the skeletons

From the excavation report it is evident that the floor of the barrow was undermined by animal burrows. A glance at drawings and photographs from the barrow (Ebbesen, this volume, clearly shows the disturbed position of the bones, without any clear anatomical connection. The question therefore immediately arises of whether the corpses were interred after skeletonization or dismembered. The same question has previously been asked by archaeologists on numerous other occasions, when confronted by a similar picture with disarranged bones, scattered in the many megalithic graves. In the large passage graves with over 100 burials, a few skeletons or parts of skeletons are often found in correct anatomical position, probably having been buried last.

A detailed anthropological investigation of bones from a passage grave on Langeland (Hulbjerg) has provided a partial answer. It showed, namely, that bones belonging to the same person seldom lay far apart, although in incorrect anatomical position. The representation of the different bones also showed that taphonomic circumstances were responsible for the missing bones. There is therefore reason to believe that the cause for the disturbed position of the bones in the passage graves is not that they were interred as bones but that they were pushed aside when a new corpse was to be interred (Bennike 1985).

The explanation is not so simple where the bones from the Grøfte dolmen are concerned. Contrary to the passage graves, there are only a few burials, and there is no suggestion that the corpses were arranged in any particular way. An examination of the individual bones in relation to their position in the barrow was of little help. As far as could be ascertained, only two bones lay in anatomical relationship: the left radius and ulna, which lay parallel with their distal ends in the same rection. The two bones lay along the northeastern wall in chamber A (Ebbesen fig. 9), and belong to the lighter built of the two male skeletons.



Fig. 2. Numerous “scratches” on the upper arm from Grøfte deriving from the gnawing of mice. Several other bones are similarly marked, suggesting lively mouse activity in the dolmen. This scanning electron exposure reveals traces of mouse teeth much enlarged ($\times 10$). SEM: Lise Fredebo, Royal Dental College, Copenhagen; photo: Lennart Larsen.

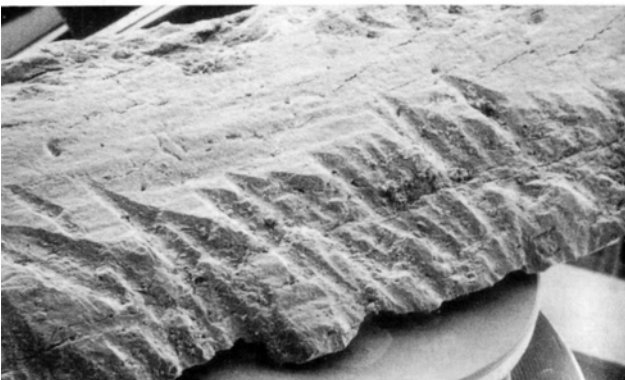
From the plan (Ebbesen fig. 9), it looks as if the larger limb-bones were “collected” in the middle of chamber A. A few bones, for example the left and right thigh-bones of the same person, lay in this group, but this may be due to chance, and it cannot be decided from the plan whether the femoral heads are in the same direction. In chamber B, the lugged flask is at one end and the skull at the other, which is the most usual position, whereas in chamber A there do not seem to be clear traces of how the bodies were originally placed – if indeed they were interred before skeletonization.

Examination of the bones from the two burial chambers did not yield a single foot- and hand-bone or rib. This could suggest that the deceased were skeletonized before interment, and that the relatives gathered the larger bones for burial. But it cannot be ruled out that severe weathering is responsible for the absence of small bones. Examination of the bones from the Langeland passage grave yielded 62% of the expected number of femora, whilst only 28% of the full complement of metacarpals were preserved (Bennike 1985), and all bones from the Grøfte dolmen were much more poorly preserved than the above-mentioned bones from the Langeland passage grave.

A metacarpal bone from an adult is about the same size as the femur of an infant, and it is therefore clear how few interred child skeletons will actually be found, in relation to adult skeletons.

If we for the moment stick to the theory that it is weathering, and neither skeletonization nor dismemberment before interment that is responsible for the absence of certain bones, this still does not explain why the bones are so disarranged.

Scrutiny of the remaining bones shows, however, distinct traces of a lively animal activity in the dolmen, since there are marks caused by mouse teeth, fig. 2. In addition, several bones, including the lower jaw, have deep marks from the canines of a fox, fig. 3 (Aaris Sørensen, pers. comm.). It is quite likely that the small mice were better at destroying or eating the small bones of the skeleton. The energetic animals must have ob-



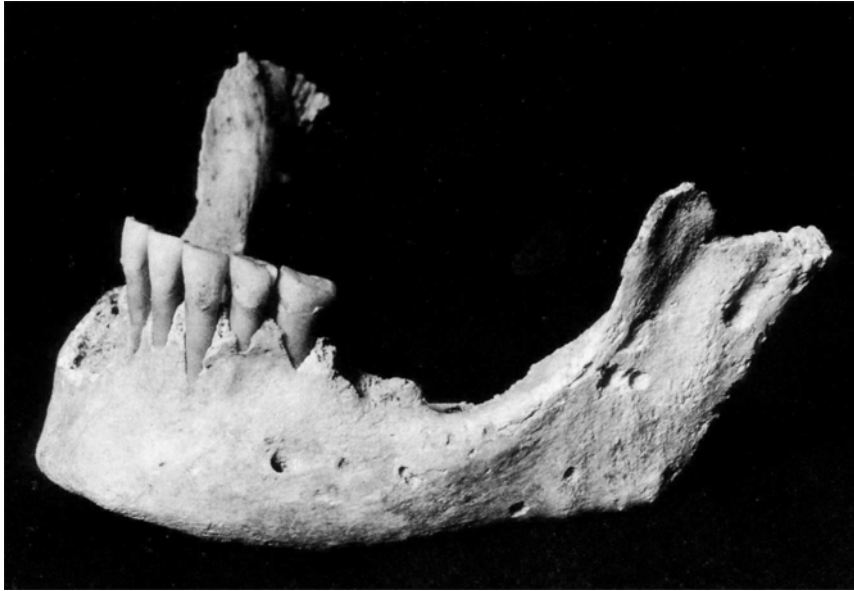


Fig. 3. The almost intact lower jaw from dolmen chamber B is characterized by extensive loss of the large molars. The weak wear on the front teeth is remarkable in contrast to the heavy wear on the upper incisors (see fig. 4). According to zoologists, the many circular depressions derive from the canines of a fox. Photo: Lennart Larsen.

tained from the bones large quantities of calcium, among other things, but whether they were active in antiquity or more recently cannot now be decided.

While there were numerous traces of rodent activity, there were no marks or traces of dismemberment around the articular surfaces. The conclusion must therefore be that animal activity, rather than dismemberment or prior skeletonization, is responsible for the incorrect anatomical position of the bones.

Teeth

Chamber A

Chamber A contained 3 teeth in all, and one was, as mentioned above, still in position in a small lower jaw fragment from an adult person. The wear on this tooth was moderate, and there were no signs of dental disease on either tooth or jaw.

The two other teeth, a wisdom tooth from the lower jaw and another 7, were almost without wear, the wisdom tooth in particular exhibiting only a small and very weak wear facet on one of the crown cusps.

The 3 teeth belonged to two different people, presumably the two men whose bones were recovered.

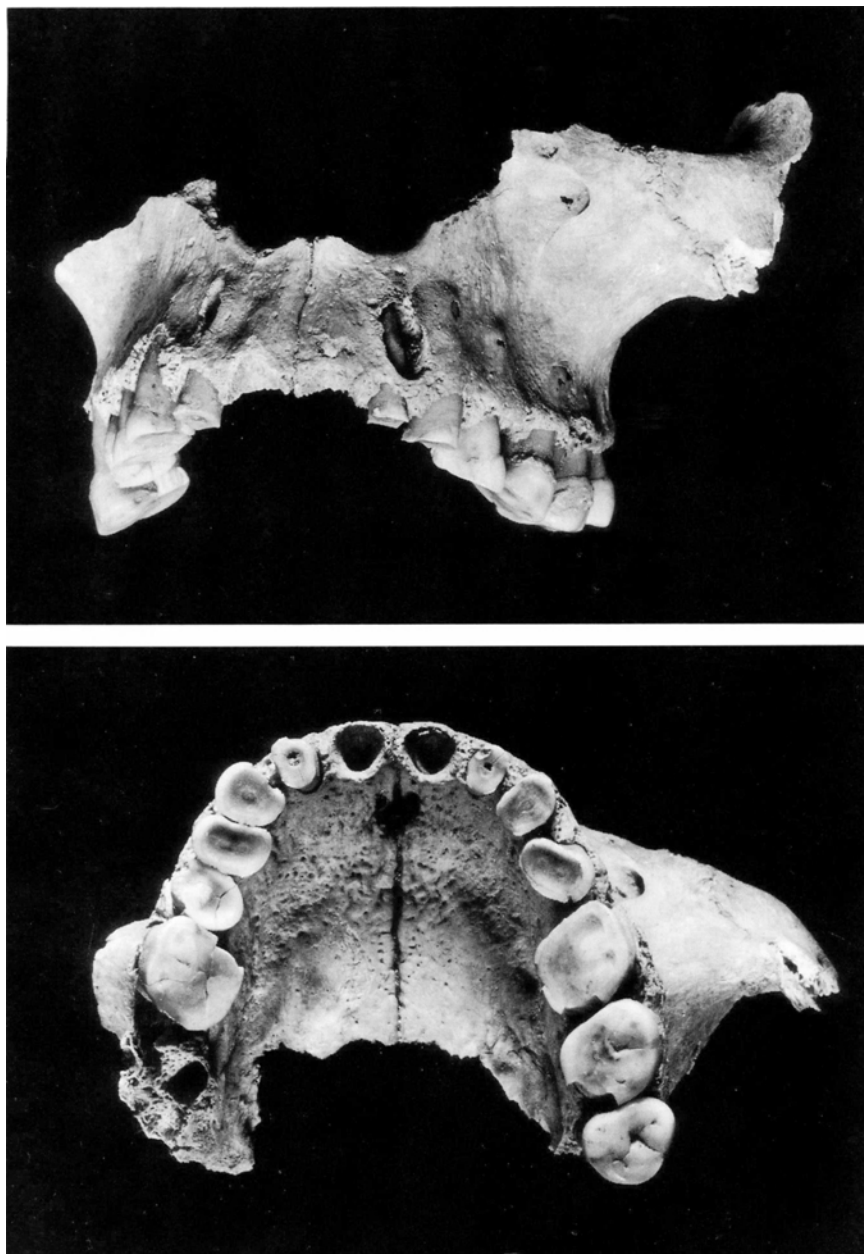
Chamber B

Upper jaw. A total of 11 teeth were preserved from the almost intact upper jaw, fig. 4. 3 alveolae were open but without the teeth, which must have been lost post-mortem. This applies also to the two central incisors, but judging from the wear on the other incisors, only root stumps of these teeth would have been left.

One of the pre-molars, a +5, is completely missing. This is either a case of agenesis, i.e. it was never formed or never erupted, or of loss long before death. A neighbouring tooth, a +4, was rotated about 45°. It occupies most of the extra space in the jaw, fig. 5, and is without wear facets on the sides.

There are slight traces of periodontitis and on two teeth, a 4+ and a 3+, there is a small cavity on the distal surface between the enamel and the root, probably due to caries. The wear on the molars is heaviest on the first-erupted (6+6) of which about one third of the crowns is still left on the occlusal surface. However, the pre-molars, canines and not least the incisors, exhibit very marked wear. This is so-called flat wear, but a tendency to concavity may be seen on the occlusal surfaces of the small molars. Almost the entire crown is worn away on the two distal incisors. Unfortunately, the central incisors are no longer present, but judging by the wear on the other teeth, they must have been worn right down to the roots.

Fig. 4. On the upper jaw from dolmen chamber B dental wear is particularly marked in front, where, for example, only the roots of the teeth remain. The severe wear caused infection of the root cavity and resulted in the formation of dental abscesses at the root tips of both teeth. Drainage is seen as perforation of the bone tissue. Photo: Lennart Larsen.



On both distal incisors, the tooth cavity, the pulp, was exposed, resulting in infection of both pulp cavity and root canal. A smoothed cavity around the root tips with perforation of the osseous tissue was the centre of two chronic dental abscesses, fig. 4.

Marked wear on the front teeth is known from Eskimo studies, both in skeletons and the present population, and also from a number of Mesolithic skeletal finds from Denmark and Sweden. This wear is

often attributed to the processing of hides, fig. 5, and the marked and “flat” wear on the incisors is seen most frequently in women. In anthropological studies of skeletons from Eskimo communities, this kind of tooth wear has actually been used as a criterion for sex determination. The upper jaw from Grøfte also belonged to a woman.

Lower jaw. In contrast to the teeth in the upper jaw, the

teeth remaining in the lower jaw from the same burial chamber are characterized by a much weaker, almost insignificant wear, fig. 3. This applies not least to the lower incisors, which are only very slightly worn, and so little in relation to the upper incisors that it has been doubted whether the two jaws belonged to the same person.

On the other hand, there are traces in the lower jaw of marked ante-mortem loss of all molars. Despite the limited tooth wear, this indicates that the person was middle-aged, like the owner of the upper jaw. The reason for the considerable tooth loss is not known, but since the small incisors of the lower jaw are only slightly worn, the extensive loss of molars is hardly due to wear. There are no carious teeth among those remaining in this jaw but it does not follow that those have fallen out were carious.

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Fig. 5. Hide processing can lead to extensive dental attrition in front, usually of both the lower and the upper jaws, which is frequent in Eskimos and in *i.a.* Mesolithic skeletons. The illustration shows an Eskimo woman using her teeth to stretch the hide during sewing, and the marked dental wear on the upper jaw from Grøfte may have arisen in this way (from Merbs 1983).

NOTE

1. The investigation of the skeletons from the Grøfte dolmen was carried out within the framework of an archaeological-anthropological collaborative research programme, the purpose of which is to increase our knowledge of human development from the Mesolithic to the Early Neolithic. This programme resulted in a considerable increase in the number of skeletons from these two periods through examination of archives and bone collections and radiocarbon dating of hitherto undocumented finds. The Early Neolithic material today comprises about 40 skeletons.

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