

# EXCAVATIONS AT STAR CARR

# EXCAVATIONS AT STAR CARR

# AN EARLY MESOLITHIC SITE AT SEAMER NEAR SCARBOROUGH, YORKSHIRE

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# **PREFACE**

Archaeologists have frequently and prehistoric archaeologists have as a rule to depend on evidence so vestigial that it hardly does more than delineate the main outlines of the past. Every now and then discoveries are made which, like the tomb of Tutankhamen, the frozen tombs of Pazyryk, the Sutton Hoo ship grave, the Royal Tombs of Ur, the painted caves of Altamira or Lascaux, or the moulded and painted shrines of Çatal Hüyük, illuminate as it were in a flash aspects of the life of the more or less remote past previously only dimly perceived. Such finds owe their special character to the completeness with which, due to a combination of historical and biophysical circumstances, the material evidence has survived, for it is upon this alone that the archaeologist in the final analysis depends.

Star Carr is such a site. It throws light on a period which more than compensates in interest for what it lacks in glamour and one of which our knowledge was previously even more vestigial, namely the phase of settlement in north-west Europe as this territory emerged from the Ice Age. It does so because a band of hunters encamped on the shore of a lake and traces of their occupation have ever since remained water-logged and unaerated. Instead of mere flints we therefore found artifacts made from organic materials such as antler, bone and wood as well as a well-preserved assemblage of animal bones and some valuable indications of vegetation.

When such a discovery is made prompt publication is vital and the first printing of this book appeared within three years of the excavation. Since the publication of Star Carr: A Case Study in Bioarchaeology by the Addison-Wesley Company of Reading, Massachusetts in 1972, the material has attracted more attention than ever before. It seems all the more important, since excavation reports are prime sources for writing prehistory, that the original book should remain accessible.

Certain revisions and accretions will be noted here. Dr M. Degerbøl's re-examination<sup>1</sup> of the canid bones suggested that, whereas the identification of the skull of the older animal can stand as wolf, the remaining bones relate to domestic dog, the incomplete cranium and upper jaw belonging to a fairly small breed, the fragmentary tibia and femur to a rather larger animal. The Star Carr dogs gain in significance from re-interpretation of the canid remains from the Mugharet el-Wad as jackal. Domesti-

<sup>(1)</sup> M. Degerbøl, 'On a find of a Preboreal domestic dog (Canis familiaris L.) from Star Carr, Yorkshire, with remarks on the other Mesolithic dogs', P.P.S. xxvII (1961), pp. 35-55.

cation may well have occurred more than once over the extensive territory shared by men and wolves.

Certain new finds may be mentioned. Red deer frontlets prepared as masks have been noted at two localities in Germany, viz.: one found in bridging the river Wuhle near Berlin-Biesdorf in 19532, in which the antlers, treated precisely as at Star Carr, survive as far as the trez tines; and another with only the basis of the treated antlers surviving, but having perforations through the parietals as at Star Carr, from the Maglemosian site excavated at Hohen Viecheln, nr. Schwerin<sup>3</sup>. When citing parallels from the ethnographic literature in my book, A. L. Kroeber's record in respect of the Karok and Yurok Indians of California4 was overlooked: a vivid detail is that when 'the hunter donned a deer hide and stuffed deer's head . . . he cushioned his hair over the nape and ran several skewers through it'. Again, in his well-known book Prehistoric Technology, originally published in 1957, the Soviet prehistorian S. A. Semenov noted the use of two of the basic Star Carr techniques of antler and bone working in the Palaeolithic of Russia, namely the bone and splinter technique applied to cutting up mammoth ivory by means of flint burins, and the percussion technique of trimming bone. An important new find is that of a nearly intact skeleton of an elk from Poulton-le-Fylde, Lancashire, recovered from a deposit of Allerød (Zone II) age in direct association with the foreparts of two barbed points<sup>5</sup>. The fact that these compare fairly closely with points of Group D from Star Carr belonging to the earlier phase in the occupation argues for an indigenous origin of at least part of the tradition manifested in the material from Star Carr.

In Star Carr: A Case Study in Bioarchaeology the site was interpreted as predominantly a winter encampment. This accords with the fact, inadequately stressed in the original account, that red deer, accounting for three-fifths of the meat consumed at Star Carr, is represented predominantly by adult stags. The band encamped at Star Carr concentrated on culling the stags concentrated in their winter quarters at the eastern end of the Vale of Pickering. The excavation amply documented that the inhabitants made full use of the rich harvest of antler available during the winter to fabricate barbed points from splinters cut from the beams by means of flint burins. As the season advanced and vegetation revived on the higher ground game animals and hunters alike moved out of winter quarters and ranged over their more extensive annual territories. It is suggestive that microlithic assemblages have been found high up on the North Yorkshire Moors and on the Pennines in situations that could hardly have been occupied during the winter and which correspond to the feeding grounds of deer at high summer when vegetation reached its peak on high ground. Particular

<sup>(2)</sup> Erwin Reinbacher, Ausgrabungen und Funde I (Berlin, 1956), pp. 143ff.

<sup>(3)</sup> E. Schuldt, Hohen Viecheln. Ein mittelsteinzeitlicher Wohnplatz in Mecklenburg (Berlin, 1961), Taf.121.

<sup>(4)</sup> A. L. Kroeber, Handbook of the Indians of California (Washington, 1925), pl.8 and p.817.

<sup>(5)</sup> J. S. Hallam, B. J. N. Edwards, B. Barnes, and A. J. Stuart, 'A Late Glacial elk with associated barbed points from High Furlong, Lancashire,' Proc. Prehist. Soc., 39(1973), 100-128.

interest relates to the 'broad blade' industries collected by Francis Buckley on the crest of the Pennines west of Huddersfield and more recently excavated by Radley and Mellars from Deepcar on a low spur overlooking the Don, since, as these authors recognized<sup>6</sup> these are closely comparable to the flint assemblage from Star Carr. The one great difference - the much lower representation of burins - is in itself significant because during the summer, when the stags were still growing their antlers and the hunters were no longer concentrating on adult males, these tools would have been less in demand. These upland sites must belong to the extensive territories exploited during the summer and autumn by those who retreated to winter camps in the sheltered lowlands during the winter.

We may thus view Star Carr not as an isolated self-contained site so much as a manifestation of the activities of a hunting band at its winter encampment in east Yorkshire during the mid-eighth millennium B.C. The various bands, of which that represented at Starr Carr was only one, may be conceived of as ranging over annual territories within which variations of relief presented seasonal opportunities for the food animals on which they depended. The most accessible summer territory for the Star Carr band would have been the north Yorkshire Moors rising to the Cleveland Hills, though at present we have no proof that this was in fact used by this group. The bands using the high Pennines during the summer are likely to have wintered closer at hand, either on the northern part of the Eastern Plain or, as the Poulton find reminds us, on the Morecambe or Cheshire Plains. Further, it can be taken for granted, seeing that these hunters were after all human and shared in cultural traditions by virtue of belonging to a social hierarchy, that the individuals encamped at Star Carr were aware of communities far beyond their annual territories or even those of their immediate neighbours. Social structure over and above that embodied in actual settlements is notoriously difficult to recover from prehistory. One of the few clues is provided by the exchange of objects, an exchange which even in our own society still marks the recognition of social obligations7. From the south of England one might quote the use by the makers of the broad blade microlithic industry from Bodmin Moor of flint from Beer Head,8 between 60 and 70 miles away as the crow flies. Relevant examples from the north include the iron pyrites from Star Carr, probably from the Yorkshire coal-measures (see p. 167), and grey flint said to come from the wolds of Lincolnshire or Yorkshire from the Pennine broad blade sites, each of which implies the existence of relations over distances of 70 miles or so.

The main emphasis of the present book still lies on the presentation of primary excavation evidence and this has involved numerous and detailed illustrations. Those relating to the geological and ecological history of the area are the work of Professor

<sup>(6)</sup> J. Radley and P. Mellars, 'A Mesolithic Structure at Deepcar, Yorkshire, England, and the affinities of its associated flint industries', P.P.S. xxx (1964), pp. 1-24.

<sup>(7)</sup> Donald Thompson, Economic structure and the ceremonial exchange cycle in Arnhem Land (London, 1949). Cf. Economic History Review XVIII (1965), pp. 1-28.

<sup>(8)</sup> G. J. Wainwright, 'Three Microlithic Industries from Southwest England and their affinities', P.P.S. xxvi (1960), pp. 193-201.



Donald Walker. The author is responsible for drawings of the archaeological material and for the diagrams illustrating the excavations. The numerous half-tone illustrations have been provided by the University Museum of Archaeology and Ethnology at Cambridge, the British Museum (Natural History), Scarborough Corporation and Walker's Studios, Scarborough.

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October 1977



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Walker's Studios Scarborough

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Univ. Mus. Arch. and Ethn., Cambridge

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# INTRODUCTION

The scene of the excavations described in this book lies in the flat carrlands of the eastern end of the Vale of Pickering, between the Chalk Wolds of the East Riding and the Limestone Hills of the North Riding of Yorkshire in north-eastern England. The site of Star Carr itself, about five miles south-south-east from the heart of the fashionable seaside resort of Scarborough, is situated in the parish of Seamer in a loop of the extinct Little Hertford River, which forms a parish, wapentake and county riding boundary and is skirted and in part truncated by the modern canalized Hertford River (fig. 16). Other localities in the area referred to in the text are mainly south of the old river in the parish of Flixton.

Credit for discovering traces of Mesolithic hunter-fishers in the carrlands of Flixton and Seamer belongs to Mr John Moore. The initial discovery was made in the summer of 1947 when Mr Moore observed a flint blade exposed in the side of a field ditch cut through a low gravel mound. Mr Moore's original excavation of this site (Flixton 1) yielded a plentiful and well-preserved flint industry, which has been fully described by the discoverer, and which compares closely with that from Star Carr. A trench sent out in an easterly direction at right-angles to the main excavation during 1951 brought to light a small portion of a medium-barbed point of stag antler, illustrated in fig. 62 (Flix I), which only serves to emphasize the close relation between this site and Star Carr; furthermore, trenches made on the northern slope brought to light flints, birch-bark rolls and a cannon-bone of ox between two birchwood levels. Towards the end of 1948 Mr Moore found traces of further human occupation on a neighbouring hillock (Flixton 2), comprising remains of horses accompanied by a shouldered point (Pl. XVI) and a broken blade of flint. An account of this work, together with Dr Fraser's report on the animal remains, has been contributed by Mr Moore in an Appendix to the present book. The deposit which yielded these remains has been referred by Walker and Godwin to the period of the Late-glacial Allerød oscillation (p. 62).

In addition to excavating these two sites Mr Moore identified others, including that of Star Carr (Site 4), the subject of the present report, and further attempted by means of extensive trial borings through the surrounding peats and muds, often to depths of 20 ft., to establish the local stratigraphy and plot the shores and islands of the ancient lake which he considered to have occupied this part of the Vale of Pickering during Late-glacial and early Post-glacial times.

<sup>1</sup> P.P.S. xvi (1950), 101-8.

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## INTRODUCTION

At a comparatively early stage Mr Moore's researches attracted the attention of Dr H. Godwin, Director of the Sub-Department of Quaternary Research at Cambridge University and already in 1948 Dr Godwin, with the help of Professor A. R. Clapham, made a deep boring by means of a Hiller peat auger and collected the samples from which was constructed the pollen diagram and section published in the *Proceedings of* the Prehistoric Society for 1949 (vol. xv, 66, fig. 3). Independently of this, Mr Moore had been put in touch with the present writer through the good offices of Mr Gwatkin, at that time Curator of the Scarborough Museum, and of the authorities of the Department of British and Medieval Antiquities in the British Museum. Examination of a sample of the flint industry from Star Carr suggested that we had to do with traces of Maglemosian culture, a diagnosis which was strengthened when Mr Moore produced roughly made core adzes and some characteristic sharpening flakes. In the result, though, our excavations were to bring to light material anterior to and in many respects—particularly in regard to the antler and bone components—distinct from that first recovered from Maglemose near Mullerup on the Danish island of Zealand; and Star Carr, so far from providing a typical site of the classic Maglemosian culture on British soil, was destined in fact to reveal a stage in the evolution of the Maglemosian as a whole about which very little had hitherto been known and so to make a fundamental contribution to European as well as to British prehistory (see Chapter VII).

As a background to the Star Carr discovery it may be of interest to recall the stages whereby, over a period of some thirty years, British prehistorians had come to accept the idea that the territory of the Maglemosian culture, first recognized in Denmark, had extended as far west as Britain.

The first Maglemosian 'harpoon' from British soil was found in an old mere bed at Skipsea in Holderness in 1903, the year which saw the publication of Sarauw's excavation of the classic site of Maglemose.¹ Two years later another specimen was found supposedly at Hornsea. Both the Holderness 'harpoons' passed into the Morfitt collection at Atwick, where they remained unknown to science until shortly after the end of the first World War. Lecturing to the Society of Antiquaries of Scotland on 10 April 1922,² the Abbé Breuil referred to the Holderness 'harpoons' as Maglemosian in support of his hypothesis of Baltic influence on one of the more slender and delicate harpoons from Oronsay.³ When later in the same year the British Association met at Hull, Mr A. L. Armstrong was able to exhibit both the Morfitt

<sup>&</sup>lt;sup>1</sup> G. F. L. Sarauw, 'En Stenalders Boplads i Maglemose ved Mullerup, Sammenholdt med Beslaegtede Fund', *Aarbøger*, 1903, pp. 148-315.

<sup>&</sup>lt;sup>2</sup> To judge from a reference of Armstrong's (Man, 1922, no. 75), the Abbé first identified the Holderness 'harpoons' publicly as Maglemosian in the course of the Munro Lectures given by him at Edinburgh in February 1921, and they were referred to in general terms as Maglemosian in the first edition of Mr M. C. Burkitt's *Prehistory*, published in Cambridge that same year. I can find no reference to the Abbé Breuil's Munro Lectures ever having been published as such.

<sup>3 &#</sup>x27;Observations on the Pre-Neolithic Industries of Scotland', P.S.A.S. LVI (1922), 261-81. See pp. 280-1.



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specimens and to compare them with analogous objects published by Sarauw from Mullerup.¹ The interest aroused by this demonstration was sensibly increased, when the late Mr Tom Sheppard, Curator of Hull Museum, roundly condemned both as modern forgeries. The objects were examined by a Cambridge Committee in September 1922 and found to be genuine antiquities, bearing a close resemblance to four original specimens from Kunda, Esthonia, preserved in the University Museum of Archaeology and Ethnology. From then onwards expert opinion has been unanimous in accepting the Holderness finds as genuine.²

The first flint industry from Britain to be compared with Danish Maglemosian material was brought to light under the peat of the alluvium of the River Kennet at Thatcham during the extension of the Newbury Corporation sewage farm in 1920. In seeking foreign parallels, Mr O. G. S. Crawford referred to the report published that year by Friis Johansen on the Maglemosian station at Svaerdborg, also in Zealand.<sup>3</sup> In his own report presented to the Prehistoric Society of East Anglia on 28 March 1922,<sup>4</sup> Crawford made a detailed comparison between the flint industries from the two sites.

In the course of the next few years other comparable flint industries came to light in eastern Britain, notably from Kelling,<sup>5</sup> Norfolk, and fragments of barbed points of bone or antler, resembling in a general way those from Holderness, were recognized in London museums from the Royston area and from the Thames at Battersea and Wandsworth.<sup>6</sup> When, therefore, a survey of the Mesolithic industries of Britain was first made in 1931,<sup>7</sup> there was no lack in the lowland zone of flint industries and of stray finds of bone and antler typologically similar to those associated with the Maglemosian culture in the Baltic area. On the other hand, if we except a few atypical flints from the Skipsea lake-bed and a flint adze found in a fall of cliff and only possibly from the same lacustrine deposits, no association could be proved in this country between flint implements and objects made from antler or bone in the Maglemosian tradition. Moreover, apart from typological analogy and the absence of specifically Neolithic or later forms, there was no evidence for dating these finds or for synchronizing them with their Continental analogues.

<sup>2</sup> E.g. M. C. Burkitt in P.P.S.E.A. v (1925), 32 and V. G. Childe in J.R.A.I. LXI (1931), 325-48, map.

<sup>7</sup> The Mesolithic Age in Britain (Cambridge, 1932).

<sup>9</sup> A. L. Armstrong, op. cit. pp. 67 f.

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<sup>&</sup>lt;sup>1</sup> A. L. Armstrong, 'The Maglemose Remains of Holderness and their Baltic Counterparts', P.P.S.E.A. IV (1923), 57-70; see also Man, 1922, no. 75; and 1923, nos. 31 and 83.

<sup>&</sup>lt;sup>3</sup> K. Friis Johansen, 'Une Station du Plus Ancien Age de la Pierre dans le Tourbière de Svaerdborg', *Mém. Antiq. du Nord* (1918-19), 241-359.

<sup>&</sup>lt;sup>4</sup> Harold Peake and O. G. S. Crawford, 'A Flint Factory at Thatcham, Berks.', P.P.S.E.A. III (1922), 499-514. See especially pp. 510-13.

<sup>&</sup>lt;sup>5</sup> J. E. Sainty, 'A Flaking Site on Kelling Heath, Norfolk', P.P.S.E.A. IV (1924), 165-75; also P.P.S.E.A. V (1925), 56-61 and (1927), 283-7.

<sup>&</sup>lt;sup>6</sup> First published by E. Westerby, 'Den mesolitiske Tid i Norden', Ymer (1931), pp. 41-58. Especially pp. 45-6.

<sup>&</sup>lt;sup>8</sup> E.g. Thatcham, Kelling, Colne Valley, Hullbridge, Uxbridge, etc.



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Meanwhile, Skipper Pilgrim E. Lockwood, master of the Colinda, made one of those unexpected discoveries which have so often advanced our knowledge of prehistory. In the course of fishing at night between the Leman and Ower banks in 19-20 fathoms of water some 25 miles from the Norfolk coast, he hauled up a lump of peaty 'moorlog', which instead of heaving directly overboard he broke with his spade; striking something which sounded like steel, he recovered what proved to be a magnificent barbed point of Maglemosian character. Thanks to Dr Muir Evans the object not only survived, but found its way to the Castle Museum, Norwich, where it was exhibited to the Prehistoric Society of East Anglia on 29 February 1932. Most fortunately this discovery was made at a moment when Dr and Mrs Godwin were ready to begin applying the technique of pollen-analysis to the study of British Post-glacial stratigraphy. In the course of the summer of 1932 they secured samples from the 'moorlog' close to where Skipper Pilgrim made his dramatic find and took vertical series through the mere deposits at Skipsea. In their celebrated paper 'British Maglemose Harpoon Sites', Dr and Mrs Godwin were able to show that the pollen spectra from Maglemosian sites in Esthonia, Denmark, East Yorkshire and from the North Sea bed were closely similar, and that all these sites could be referred to the Boreal period of Post-glacial climate.<sup>2</sup>

The next step was taken in the following year, when a flint industry, typologically of early Maglemosian character, was discovered by Mr S. Hazzledine Warren at Broxbourne in the Lea valley. The find was studied by a team of five investigators,<sup>3</sup> all members of the recently formed Fenland Research Committee,<sup>4</sup> and its Baltic affinities and Boreal age duly established. There was no longer any room for doubt that flint industries as well as loose finds of bone and antler objects of Maglemosian affinities from lowland Britain could be referred to a comparatively early stage of the Post-glacial period.

A survey by the present writer in *The Mesolithic Settlement of Northern Europe* (C.U.P., 1936) only served to emphasize that eastern Britain formed an integral part of the Maglemosian cultural province during the Boreal period. At the same time it drew attention to the poverty of the evidence relating to the Maglemosian culture in Britain by comparison with what was known as a result of excavating bog sites in other parts of the north European plain. This was substantially the position when towards the end of the war the Council for British Archaeology was taking stock of the

<sup>&</sup>lt;sup>1</sup> P.P.S.E.A. VII (1932), 131-2.

<sup>&</sup>lt;sup>2</sup> Antiquity (1933), pp. 36-48.

<sup>&</sup>lt;sup>3</sup> S. Hazzledine Warren, J. G. D. Clark, H. and M. E. Godwin and W. A. Macfadyen, 'An Early Mesolithic Site at Broxbourne sealed under Boreal Peat', J.R.A.I. LXIV (1934), 101-28.

<sup>&</sup>lt;sup>4</sup> The Committee, formed with the object of furthering co-operation between archaeologists and natural historians (see *P.P.S.E.A.* vII (1932), 133), held its first meeting at Cambridge on 7 June 1932. Excavations began that summer at Plantation Farm, Shippea Hill, the first of a series at different sites, by which (between 1932–40) the main phases of human settlement from the late Mesolithic to the late Bronze Age were fixed in the Post-glacial sequence of the southern Fenland.



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existing situation and defining some of the leading objectives of archaeological research during the next few years.<sup>1</sup> It was appreciated that the need was no longer to excavate and classify flint implements or rely upon fortuitous discoveries of loose objects of antler or bone, but to investigate a site capable of yielding direct information about the way of life of Maglemosian man and about the character of his immediate environment. This, it was recognized, was most likely to be achieved by excavating in waterlogged deposits, either in a bog settlement or immediately contiguous to a settlement on dry land, since here alone were the physical conditions necessary for the survival of a broad range of organic materials likely to exist in this part of the world.

The general objective was easy enough to define. It only remained to select the particular site most likely to provide the information needed. The primary clue, because the most enduring, was a flint industry of Maglemosian type, but it was necessary to locate this either in or close to a bog of the right age if we were to obtain organic materials in adequate condition.

Mr Moore's discoveries suggested that a site meeting these conditions might well exist in the Flixton-Seamer area. The flints pointed to the presence of Maglemosian settlement and the age of the adjacent muds and peats disclosed by pollen-analysis encouraged the hope of finding archaeological fossils in their correct stratigraphical context. Such, indeed, had been achieved at Sites 1 and 2, though the latter yielded too little cultural evidence and the former provided only scraps of faunal material. What was needed was a site where a substantial part of the culture-stratum dipped well below the prevailing water-table and where in consequence one might hope to find such things as worked bone and antler or even wood, together with the data needed for reconstructing prevailing ecological conditions. A visit in the spring of 1949 confirmed that Star Carr offered the most favourable prospects: pieces of bone and antler projecting from the side of the field ditch against the southern bank of the canalized Hertford River, though themselves in a very poor state, pointed to the probability of much better preserved finds on the lakeward slope where the alluvial deposits dipped comparatively steeply. Mr Moore readily consented to a large-scale exploration of the site and this was duly undertaken by the present writer with the generous permission of the owner, Mr C. A. Midgley and of his tenant, Mr J. Robinson, under the auspices of the Prehistoric Society and of the Department of Archaeology and Anthropology at Cambridge during the summers of 1949, 1950 and 1951.

<sup>&</sup>lt;sup>1</sup> A Survey and Policy of Field Research in the Archaeology of Great Britain (Council for British Archaeology, London, 1948), pp. 83-4.



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#### ACKNOWLEDGEMENTS

The main part of the work of archaeological excavation was carried out by undergraduates and research students from the Department of Archaeology and Anthropology at Cambridge:

1949

Miss J. Fereday and Mrs S. J. Hallam (Newnham), Mr R. M. Butler (Peterhouse), Mr C. H. Houlder (Jesus), Mr J. G. Hurst (Trinity), Mr A. E. Price and Mr M. W. Thompson (Pembroke), Mr G. Sieveking (King's) and Mr W. R. Staton (Clare).

1950

Miss F. E. Armstrong and Miss H. H. Richardson (Girton), Mrs S. J. Hallam, Miss M. Munro, Miss A. Paull and Miss G. M. Spence (Newnham), Mr P. S. Gelling (Downing), Mr C. H. Houlder (Jesus), Mr G. Sieveking (King's), Mr J. D. Evans, Mr A. E. Price and Mr M. W. Thompson (Pembroke), Mr R. M. Butler and Mr J. Golson (Peterhouse), Mr D. E. Bennett and Mr K. Jolly (St John's), and Mr J. C. Baber and Mr J. G. Hurst (Trinity). Also, Miss P. Leake (later Mrs Danby) of Oxford and Mr Thabit Hassan of the London Institute of Archaeology.

1951

Miss F. E. Armstrong and Miss H. H. Richardson (Girton), Mrs C. W. Anderson and Mrs S. J. Hallam (Newnham), Mr J. C. Baber and Mr J. G. Hurst (Trinity), the Hon. R. W. H. Erskine, Mr G. Sieveking and Mr N. Wilson (King's), Mr R. M. Butler and Mr J. Golson (Peterhouse), Mr P. S. Gelling (Downing), Mr C. H. Houlder (Jesus), and Mr J. E. G. Stanford, Mr P. L. Tennant and Mr M. W. Thompson (Pembroke).

A leading role was also played by the University Sub-department of Quaternary Research. In addition to detailed investigations at many points in the Flixton-Seamer area members of the sub-department were present during almost the whole period of the excavations. The importance of the contribution made both in the field and subsequently in the laboratory by the Director and his staff can best be appreciated from the chapter contributed to the present book by Dr Godwin and Mr Walker, but it should be emphasized that the value of interdisciplinary team-work is not to be measured by separate contributions so much as by the total result. Among those whose help in the field of Quaternary Research is gratefully acknowledged may be cited: Dr A. Farrington of the Royal Irish Academy; Professor S. E. Hollingworth of University College, London; Mr G. F. Mitchell of Trinity College, Dublin; Mr John W. Moore of Irton, Scarborough; Mr Lewis Penny of University College, Hull; and Miss Jean Allison, Miss Robin Andrew, Mr K. E. Bachem (attached from the Botanical Institute, Kiel University), Mr S. C. Seagrief, Mr A. G. Smith and Mr R. G. West, all of the Sub-department of Quaternary Research at Cambridge.

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Working as we were at a distance from Cambridge, the ready assistance derived from Scarborough was particularly welcome. To the Mayor and Corporation of Scarborough and their officials we were indebted among other things for hutted accommodation (1950–1), for the loan of planking and pumping gear and, during the final season, for a generous supply of heavy labour; specific mention should also be made of the unobtrusive but valuable help given throughout by officials of the Scarborough Public Libraries and Museums. It is pleasant also to be able to acknowledge aid in the field from members of the Scarborough Archaeological Society. Mr John Moore was of outstanding assistance on account of his intimate knowledge of the stratigraphy and of the many personalities and interests involved; in addition he successfully achieved the very difficult task of examining the balks left between the 1949–50 excavations.



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The whole of the archaeological material passed at one time or another through the University Museum of Archaeology and Ethnology at Cambridge and the immense pains taken by the Curator and his staff to ensure the preservation and photography of the more perishable artifacts is gratefully acknowledged.

Among the many experts who made determinations for this report were: Dr W. F. Libby of the Institute of Nuclear Studies, University of Chicago; Dr W. Campbell Smith, Dr M. H. Hey, Dr F. A. Bannister and Mr P. M. Game of the Department of Mineralogy, British Museum (Natural History); Mr E. J. H. Corner of the Botany School, Cambridge University; Mr L. Penny, Head of the Department of Geology, University College, Hull; the late Miss Marjorie Platt of the Royal Scottish Museum, Edinburgh; Dr J. W. Balfour-Browne of the Department of Entomology, British Museum (Natural History); and Dr K. C. Dunham, Chief Petrographer to the Geological Survey and Museum.

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# DISPOSAL OF FINDS

With the generous concurrence of the landowner, Mr C. A. Midgley, the finds have been divided among the institutions which have carried the main burden of the work, namely the British Museum, the University Museum of Archaeology and Ethnology at Cambridge, and the Corporation Museum at Scarborough. The best of the bone and antler artifacts, together with a representative series of the worked flints from the 1949 season, have gone to the British Museum (Natural History), in which the bulk of the faunal remains have also been deposited; in addition, a series of artifacts has been placed in the Department of British and Medieval Antiquities at Bloomsbury. A representative series of antler and bone artifacts and some outstanding exhibits of faunal remains have been presented to Scarborough Museum, where is also housed the whole of the material obtained by Mr Moore from Sites 1 and 2. The residue of the archaeological material, including the complete flint 'waste' from the 1951 season, has been deposited in the University Museum of Archaeology and Ethnology at Cambridge. Samples collected by Dr Godwin and his assistants and slides prepared for pollen-counts are housed in the University Sub-department of Quaternary Research in the Botany School, Cambridge.