

Note – Notis

Find of a nearly complete Late Weichselian polar bear skeleton, *Ursus maritimus* Phipps, at Finnøy, southwestern Norway: a preliminary report

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An almost complete, well preserved polar bear skeleton, *Ursus maritimus* Phipps, has been found in Late Weichselian marine sediments at Finnøy, southwestern Norway. The bones belong to a large male, 26 to 30 years old. The ^{14}C dating of one of the ribs, gave the age of $10,660 \pm 80$ years B.P. This find unequivocally shows that polar bears were present in the Younger Dryas high arctic marine environment in southwestern Norway.

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In 1976, Sverre Asheim found several well preserved bones of a large vertebrate whilst digging a ditch at the site of his new house at Finnøy, southwestern Norway (Fig. 1). The bones were donated to the Archaeological Museum in Stavanger in summer 1982.

Initial investigations indicated the bones were from a polar bear (*Ursus maritimus* Phipps). Based upon a general knowledge of the glacial chronology and shore level displacement history of this area, a Late Weichselian age of the bones was assumed. In this note we present a preliminary report of the find.

Parts of the lower jaw and of the left upper jaw, ribs, two vertebrae and bones from the fore and hind limbs were discovered in 1976 (Fig. 2). Fossil finds of polar bear in former glaciated areas are extremely rare (Kurtén 1964, 1968, Kurtén & Anderson 1980). Often only single bones or bone fragments have been found. In this context the 1976 find was sensational. However, the finder had observed several bones left in the sediment. Permission was given to break open the cellar floor, and an excavation was completed during one week in October 1982.

The excavation was carried out to a maximum depth of 70 cm below the cellar floor, corresponding to a height of approximately 14 m above present-day sea level. At the base was a compact, stone-rich diamicton, probably a till. In the central part of the excavated area was a sandy, silty marine gyttja, approximately 15 cm

thick. The gyttja changed transitionally to a poorly sorted silty sand above with some stones and cobbles, with a maximum thickness of 45 cm, interpreted as a glacial marine sediment. This was covered by a layer of reworked sediment of varying thickness. Investigations outside the site showed that the sediments were not till-covered.

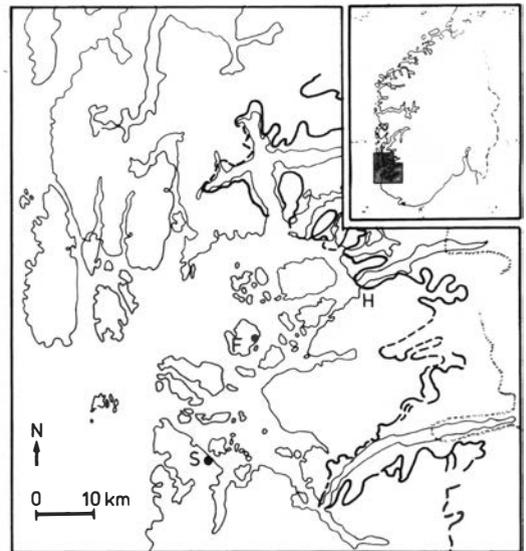
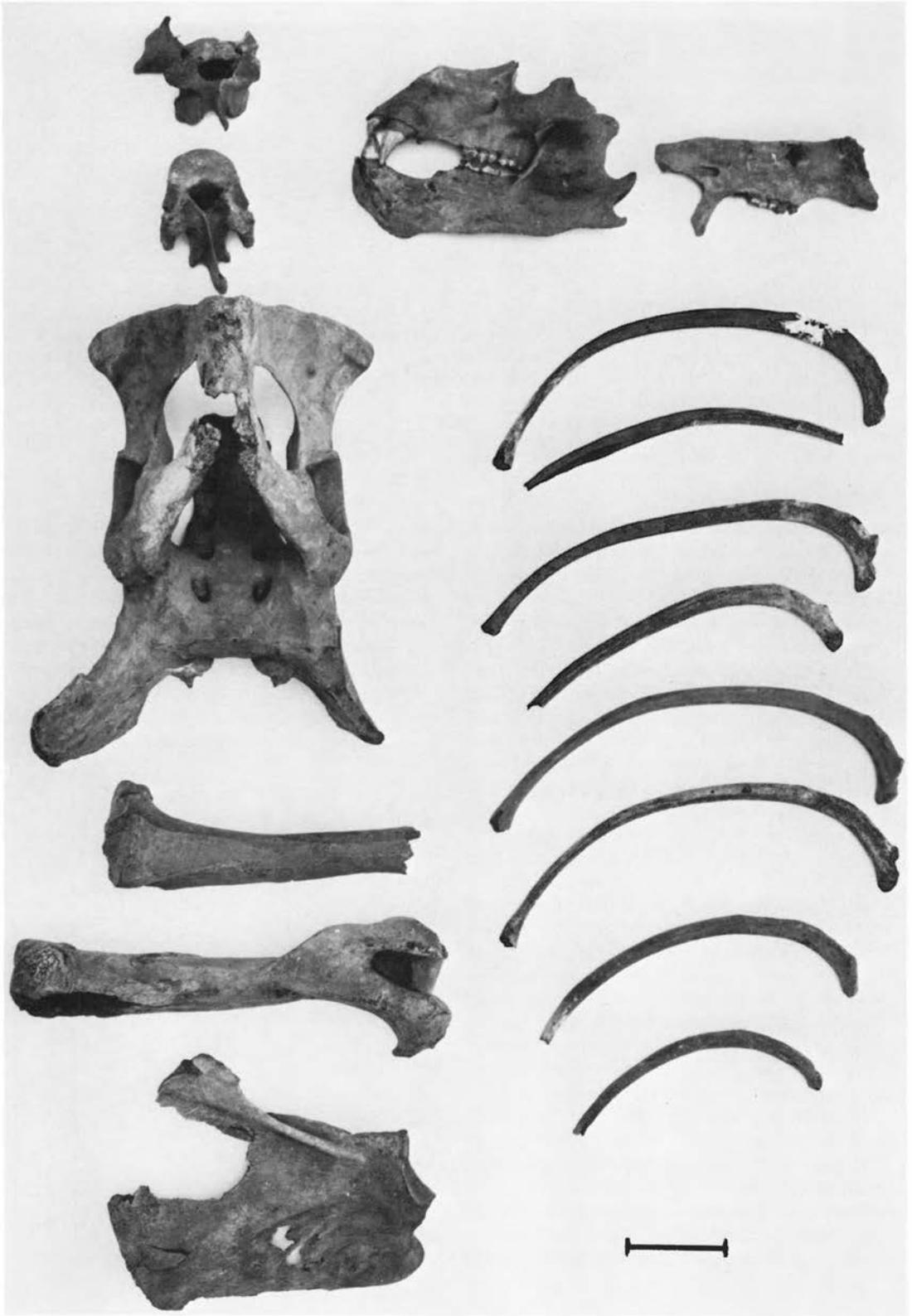


Fig. 1. Locality map. F: Finnøy, H: Hjelmenland, S: Stavanger. The Younger Dryas and the Preboreal ice front positions are indicated (solid line and dotted line respectively).



A Late Weichselian age of the sediments, of approximately 13,000–10,000 years, was then assumed. The bulk of the bones (Figs. 3, 4, 5 and 6) were found at the base of the gyttja layer, although some bones were situated in the silty sand and the reworked sediment layer. In the latter, many small bone fragments were found. Some patches of organic matter of unknown composition were found at the base of the gyttjarich sediment. The position of the organic patches with respect to the skeleton components suggests they could be the remains of the stomach or the skin of the polar bear.

The combined 1976 and 1982 finds comprise an almost complete polar bear skeleton; only bones from the fore limbs, a few vertebrae and most of the toes and fingers are missing. The polar bear was identified as a male (the baculum was found) and judged by the size and development of the bones, it must have been large and fairly old. A preliminary study of the structure of one of the canine teeth indicates an age between 26 and 30 years, which is quite high for a polar bear.

Concerning the geological age, one of the ribs from the first collection was ^{14}C dated. A Libby half-life of 5570 years was used, giving an initial age (uncorrected for isotopic fractionation) of $11,000 \pm 200$ years B.P. (T-4724). Polar bears feed almost exclusively on marine food; therefore a reservoir effect must be expected because of the isotopic fractionation of carbon in a marine environment. The $\delta^{13}\text{C}$ content was measured to -13.6% rel. PDB, giving a correction which reduces the radiometrically determined age of the polar bear to $10,660 \pm 80$ years B.P., i.e. of Younger Dryas age. The rib is well preserved and the $\delta^{13}\text{C}$ content is comparable with values obtained from whale bones (Gulliksen 1980). Thus contamination of the sample with younger carbon is not considered likely. The dating corresponds well to the stipulated geological age.

During the Younger Dryas Chronozone, the ice front was situated close to Finnøy (Fig. 1). Finds of *Portlandia arctica* of Younger Dryas age at Hjelmeland, 20 km East of Finnøy, indicate a high arctic marine environment (Blystad & Anundsen, in prep.). The find of these well-pre-

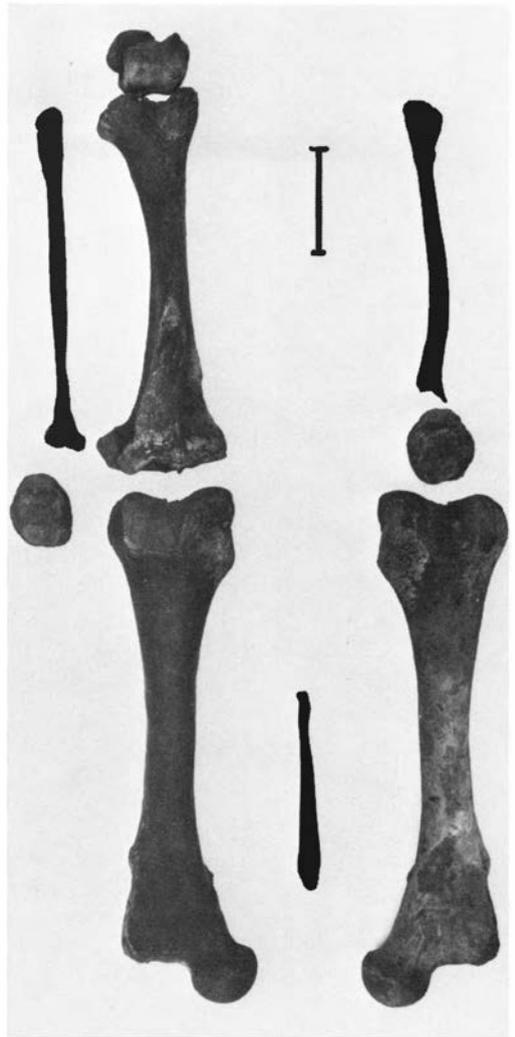


Fig. 3. Bones collected during the 1982 excavation. Thigh bones (femuri), penis bone (baculum), knee caps (patelli), shin bone (tibia), leg bones (fibuli), ankle bone (astragalus). Scale bar is 10 cm.

served bones unequivocally establishes that the fauna of the Late Weichselian high arctic environment in southwestern Norway also included polar bear.

Further studies of this find are in progress and will hopefully present a more detailed picture of

Fig. 2. The first find (1976) from Finnøy. Left row from top to bottom 1. vertebrae, pelvis bone, right shin bone (tibia), left upper arm bone (humerus), shoulder blade (scapula). Right row from top to bottom 2. left upper jaw (maxilla), left lower jaw (mandibula), right lower jaw, ribs (costae). Scale bar is 10 cm.

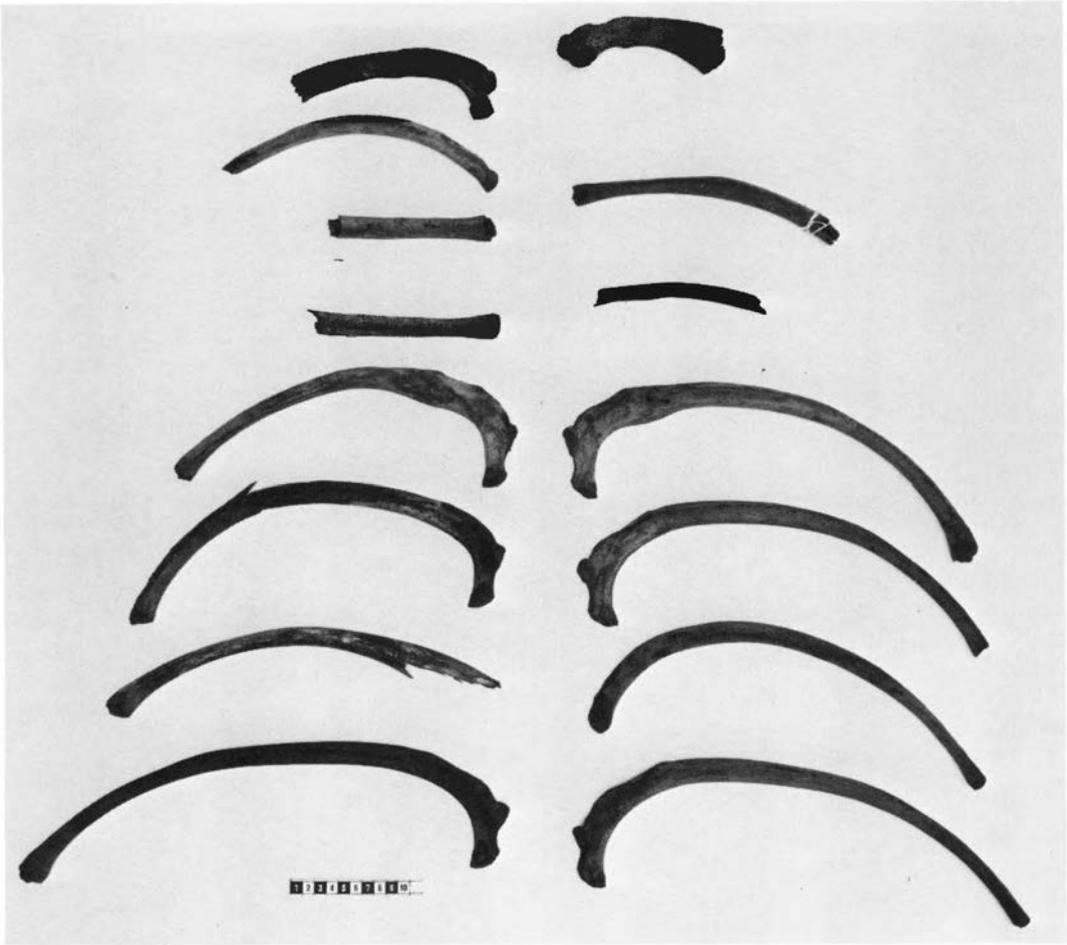


Fig. 4. Bones collected during the 1982 excavation. Ribs (costae).

the Late Weichselian environment. One of the most interesting aspects of this find is the possibility for a comprehensive study of this rare osteological material, which may throw new light on the evolution of the polar bear.

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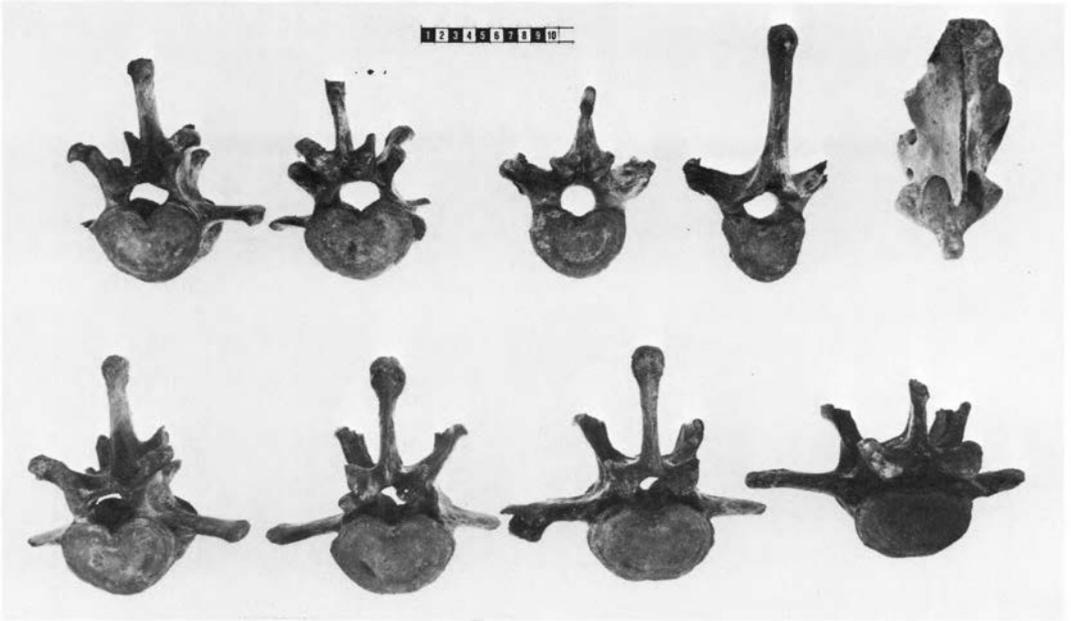


Fig. 5. Bones collected during the 1982 excavation. Vertebrae.

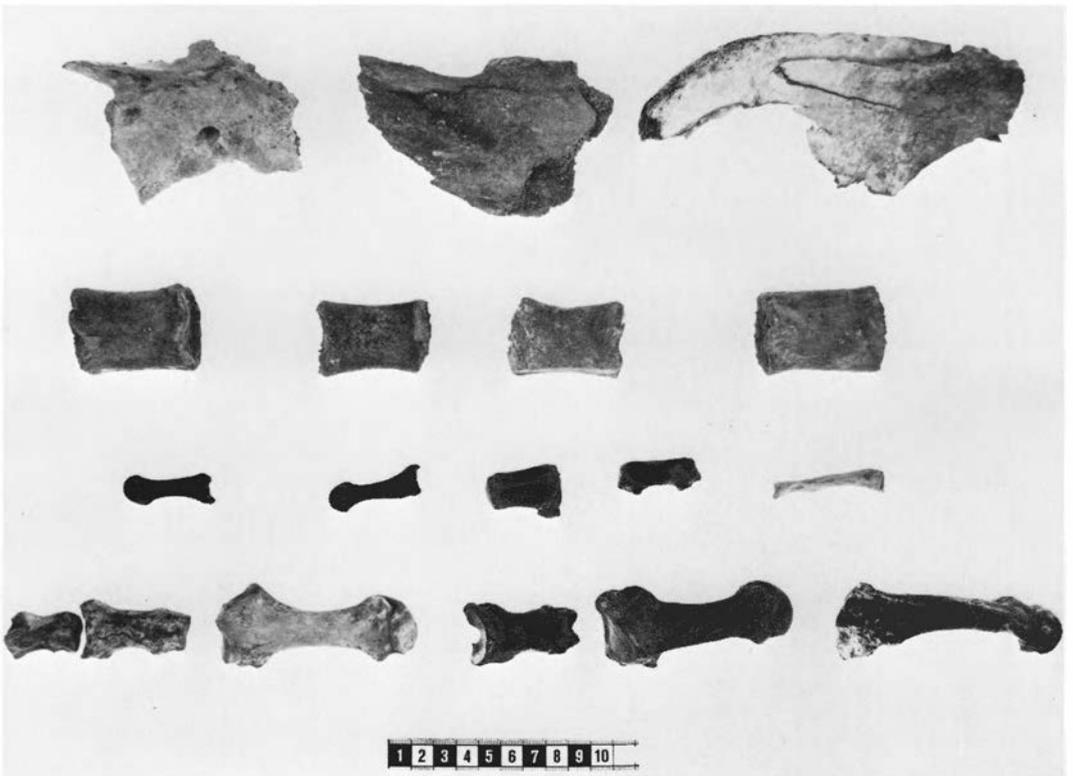


Fig. 6. Bones collected during the 1982 excavation. Larger bone fragments, fragments of breast bone (sternum), bones of fingers and toes (phalanges).