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THE MESOLITHIC PERIOD IN SOUTH AND WESTERN BRITAIN

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### ABSTRACT

A detailed study has been made of the Mesolithic material in southern and Western Britain and a quantity of new evidence has been recorded from west England and Wales, by means of research in the field and in museums and private collections.

The results of the study may be summarised under headings referring to the four main cultural groups with which it is concerned.

#### THE MAGLEMOSEAN CULTURE

New evidence has extended the previously known distribution of the Maglemosean culture into Somerset and Cornwall and a concentration of settlement around the Solent has been established.

#### THE HORSHAM CULTURE

Previously published evidence has been reorganised in order to establish the distribution, economy and origins of this culture in the Weald, and new evidence has indicated a slight penetration of this culture into western Britain.

#### THE BRITISH 'SAUVETERRIAN'

This culture has been re-examined in the light of new evidence from west England, and it is suggested that the industries which exhibit the clearest affinities with the continental Sauveterrian occur in west England and Wales, in the areas of Upper Palaeolithic Settlement. An indigenous origin for these industries is considered possible and no similar sites have been identified in southern and

eastern England.

#### SITES WITH COASTAL ECONOMIES

A quantity of new evidence has been recorded in west England and Wales, for the identification of cultural groups which pursued an economy based on the sea shore, with a diminished reliance on the hunting of small game. This economy is in direct contrast to that of the Horsham culture of the Weald and is reflected in the material equipment.

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## INTRODUCTION

In 1816, Christian Jürgensen Thomsen was appointed curator of the National Museum of Denmark at Copenhagen and was faced with the systematic storage and display of a mass of archaeological material. As a simple basis of classification he chose the raw material from which the artifact had been fashioned. In 1836 Thomsen published, in his preface to a Guide Book, a tripartite division, on the basis of the raw materials, into three ages - the Stone Age, the Bronze Age and the Iron Age (Thomsen, 1836). In its essence this scheme was initially a classificatory system. Its chronological implications were proved by Woorsae, Thomsen's successor, who indicated that in the Danish peat bogs stone artifacts occur in the lowest levels, above them are the bronze implements and then the iron. Since that time, archaeological research has modified and refined this system but basically it remains the corner-stone of Prehistory (Daniel, 1943).

The original Danish Tripartite System envisaged a sharp break between the Palaeolithic and Neolithic periods - the Hiatus. It was thought that the Magdalenian peoples retreated north with the ice-sheets and the Neolithic invaders occupied a completely de-populated Europe. However, discoveries at various sites in France between 1875 and 1900 produced artifacts that were post-Magdalenian, yet not typical of the true Neolithic or food producing cultures.

The first of these was at Mas d'Azil (Ariege), which Piette began excavating in 1887 (Cartailhac, 1891; Piette, 1895). Piette excavated two rock shelters and found, above a rich Magdalenian deposit, two strata containing flat harpoons of antler and pebbles

painted with red ochre, associated with the bones of red deer and wild boar. These layers were followed by a Neolithic deposit. The intermediate post-Magdalenian and pre-Neolithic industry was called "Azilian" by Piette.

Already in 1879 Edmond Vielle had discovered and begun to excavate a site in the park of the Château de Fère at Fère-en-Tardenois (Aisne). The industry from this site was characterised by small geometric flint implements including triangular, trapezoidal and crescentic forms. The Fère-en-Tardenois site was fully described by Vielle in 1890 and in 1896 Gabriel de Mortillet described similar geometric microlithic flints from Europe, Africa and Asia, calling them all part of a "Tardenoisian" period (Vielle, 1890; de Mortillet 1896).

In 1889, J. Allen Brown suggested that an intermediate period should be recognised between the Palaeolithic and the Neolithic periods and that it should be called the Mesolithic (Allen Brown, 1889). However, Boyd Dawkins disapproved of this suggestion and there was no general acceptance of a special period to include the post-Magdalenian and true pre-Neolithic industries. For the next twenty years the recognition of these industries as neither Palaeolithic nor Neolithic but Mesolithic, was confused by disputes (Daniel, 1950) regarding the hiatus and by suggestions of alternative names such as Miolithic (Menghin, 1931) and the Epi-Palaeolithic of Obermaier (1925).

However, the term "Mesolithic" was clearly defined by Macalister in 1921 in his Textbook of European Archaeology as "some convenient single word . . . to denote the phases of civilisation intervening, in time if not in evolutionary sequence, between the full Magdalenian and the full Neolithic." In 1928 and 1932 Gustav Schwantes was identifying and classifying surface flint industries in northern Germany,

and in 1932 the Mesolithic period was given definitive treatment for the first time by J.G.D. Clark in "The Mesolithic Age in Britain". In the "Mesolithic Settlement of Northern Europe" (1936), he extended his scope to cover the western end of the North European Plain.

It is these two works by Professor Clark which prompted the writer's research into the same period. A gap of nearly thirty years since the British Study was published suggested that a survey of the British microlithic cultures in the light of recent discoveries might prove to be profitable.

The scope of this study is more restricted than was that of Professor Clark in 1932, being confined to southern and western Britain from whence the bulk of the British Mesolithic material has been recovered. Moreover, the emphasis of the study is transferred from the south east, (where it was placed in 1932), to west England and Wales. This emphasis on the western regions of Britain is paradoxically the result of the lack of published material in those areas as opposed to the south and east, where the Mesolithic remains have been comparatively well documented.

In order to offset the lack of material in the western areas the writer undertook a campaign of excavation, fieldwork and the documentation of the Mesolithic material in private collections and museums. In Wales the writer excavated a Mesolithic site at Freshwater West in Pembrokeshire which was published in 1959 in the Bulletin of the Board of Celtic Studies. A report on the soils from this site by Dr. I.W. Cornwall of the University of London appears in Appendix 1. Further fieldwork was undertaken in south Pembrokeshire and published in 1960 in the Bulletin of the Board of Celtic Studies. In the summer of 1960 during a temporary emergence of the submerged forest

at Freshwater West, a small transept axe and struck flints of the Mesolithic period were obtained from the exposure. Dr. H. Godwin of the Department of Quaternary Research at the University of Cambridge supervised an analysis of the peat of the submerged forest and his report appears in Appendix 11. Further fieldwork was carried out in Cardiganshire and north Wales, particularly the Lleyn Peninsula and Anglesey, and all the major sites previously excavated were visited. The museums of the area were all visited and as many private collections as came to the writer's notice were examined by their owner's permission.

To deal with the large gaps in our knowledge of the Mesolithic industries of the West Country, a seven week tour was undertaken of the museums and private collections in Cornwall, Devon, Somerset, Gloucestershire and Dorset, with the aid of a grant from the Ministry of Education. As a result of these investigations a large quantity of material came to light which had hitherto remained unpublished. A part of the results of these investigations was published by the writer in the Proceedings of the Prehistoric Society for 1960.

East of Dorset, the coverage of the material has been mainly confined to the study of the numerous publications, which have been produced chiefly by the researches of Professor Clark and W.F. Rankine. Exceptions are the extensive collections in the British Museum and the Institute of Archaeology, together with the important series of industries from Thatcham, Berkshire.

The ensuing chapters are concerned with the analysis of the evidence, which is presented according to the respective cultural groups as seen by the writer. The evidence is almost wholly typological and the prime need is for well dated industries. Nevertheless



the analysis of the material into cultural groups on a typological basis is a perfectly legitimate exercise and one which has provided results of great interest. The new material from west England and Wales has enabled cultural interpretations that have been unrecognised hitherto. The next problem to be solved is the chronology of these cultural groups.

## CHAPTER I

### A PIVOT OF THE LATE AND POST-GLACIAL CULTURES IN NORTHERN AND WESTERN EUROPE

#### 1. THE CLIMATIC BACKGROUND.

##### A. INTRODUCTION

The climatic chronology of the Late and Post-Glacial is dependent on oscillations of less marked character and of comparatively shorter duration than those of the preceding periods, and vegetation development as expressed by pollen and macroscopic remains, forms the basis of Post-Glacial chronology. This development is divided into Zones, and it is on these that the climatic periods are based. They were first recognised in the latter half of the nineteenth century by Blytt and Sernander who worked on the macroscopic remains of plants in southern Scandinavia, and they have since been largely confirmed by pollen-analysis, developed chiefly by Lennart von Post (Zeuner, 19<sup>58</sup>~~4~~, pp. 56-59). A sequence has now been established in which widespread changes of vegetation coverage are seen to occur which must be due to climatic causes, and are therefore of chronological significance.

While providing a chronological framework for the Late and Post-Glacial cultures, these techniques at the same time give an idea of the natural environment in which these cultures existed, and to which they were adjusted. This is true of northern and central Europe but unfortunately the western continental area has provided little

vegetational evidence as yet, although it is probable that forestation was more advanced there.

By the Post-Glacial proper, the ice had receded almost to its present position and the sub-arctic fauna such as reindeer, lemming, glutton and arctic fox moved north in their wake. The deciduous forests of mixed oak and hazel developed to a very great extent in the favourable climate and supported much the same fauna that exists today; the red and roe deer, the elk, the ox, hedgehogs and badgers, and of particular importance, the wolf. In effect, therefore, the evolution of the climate and the forestation which accompanied it, had a profound effect on fauna, causing tundra and steppe species to give way to those adapted to forests.

Moreover, the rapid amelioration of the climate caused a strong drift from cave to open settlement. It is true that man was not wholly a troglodyte during the Upper Palaeolithic period, neither were caves and rock-shelters entirely abandoned in the Mesolithic, but the change in the way of life is very marked. The fact that man was no longer confined to areas in which natural shelter was to be found, the amelioration of the climate, the changes in the fauna and the corresponding modifications in the equipment of the Mesolithic foodgatherers, all caused widespread movements of hunting bands over the European plain, and led man into regions which hitherto had not been penetrated.

## B. CLIMATIC CHRONOLOGY

For the chronology of vegetation development, the area between the north German and central Swedish moraines has frequently been taken as the 'type' area, that is, the Danish Islands, Jutland and Scania. Outside this area the sequence varies considerably in detail but is recognisably the same in broad outline. It is only to be expected that the

exact nature of the Late-Glacial and Post-Glacial sequences should show some variation between one area and another, since they must have been influenced not only by the usual climatic factors of altitude and latitude, but also by their proximity to the contemporary ice-sheet. However, as it is the main stages of the British vegetational development with which we are concerned, the detailed discrepancies between the Danish and the British sequences will be acknowledged but ignored, as having no real significance in this context. The authorities from which the following outline of the vegetational sequence is mainly derived include Godwin (1956 and 1940) for the British evidence, and Iverson (1954) and Jorghsen (1954) for the Danish.

Zone 1a or the Oldest Dryas is a period of intense cold corresponding to the temporary re-advance of the Fennoscandian ice-sheet at the Langeland-Samland moraines (Movius, 1960). The profile from Bøllingsø shows 80% of the pollen of this period to be herbaceous, accompanied by Salix (willow), Betula (birch), and Hippophae (sea-buckthorn). It is by reason of this latter species that Iverson considers the climate to be sub-arctic, not arctic, in character.

Zone 1b or the Bølling Oscillation was first recognised by Iverson (1942), when he found clear evidence for a mild period in the middle portion of Zone 1 of the pollen diagram for Bøllingsø in Denmark. It is clearly marked by the introduction of true trees in the form of Betula pubescens together with Sorbus aucuparia (mountain ash) and a rich vegetation of waterplants. Of the latter, 20% of the Potamogeton (pondweed), includes the sub-arctic praelongus variety. The oscillation is therefore regarded as a period of park tundra and has been established at other localities in north Germany, the Netherlands and, recently, in Spain (Movius, 1960, pp. 363-364). Recent C14 dates announced for peat examples of Bølling Age indicate that the oscillation covers an interval of about 1,000 years between c.11,500 B.C.

(13,700 B.P.  $\pm$  300) and approximately 10,500 B.C. (12,300  $\pm$  260 B.P.) (Movius, 1960, p. 363).

Zone 1c or the Oldest Dryas appears, at least in Denmark, to be very cold indeed. It is characterised by cryoturbation phenomena and tundra conditions prevail as Betula pubescens and Hippophae disappear, and the water plants decline. On the basis of the C14 dates for the Bölling Oscillation it is probable that the Older Dryas deposits were accumulated during a period of not more than 500 years duration, after which come the well-dated Allerød Oscillation.

Zone 11 or the Allerød Oscillation is characterised by a sharp rise in tree pollen, particularly birch. The aspen and pine are also present at Böllingsø, and at Ruds Vedby there are Hippophae and Juniper as well. On the island of Bornholm, at Vallengaard Mose there are pine forests, and Betula odorata appears for the first time. Some tundra species disappear. This clearly defined horizon has been identified at many localities in northern and western Europe, including the Auvergne region of central France and north Spain. It therefore provides an excellent stratigraphical and chronological horizon, which, as shown by a large series of C14 dates, lasted just over one millenium, from about 10,000 B.C. to about 8,850 B.C. (Movius, 1960, p. 364)

Zone 111 the last of the Late-Glacial periods, the Younger Dryas, starts with a sharp fall of birch and pine, and a corresponding rise of herbaceous pollen, in which Artimisia is prominent. However, the trees do not disappear entirely, so the purely tundra conditions of the earliest Late-Glacial do not return. It is thought that this return to severe climatic conditions occurred between c. 8,850 B.C. and approximately 8,000 B.C. when the ice-sheet stood at the Fennoscandian moraines (Movius, 1960, p. 364)

After this phase Post-Glacial conditions were established throughout

the region under consideration, except in the mountains and the high northern latitudes. Therefore, the transition to the next period, Zone IV or the Pre-Boreal, is of great interest, as it shows the difference between the oscillations of the Late-Glacial and the start of the true Post-Glacial. The end of the Late-Glacial, at approximately 8,000 B.C., is also of great importance as being the demarcation line between the ultimate Palaeolithic industries and the beginning of the true Mesolithic.

Zone IV At the start of the Pre-Boreal, before the forest development had time to reflect the improved climate, there is a sudden increase of warmth requiring plants among the herbs and aquatics. Considered in connection with a rise of Juniper, which is quick to respond to an increase in warmth but soon becomes stifled as the forest development gets underway, this shows that there was a marked and rapid climatic improvement. In the full Pre-Boreal, birch and pine predominate and Corylus (hazel) is introduced before the end of the phase. In Scandinavia the Atlantic entered the Baltic to form the salt sea named after its most typical mollusc - Yoldia hyberborea. The present flow of the southern part of the North Sea basin was above ocean level at this time, as is shown by analysis of 'moerlog', and by the discovery of a Mesolithic barbed point in peat dredged from the Lemn and Ower Banks in 120' of water (see below).

Zone V and VI or the Boreal Period shows continued climatic improvement and increasing forests, first of pine and then of deciduous trees. Its first part, Zone V, is characterised by a phenomenal expansion of hazel with a high percentage of pine and the beginning of mixed oak forests. The rational limit of mixed oak is suggested by Jorgensen (1954) as the Zone border V/VI, marking a sub-division of the Boreal. The second part of the Boreal, Zone VI, includes the first appearance of Filia (lime) among the mixed oak assemblage, and of Hedera

(ivy). Jorg<sup>en</sup>sen (1954) places the upper limit of the Boreal Zone border V1/V11, at the point where the mixed oak ceases to rise - this is considerably later than the Zone border previously used.

In Scandanavia the Boreal corresponds with the Ancyclus Lake stage, during which the Baltic was a freshwater lake of greater extent than at present, discharging to the Atlantic through a river in central Sweden. This is the period of the great eustatic rise which isolated Great Britain from the Continent (see below).

Zone Vlla The last stage of the Boreal Period was one of dryness and is followed by the sudden transition to the Atlantic phase which appears to be the period of the climatic optimum in Britain. The higher temperature and greater humidity is shown by the increase of alder and lime and the change is also reflected by the water plants. However, warmth loving species decline in the latter part of Zone Vll, and the more oceanic character of the climate at this time may in part be a reflection of the increasing submergence of the North Sea area, and the opening of the English Channel.

It is in this phase that the eustatic rise reached its maximum, giving rise to the Carse clays of the Scottish Lowlands, the clay and silt infilling of many estuaries around the coasts, and the cutting of the 25' raised beach of northern Great Britain and Ireland. In Scandanavia, the Atlantic period corresponds to the Littorina stage of the Baltic, when this inland sea was warmer and saltier than at any stage in its history.

Zone Vllb or the Sub-Boreal is marked by a widespread recession of the elm in its earliest stages and the introduction of the beech into Denmark. The beech develops considerably in the following period - the Sub-Atlantic, Zone Vlll. In this, the final phase, there are signs

of a deterioration of climate, and the Neolithic settlers had arrived in Britain early in the Sub-Boreal, thus imposing themselves on the environment and affecting the vegetation by human activity.

### C. THE ABSOLUTE DATING OF THE VEGETATIONAL SEQUENCE

The advantages of absolute dates for the various Zones in the vegetational sequence are obvious. Not only do they permit long-range correlations of the various Zones in different areas of Europe, but as objects of human workmanship are frequently found in peat deposits, then the absolute dates can be applied to them also. Mesolithic industries and objects of Mesolithic type are frequently recovered from peat, and therefore the question of absolute dating is of particular interest in this context. The unique advantage of an absolute date for a Mesolithic industry is that the latter can be compared objectively with a similarly dated industry from another region without recourse to implement typology. It is only in this way that folk-movements and cultural influences between different peoples can be securely ascertained on completely objective grounds. If one culture is found to be younger than another, then its relationship to that culture is one of a borrower, if any typological similarities exist. A provision of such dates for the European Mesolithic cultures, (and for those of other periods), would greatly simplify the problem of intercommunication.

In recent years an apparent means to that end has become available through the theory of the radiocarbon method ( $C^{14}$ ), which was first worked out by Libby (1946). However, Zeuner (1958, p. 343) has drawn attention to the dangers inherent in applying this method to samples of peat and also to organic materials found in soils. Apparently this is due to the fact that : "Peat and still more so charcoal are substances which are liable to absorb humic matter from the solutions that pass



through them. If a specimen is analysed after having been exposed to much contamination by carbon compounds of an age younger than its own, its radiocarbon age is liable to be reduced." This caution must be borne in mind when dealing with radiocarbon dates.

#### SCALEBY MOSS

Scaleby Moss lies five miles N.N.E. of Carlisle in a completely enclosed hollow in the boulder clay of the Scottish Re-advance Glaciation at about 110' O. D (Godwin, Walker and Willis, 1957). In 1955 a pit was dug through the deposits beneath the floor of a peat-cutting and a monolith of peat and mud was taken to the laboratory for examination. Critical levels, particularly the Zone boundaries, were identified by pollen analysis, and a sample was then taken from the horizon for dating purposes. (Flint and Deevey, 1959).

Q-171	Vlla/Vllb	Atlantic/Sub-Boreal	4932 <sup>±</sup> 134 B.P.
Q-165	Vl/Vlla	Boreal/Atlantic	7432 <sup>±</sup> c.350 B.P.
Q-161	V/Vla		9009 <sup>±</sup> 194
Q-162	Upper Zone V		8816 <sup>±</sup> 192
Q-154	lv/v	Pre-Boreal/Boreal	9564 <sup>±</sup> 209
Q-151	lll/lv	Late-Glacial/Post-Glacial	10,264 <sup>±</sup> c.350
Q-144	Base of Zone lll		10,835 <sup>±</sup> 185
Q-147			
&	Top of Zone ll	End of Allerød	10,705 <sup>±</sup> 207
Q-148			

#### STAR CARR, YORKSHIRE

The samples used were wood from an excavated platform belonging to an extensive Mesolithic occupation (Flint and Deevey, 1959. Q-14). The Mesolithic occupation was dated by pollen analysis to the Zone lv - V transition and the radiocarbon date was 9557<sup>±</sup>210. Two Chicago datings for the same samples give an assay in close agreement, i.e. 9488<sup>±</sup>350,

and the Zone IV - V transition on the Scaleby Moss dated Zone sequence is close to 9,600 B.P.

#### STUMP CROSS, GRESSINGTON, YORKSHIRE

At an altitude of 1,200' on the Yorkshire Moors flint artifacts of a Mesolithic industry were discovered stratified into the undisturbed organic muds of a small pool (Flint and Deevey, 1959, Q-141). Pollen analysis referred the industry to a time between the beginning and middle of pollen Zone Vlla. The dating sample was contemporary charcoal and gave a date of 6,500<sup>±</sup>310 B.P. This date falls within the Scaleby Moss dates for the first half of Zone Vlla.

#### D. SHORELINES

Unfortunately, the stages of marine transgression after the last Glaciation cannot be used over a wide area for dating purposes. There are two factors concerned. Firstly, the isostatic movement of the North Sea syncline which prolonged the eustatic rise, and secondly the isostatic movement of the Baltic region. There has also been a further isostatic movement in the north of Britain and in North Wales which prevents a comparison of the 25' beach of that area with the sea levels of other regions. However, although the transgressions in the various areas cannot be compared with each other, they are of use for dating within their own regions, and undoubtedly had an effect on the environment and distribution of prehistoric cultures.

The succession of phases in the Baltic area has already been considered in dealing with the vegetational history. Remains from the submerged areas around Britain will be dealt with in detail as they become relevant to the discussion of the Mesolithic cultures. It is

sufficient here to mention the harpoon from the Leman and Ower banks of the North Sea, the submerged land surfaces at Walton-on-Naze, Essex and the Isle of Wight, and the submerged forests of the West Country, the English Channel area and Wales.

#### E. THE OPENING OF THE ENGLISH CHANNEL

The question of the opening of the English Channel in Post-Glacial times is naturally concerned with the Post-Glacial fluctuations in the level of the sea. An analysis of the 'moarlog' from the freshwater peat beds of the North Sea flow<sup>of</sup> shows them to have formed in Zones IV - V, the earliest Post-Glacial. This gives a date for the earliest possible eustatic rise in sea level (Godwin, 1956, p. 24).

In Swansea Bay, South Wales, there is evidence for the stage by which it had substantially reached its conclusion. Pollen analysis of the peat beds in Swansea Bay shows that the last 50' of the eustatic rise took place within the second half of Zone VI of the pollen sequence, that is, the Boreal period. Submergence was going on at this time at a rate of about 5' per century. By the end of the Boreal period the sea level had come within 10' or 20' of its present height, a conclusion borne out by numerous palynological determinations of age in relation to coastal stratigraphy (Godwin, 1943).

Contemporary opinion tends to favour a date for the opening of the English Channel within these limits. Ulliyott (1936), in a study of the distribution of flatworms on either side of the Channel suggests that "the freshwater connexion between England and the Continent was severed before the (summer) temperature had risen to 16°C." Clark (1936 B) in an expansion of this theory suggests that the severance must therefore have been well within the Boreal phase before the climatic optimum. Furthermore, Professor Clark points out that the later bone and flint

types of the Maglemose culture, such as those found on the Late Boreal stations on Zealand, are absent from Britain. Therefore, it seems probable that the separation of Britain from the Continent occurred in Late Boreal times, between 7,000 and 6,000 B.C., and that the widening of the gap was a gradual process (Zeuner, 1958, pp. 99-102).

2.

THE LATE-GLACIAL CULTURESTHE 'FEDERMESSER' GROUPS

During the last twenty years a series of industries of evolved Upper Palaeolithic character has been recorded on the low-lying plains between Schleswig-Holstein and northern Belgium (Schwabedissen, 1944, 1954; Bohmers, 1947, 1956). Herr. Schwabedissen has suggested that these industries represent the first occupation of the Low Countries by Epi-Magdalenian peoples with affinities to a group of settlements in the Middle Rhine area.

Owing to the superficial nature of most of the sites and their chemical environment, organic artifacts are totally lacking. The dominant tool-type is the scraper, which apparently contributes between 10% - 90% of the finished tools. The next in order of frequency are the burins (normally c. 10%) in which angle burins predominate, while the backed blades or 'federmesser' never seem to exceed 10% and are sometimes as low as 2%. The only other tool-type worthy of note is the grooving or piercing tool (Zinken) which occurs sporadically.

On relatively minute typological distinctions these 'penknife-blade' industries are divided into three groups: the Tjonger in northern Belgium and Holland, the Rissen in north west Holland and north west Germany, and the Wehlen Group of southern Schleswig-Holstein and the north east part of Lower Saxony. The industries of these groups differ in the scarcity or absence of certain types, and the 'Federmesser' or penknife-blades themselves show some variety of form and percentages. It has been suggested that the Tjonger Group originated in the Creswellian of Great Britain (Bohmers, 1947), as the guide-artifacts for the latter are typical 'Federmesser' with a convex and sometimes angular back. On the other hand, the Rissen Group suggests a close relationship with the Late Magdalenian cultures of the middle Rhine and south

western Germany.

The 'Federmesser' Groups have been dated, by a combination of pollen analysis and C14 to the late Allerød or Allerød/Younger Dryas transition, which is later than any established Magdalenian dates. At Rissen, near Hamburg, the 'Federmesser' culture deposit was overlain by a well-defined horizon of the Ahrensburg culture from which it was separated by a substantial sterile formation (Schwabedissen, 1954, p.33). The Ahrensburg deposit is assigned to the Younger Dryas phase, and the Rissen layer itself is assigned by analogy with a nearby pollen-dated section to the Allerød Oscillation with a C14 date of  $9,500 \pm 180$  B.C. The Tjonger site of Usselo in Holland is also dated to the late Allerød or Allerød/Younger Dryas transition by pollen analysis, and according to radiocarbon datings belongs between  $9,105 \pm 120$  B.C. and  $9,605 \pm 100$  B.C. Moreover, recent investigations by A. Rust in the Ahrensburg Tunnel Valley (Holstein) have revealed at Borneck a 'Federmesser' industry with analogies to the Wehlen Group, together with the possible remains of a temporary tent, and dated to the Allerød Oscillation by pollen analysis (Rust, 1958 A, pp. 44-61).

The chronological validity of a Magdalenian derivation for the 'Federmesser' Group is proved at the late Magdalenian station of Martinsburg near Andernach, south Germany (Schwabedissen, 1954, p. 54). The artifacts are included in the weathered surface of the final loess deposit of the region and overlain by a volcanic pumice formation. The latter can be dated on botanical evidence to the Allerød Oscillation, which suggests that the late Magdalenian culture of the central German Highlands was still current at the beginning of this period.

#### THE HAMBURGIAN CULTURE

At the end of the Pleistocene period the ice finally withdrew from the southern shores of the Baltic, and the first human communities of the Upper Palaeolithic epoch made their appearance in the area, preceding

the 'Federmesser' Groups of the north European plain. These were the reindeer hunters of the Hamburgian culture, in which strains of evidently Magdalenian origin are combined with other elements, perhaps ultimately derived from the Gravettian cultures of Eastern Europe.

The culture was discovered near Hamburg on the now famous site of Meiendorf (Rust, 1937; Clark, 1938, 1950) and in the lower Stellmoor level (Rust, 1936, 1943). Further discoveries have been made in the Netherlands in the provinces of Frisia (the best excavated site being at Ureterp), Groningen, Drenthe, Guelders and Utrecht (Bohmers, 1947). It would appear that the hunters of the Hamburgian culture followed the reindeer herds during their seasonal migrations from Schleswig-Holstein in the summer to the northern part of the Netherlands in the winter. Pollen analysis of the deposits in which these industries have been found has placed them in Zone Ia before the Bölling Oscillation (Schütrumpf in Rust, 1937, 1958 A).

The Hamburgian sites on the edge of the Ahrensburg Tunnel Valley near Hamburg (Rust, 1936, 1937, 1943, 1958 A) yielded an overwhelming number of reindeer remains, and the hunters were largely dependant on this animal both for food and raw materials. The age of the reindeer at death and the extremely low proportion of shed antlers, show that the sites were occupied only in summer. At Berneck, Poggenwisch and Hasewisch in the Ahrensburg Tunnel Valley the remains of the temporary tents of these hunters have been found (Rust, 1958 B). The foundations of the tents, (which were probably of skins stretched on poles) are marked by stones set in the subsoil.

The lithic industry is characterised by shouldered points, burins (mostly of angle type), keeled, horseshoe and end-of-blade scrapers and double-ended gouging tools or awls, known as zinken. However, the chief organic raw material was reindeer antler worked by the 'groove and splinter' technique, which can be traced back to the Upper Palaeolithic. In this connection it should be noted that 8% of the implements from

Meiendorf are burins. From the reindeer antler were made uniserial harpoons and double-ended points of circular section, as well as 'leather-cutting tools', which consist of antler fragments of hook-like form with oblique slots for the insertion of flint flakes. Another type was a one-edged knife of reindeer rib.

The Hamburgian has been divided into two groups, an Older (Hamburgian 1) and a Younger (Hamburgian 11) (Bohmers, 1947). In the younger variant, the shouldered points of Hamburgian 1 have, for the greater part, developed into tanged points, whilst the other artifacts show changed percentage proportions. At Meiendorf, a Hamburgian 1 industry was dated by C14 to 15,750<sup>±</sup>800 B.P., and at Poggenwisch in the same valley a Hamburgian 11 industry was dated to 15,150<sup>±</sup>350 B.P. (Movius, 1960, p.363). Schütrumpf (1955, pp.47-50) analysed the pollen diagrams at both sites and places them both in the Oldest Dryas Phase (Zone 1a), with the Poggenwisch locality being slightly younger since the diagram already shows changes that indicate the approach of less severe climatic conditions.

It should be indicated that at Grömitz on the south east shore of Lübeck Bay, unrolled Hamburgian 11 artifacts have been reported deeply embedded in Morainic deposits said to have accumulated during the late part of the Pomeranian stage. Apparently, at this locality a reindeer hunter's temporary camp site was over-ridden by a re-advance of the ice during the Oldest Dryas Phase. However, Gross (1955, p.111) points out the possibility that the Grömitz artifacts may have been introduced secondarily into the ground moraine by cryoturbation rather than by over-riding of the glacial ice.

It is doubtful whether the Hamburgian can be derived from the late Magdalenian of western Europe as the typological differences are too great. The Meiendorf harpoon points forward to Mesolithic forms and differs from the Magdalenian types. On the other hand, the shouldered



points can be paralleled in the East Gravettian cultures and an engraving from Poggenwisch also has its affinities in south east Europe. The evidence suggests that the Hamburgian culture incorporates influences from both east and west without approximating closely to either.

#### THE AHRENSBURG CULTURE

The Ahrensburg culture is mainly concentrated in the eastern part of the Hamburgian area, and only one site of this culture was known in Holland up to 1947 (Bohmers, 1947). At Stellmoor in the Ahrensburg Tunnel Valley two distinct occupation levels were recorded, the lower was Hamburgian and the upper contained an industry of the Ahrensburg culture, which is dated by pollen analysis to the Younger Dryas Period (Zone III) (Schütrumpf in Rust, 1943). The two cultures are separated by an interval of time amounting probably to thousands of years, and therefore a continuity of tradition is improbable although there is the possibility of a common source (Rust, 1937, pp.18-33).

In the Ahrensburg deposits at Stellmoor the remains of the reindeer still predominate over all others, but technically the antler work represents a complete break from the Hamburgian - the groove and splinter technique being absent. Harpoons occur, but of different type to the Meiendorf example as they are both uniserial and biserial, the latter having a spatulate base and two rows of angular barbs. A feature of the industry are thirty-four complete 'Lyngby Axes' and the fragments of a dozen others. Of these, 50% were hammers or clubs, eight were shaped into an axe edge, four into an adze edge and in three instances the stump of the tine had been hollowed, though scarcely sufficiently to act as a haft (Clark, 1950, p.90). In other words, there is no evidence that flint axe or adze blades were ever inserted into the 'Lyngby Axes', and therefore they are not a reflection of adaptation to forest conditions. In fact, three samples of 'Lyngby Axes' have been found with tanged flint points still in position (Clark, 1938, pp.164-168).

Organic materials were well preserved at Stellmoor and over a hundred pine-wood arrow-shafts were found. The lithic industry is characterised by tanged points — much smaller than those of the Hamburgian, burins, scrapers and primitive forms of microliths.

#### BROMME, ZEALAND

The first expansion of human settlement into Denmark is represented by a flint industry from Bromme, Zealand which on pollen analytical evidence is assigned to the Allerød Oscillation (Mathiassen, 1946; Iverson, 1946). The industry is comprised of burins, scrapers and a whole series of tanged flakes. Unfortunately, no organic materials were preserved but it has been suggested that Bromme is ancestral to the Ahrensburg culture. Certainly some of the Bromme tanged points are very similar to the larger of the Ahrensburg examples.

#### NØRRE-LYNGBY, JUTLAND

A typical 'Lyngby Axe' has been recorded from the foreshore at Nørre-Lyngby in the extreme north of Jutland (Zeuner, 1958, p.76). A tanged flint flake was extracted from a section of early Post-Glacial freshwater deposits nearby, and it is likely that the axe was derived from the same deposits which probably date from the end of the Younger Dryas Period (Zone 111).

#### THE CALLENHARDT CULTURE

The Callenhardt culture has been dated by pollen analysis to the Younger Dryas Period (Zone 111) at Børnebeck in the Ahrensburg Tunnel Valley, and it has been suggested by Rust (1958 A, pp.129-145) that its material culture is a result of the mixing of Magdalenian (i.e. 'Federmesser') and Ahrensburg influences. However, the fact that the fauna of the Callenhardt deposits at Børnebeck contains red deer and other forest types as well as tundra species, suggests a climate rather warmer than

that of the Younger Dryas. It is possible the industry may belong to the Allerød/Younger Dryas transition, and in which case is earlier than the Ahrensburg deposit at Stellmoor.

The lithic component of the Borneck industry includes six tanged flakes, seventeen microliths and fourteen blade scrapers (Rust, 1958 A pp. 79-80) which, together with sixty one burins are of typical Ahrensburg type. However, the industry also includes thirteen 'Gravettespitzen' which suggest a Magdalenian or 'Federmesser' influence. The great majority of the microliths are simple obliquely blunted points.

### CONCLUSION

The importance of the Callenhardt culture is that it may be earlier than the Ahrensburg culture and combines elements reminiscent of that culture and from the 'Federmesser' group in its material equipment. There is then, a possibility that the Ahrensburg culture may have developed out of the 'Federmesser' group via the Callenhardt. Despite the typological possibility that the Hamburgian shouldered points could be the prototypes of the diminutive tanged points of the Ahrensburg culture, one cannot ignore the fact that the two cultures are separated by a considerable part of Zone 1 as well as the Allerød Oscillation. One has also to bear in mind the absence of the 'groove and splinter' technique and the 'zinken' from the Ahrensburg industries.

In conclusion, it is possible to identify two cultural groups on the north European plain in Late-Glacial times. They are the 'Tanged Point Group' extending over northern Europe during the Oldest Dryas period and being replaced by the 'Federmesser Group' during the Allerød Oscillation, only to return in the Younger Dryas phase. The two groups do not appear to have come into contact, save possibly in the Callenhardt industries which are dated to the Allerød/Younger Dryas transition, and are therefore well placed chronologically for such a fusion.

### 3. THE POST-GLACIAL CULTURES: NORTHERN EUROPE

"In their general mode of life the Upper Palaeolithic and Mesolithic peoples of Europe lived on the same plane, and such innovations as appeared were intimately bound up with the rather far-reaching modifications in climate and vegetation implicit in the transition from glacial to temperate conditions." (Clark, 1950, p.91). The decisive new factor on the north European plain was the spread of forest which did not begin on a substantial scale until Pre-Boreal times. Therefore, the division between the Upper Palaeolithic and Mesolithic periods coincides with this phase.

Little is known of the origins of the Mesolithic cultures and very few industries have yet been referred to the Pre-Boreal period (Zone IV). One such industry occurs at Pinnberg in the Ahrensburg Tunnel Valley (Holstein), where microliths and tanged points of Upper Palaeolithic character are associated with rough core and flake axes representing adaptation to forest conditions. (Rust, 1958 B). Another industry assigned to the Pre-Boreal climatic phase occurs at Klosterlund on the shore of the Bölling Sø in central Jutland (Mathiassen, 1937). Unfortunately, only the lithic industry is preserved but out of one hundred and sixty microliths, one hundred and fifty were of primitive type blunted down the whole or part of one edge, the remainder being triangles of scalene or isocetes form. A small proportion of the microliths were made by the micro-burin process, and the industry also includes scrapers, burins, sixty three core axes, seven flake axes and narrow awl-like points steeply flaked on either edge.

This industry has broad affinities to the Maglemosean culture and is the earliest manifestation of it in that area.

### THE MAGLEMOSEAN CULTURE

The Maglemosean culture is probably a result of the ecological changes which occurred during the Pre-Boreal period and which are reflected by the introduction of axes into the material equipment. The industries of Pinnberg and Klosterlund, which have been under discussion, are early manifestations of this adaptation to a changing environment. The former may be a link between the tanged point cultures of Late-Glacial times and the Mesolithic industries, whilst Klosterlund exhibits primitive Maglemosean characteristics and is obviously a fore-runner of that culture.

A third industry, that at Star Carr in north east Yorkshire, has been assigned on pollen-analytical grounds to the Pre-Boreal, and provided with an absolute age of  $9,488 \pm 350$  years B.P. (Clark, 1954). The material remains of this important site are described below, and it is sufficient to state here that the industry also exhibits primitive Maglemosean characteristics. Moreover, its broad affinity with the industry from Klosterlund suggests a community of culture between eastern England and the west Baltic region during the Pre-Boreal phase of the Post-Glacial forest period. Contemporary finds have been made at Ogaarde 1 in the Aamosen Bog, Vig in north west Zealand and Varlose (notched leister prong) (Jorgensen, 1954, fig. 3).

The Maglemosean culture covers a very large area, comprising almost the whole of the north European plain, from England (the land-bridge with the continent still existing) in the west, to Poland in the east; from southern Norway and southern Sweden in the north, to Flanders and Artois and Picardy in the south (Clark, 1936 A). The area richest in finds is central to the whole region - Denmark and south Sweden, especially the island of Zealand and the province of Scania (Althin, 1954). Probably the southern part of the North Sea was occupied at this time, as shown by the barbed bone point from between the Leman and Ower Banks off the Norfolk coast. This bone point was found in a lump of 'moorlog'

which was later dated by pollen analysis to the Boreal period (Godwin, 1933).

The majority of the excavated settlements are found near lakes, marshes or rivers, usually on islands or peninsulas, e.g. Mullerup, Svaerdborg and Duvensee near Lübeck (Sarauw, 1903; Friis Johansen, 1918-1919; Schwabedissen, 1944). These sites are summer stations which were probably flooded during the winter months. Barbed bone points have been found embedded in pike-skulls and duck, geese and swan are strongly represented among the faunal remains. Of the land animals, <sup>ut</sup>awoche and elk were the most important and wild pig, red deer and roe deer are well represented. Remains of dog were found at Mullerup, Svaerdborg, Holmegaard and Duvensee. The damp conditions of the bogs and fens fortunately ensured the survival of organic matter and also enabled pollen analytical investigations to be made.

The most important guide artifact of the Maglemosean culture is the barbed bone point of which numerous examples have been found (Clark, 1936 A, p. 117, fig. 41). The majority were probably hafted for use, singly as projectiles or fish-spears, or in groups as fish spears or bird-catchers. One type of point is perforated at the base and it is possible that it was used as a harpoon. A pair of barbed bone points found close together at Svetorp, Sweden, suggest use as the prongs of a leister, and from the Aamosen Bog in Zealand has come a barbed bone point complete with wooden shaft. Numerous other artifacts of antler and bone have been found, the most important types being slotted points with flint insets (Clark, 1936 A, fig. 41), various types of axes or adzes and 'sleeves' for the inseting of flint axes or adzes, barbless bone fish-hooks, worked antler tines, bone awls and small bone handles. As is to be expected, wood was used to a considerable extent, and the best evidence for this comes from Holmegaard where were recorded wooden bows with hand-grips, arrow shafts and a willow paddle/rudder (Clark, 1950, p. 94). A similar wooden paddle was recorded from Duvensee. A find which illustrates the quality of the preservation on some of these sites

is a fishing net from Finland, represented by a group of sink-stones and pin<sup>e</sup>-bark floats, the latter arranged in a crescent to the scatter of stones.

The lithic industry reflects the environment of the times, as it includes numerous core axes and adzes indicating adaptation to a forest environment. Flake axes are frequently recorded but they are always outnumbered by the core variety. Amongst the microlithic types, trapezes and the highly evolved forms of the later microlithic cultures are normally absent. The most common microlithic types are obliquely blunted points and points retouched down one edge. A strong element of triangular forms are found at the Duvensee and Zealand sites, and the latter often possess small triangles and crescents. However, the geometric forms would appear to be a fairly late development. Micro-burins are fairly numerous and other flint artifacts include burins, scrapers (convex and on blades), awls and blades retouched down one edge. Of stone other than flint are quartzite pebbles with countersunk hollows and various forms of perforated maceheads (Clark, 1936 A, p.105). Very rare are axes or adzes with the cutting edge produced by grinding.

A feature of the Maglemosean culture is its art which has been considered in some detail by Professor Clark (1936 A. pp. 162-189). In general it may be said that "the art of the Maglemose culture consists very largely of engravings on small objects, most of which are implements of daily use" (Clark, 1936 A, p.162). The motives are almost entirely geometric and include simple patterns such as the net motive and the chequer pattern. There are stylistic renderings of some form of life but the only good evidence for naturalism are the cervids on the antler haft from Ystad and the ?fish from Skjalstrup.

A study of the chronology of the Maglemosean settlements based on pollen analysis, suggests that the number of settlements increased gradually from the last phase of the Pre-Boreal all through Zone V, culminating when the mixed oak forest first began to make its mark (Jorg<sup>en</sup>sen,

1954). The sites of Mullerup and Duvensee are dated by pollen analysis to Zone V, and the Holmegaard-Svaerdborg group to Zone VI. However, as the deciduous forest spread and became impenetrable with the introduction of thick undergrowth of alder in Zone VII, the Maglemosean disappeared as a distinct<sup>in</sup> culture. According to Troels-Smith (1942) the decreasing number of hunting game in the forest, now closed with hardly any grass growing in it, is the actual reason why the Maglemosean hunters gave up their inland stations in search of better hunting grounds. It so happened that the recently re-named Kongemose peoples left the forests and took to living by the sea-shore.

The general impression one receives of the Maglemosean culture is that of homogeneity over an extensive geographical area. This may be partly due to the then unsubmerged tracts of the North Sea and the fact that water was not a barrier to penetration. The size of the settlements suggest small communities migrating seasonally, since the sites were inhabited during the summer and autumn months. Fishing and fowling played a large part in their economy and the forest environment is reflected by the heavy equipment and the extensive use of wood.

It was suggested at the beginning that the Maglemosean culture represents a response to the ecological changes which occurred during the Pre-Boreal, of which Pinnberg, Klosterlund and Star Carr are the earliest manifestations. These changes would transform conditions of human life sufficiently to account for a radical alteration in material equipment from that of the Late Glacial cultures. An Upper Palaeolithic source is probable for some elements in the material culture of the Maglemosean peoples, and such influences could well have operated together with adaptation to ecological change.

#### THE KONGEMOSE CULTURE

In recent years a new Mesolithic culture has been identified in Denmark. It had been known for some time under the name of the 'Old Coastal Culture' and Carstensminde Culture, but now that its earliest



phases have been recognised inland, it has been suggested that the name Kongmose should be used (Jorg<sup>en</sup>sen, 1956).

It has been indicated that the Maglemosean culture was common to the whole of Denmark. The Kongmose culture, on the other hand, is restricted to the eastern parts of the country (i.e. in Zealand), apart from a single discovery from Djursland. The name 'Kongemosen' refers to a part of the large bog known as Aamose in west Zealand, where a settlement of the Kongmose culture was excavated in 1955 (Jorg<sup>en</sup>sen, 1956). The flint industry is dominated by large quantities of long blades on which scrapers and some hundreds of burins were manufactured. The microlithic element consists almost solely of rhombic (asymmetrical) arrowheads (Jorg<sup>en</sup>sen, 1956, fig.2, 12-20) of which about 2,500 were found. The micro-burin is common and a very few triangular microliths were found, but these may possibly be intrusive from a nearby Maglemose settlement. About fifty core axes were found as well as three large picks of flint and a number of fragments of the latter. Flake axes did not occur. Of stone other than flint were manufactured perforated maceheads and a fragment of a polished stone axe.

Bodkins formed from the metatarsals of roe deer are common and five axes of deer antler were found. One object of great interest is a flat slotted point, finely engraved and still retaining one micro-blade 'in situ' in each of the edge grooves. Two specimens of the rounded type were found from which the flint insets were missing. One object of bone (Jorg<sup>en</sup>sen, 1956, fig.8,3,4) resembles the 'bull-roarer' from Stellmoor described by Rust (1943, p. 185, fig.84). No certain fishing apparatus was found and bones of fish are rare among the faunal material. Of interest among the wooden objects is the blade of a paddle. Amongst the faunal remains, bones of red deer, roe deer and wild boar predominate. Almost all the animal bones are split for marrow extraction, and in general the impression is that hunting was the main means of livelihood, with fishing of negligible importance.

The remains at Kongemose show a considerable resemblance to the discoveries at Gislinge Lammefjord and Carstensminde on the Amager, and they can be assigned with confidence to what was hitherto referred to as the 'Early Coastal Culture'. However, it has now been shown that the culture is not only associated with the coast as at Vedbaek Boldbaner and the earliest levels at Bloksbjerg (Clark, 1936 A, p.141). Examples of the culture have now been found inland on a number of settlement sites in the Aamose, for example, Kongemose itself, Øgaarde 11, Magleø 1 and Skellingsted Bro. The material culture from the coastal sites is similar to that described from Kongemose. The guide artifact is the rhombic arrowhead, pottery being absent from the lowest level at Bloksbjerg, Carstensminde, Kongemose and other sites of the Kongemose culture, but present in the first stage of the Ertebølle culture which succeeds the Kongemose.

The Kongemose industry from the Aamosen Bog is assigned to Zone VI by pollen analytical methods, and is therefore generally contemporary with the main Maglemosean settlement at Svaerdborg. However, it is clearly an independent culture, though existing in the same environment and at the same time as the Maglemosean. As we have seen, by the end of Zone VI owing to the dense forestation the Maglemosean had disappeared as a distinct culture. It seems very likely, therefore, that the non-fishing Kongemose peoples left the forests and took to living by the sea-shore. These sea-shore sites which include Carstensminde and Gislinge Lammefjord are dated to the early Atlantic transgression (Vedbaek, 1938), later than the inland settlements. The Kongemose peoples become strandloopers, living on shell-fish and sea-birds, though the available mammalian fauna was hunted as well. They included red and roe deer, pig and at Carstensminde the remains of grey seal were also found. It is this culture that develops into the Ertebølle, which did not finally disappear until the Sub-Boreal.

It is possible that the Kongemose culture is derived from the Ahrensburg culture, which has similar rhomboid arrowheads and the same

crude antler technique. In this connection it has also been suggested that the flint picks of the Kongemose were a new version of the old 'Lyngby Axes' (Troels-Smith. Prehist. Soc. Conf., London, 1960).

#### THE GUDENAA CULTURE

The sites of the Gudenaa culture (published by Mathiassen, 1937), found in and above river valleys in west Jutland, are of interest for they show a mixture of two cultures. The basic element is a survival of the Maglemosean culture, with some Kongemose influence in the earlier industries and Ertebølle in the later. The sites have been dated by pollen analytical methods from between the early Boreal to the Sub-Boreal periods, when farming first penetrated the land (Iverson in Mathiassen, 1937).

#### THE ERTEBØLLE CULTURE.

Probably the best known and most vigorous development of culture on the shores of the Litorina Sea is that of the Ertebølle culture, which developed out of the Kongemose culture as found at Bloksbjerg. The culture has become famous mainly by reason of its 'kitchen-middens' or shell mounds, five of which were examined by a 'Køkkenmødding-Kommission' (Madsen et al., 1900). The middens are often over one hundred yards in length though not more than twenty yards wide and normally only from three to five feet thick. They are composed of the debris of edible shell-fish and the bones of animals. Stone hearths occur throughout the middens and the mammalian remains show that these middens were frequented at all seasons of the year. However, not all the material remains of the Ertebølle culture have been found in shell mounds. For example, at Braband Søb in Jutland remains of the Ertebølle culture were incorporated in peat deposits which assigned them to the maximum extent of the Litorina Sea (Clark, 1936 A, p. 140).

In general, the material culture is similar to that of the Maglemosean but it differs in detail and importance. Core axes are more numerous in the Maglemosean than 'spalter' or flake axes, but in the Ertebølle culture the proportions are reversed. Moreover, the petit tranchet arrowhead is almost the sole microlithic type on sites of the Ertebølle culture, but very few examples have come from Maglemosean contexts. Occasionally, obliquely blunted points and points retouched down one edge occur in Ertebølle industries. In general, the flint industry is based on the production of long blades on which scrapers and awls were manufactured. Large numbers of burins are found, the majority of angle type although single blow and bec-de-flute forms occur.

The stone types include quartzite maceheads with hour-glass perforation, round-buttèd pecked axes with ground edges and partly polished stone axes. At Braband Sp, certain wooden objects were obtained from the Litorina clay, including a throwing stick and bows. Artifacts of bone and antler include perforated antler axes and a few rather crude and heavy barbed bone points (Clark, 1936 A, pp.138-156). Bone combs occur for the first time in the Ertebølle culture, they are mostly handled, but sometimes the back is curved and perforated. Bone bracelets also appear for the first time in the Litorina maximum, made from discs removed from scapulae.

A completely new addition to the material equipment of the Post-Glacial cultures is the pottery. It was made by the coil method, the surface frequently burnished with a pebble and occurs in two main forms. Firstly, a beaker with a pointed base and everted rim and secondly an oval saucer with a curved base. Sometimes, ornament occurs in the form of finger or finger-nail impressions along the top of the rim. Moreover, although the fauna in the shell-mounds contains a very high proportion of wild animals, the remainder are of the domesticated variety - cows and sheep and/or goats, and the impressions of cultivated cereals have been recorded from the pottery.

The chronology of the Ertebølle culture is mainly concerned with the transgressions of the Litorina Sea in Denmark, Finland and Sweden where four such have been identified. The culture is present during the Middle Atlantic transgression (Zone VII B)(Iverson, 1937), and continues into the Sub-Boreal phase at Dyrholmen in north east Jutland, where three phases of occupation were found stratified in deposits referable to transgressions and regressions of the Litorina Sea (Mathiasen, Degerbøl and Troels-Smith, 1942). It will be remembered that the Kongemose littoral industries, (e.g. Cartensminde and Gislinge Lammefjord), are dated to the early Atlantic transgression of the Litorina Sea (Zone VIIa), and it is from these industries that the Ertebølle culture is derived.

By means of pollen analysis Iverson (1941) has showed that large forest areas in Denmark had been cleared by felling followed by burning, just before and at the time of the last Litorina transgression (the Sub-Boreal phase). As a result, large grazing areas were produced, covered with grass and plantains, and cereal pollen was also found. The suddenness of this clearance suggests the total immigration of a farming people. It has been indicated that an Ertebølle settlement at Dyrholmen was assigned to that same Sub-Boreal transgression, and in the Aamosen Bog it was found that Ertebølle industries at Magleø and possibly at Øgaaarde, must be contemporary with the Early Passage Grave period (Troels-Smith, 1953, p.50).

Moreover, when Mathiasen compared the Ertebølle settlement at Strandegaard with the agricultural settlement at Havnelev, he was able to show on a purely archaeological basis that these two settlements were of roughly equal age. However, the flint techniques employed in the two sites were so different, that it was difficult to imagine the agricultural settlement as a derivation of the Ertebølle culture (Mathiasen, 1940).

Therefore, the Ertebølle must be regarded as a semi-farming culture which ran parallel to the intrusive Megalithic cultures. Although hunting and fishing were still part of the economy, agriculture and animal husbandry increased in importance. They kept cows, sheep and/or goats and they cultivated small areas of cereals, naked barley, dwarf wheat and Emmer(?). In short "the occupational culture of the Ertebølle people agrees in principle with the culture of the early (Neolithic) Swiss Pile Dwellings (Michelsberg and early Cortaillod), where they grew grain and had domestic animals, but where they also lived largely by hunting, fishing and the gathering of wild plants" (Troels-Smith, 1953, p.61). In the case of the Ertebølle peoples this would have been supplemented by the gathering of shellfish, and with this combined hunting/agrarian economy they existed alongside the Neolithic immigrants, from whom they presumably borrowed the ideas of husbandry and agriculture.

#### 4. THE POST-GLACIAL CULTURES: WESTERN EUROPE

Since the countries around the Baltic Sea are by far the best dated as far as the Late-Glacial and Post-Glacial deposits are concerned, they are regarded as the typical region. However, we now leave the Baltic region and turn to southern and western continental Europe, particularly the Atlantic regions of France and the Netherlands.

In Scandinavia and north Germany it has been possible to assign the Post-Glacial cultures to phases of vegetational history, and thus, a chronological system of some detail has been built up in recent years. However, in the area to which we now turn, the Post-Glacial cultures have been dated by pollen analysis only in a very few instances. This is probably due in part to the fact that the natural habitats of the north European and south European cultures differed profoundly. This is reflected in their material equipment but also affects the natural conditions under which the industries are found. For example, the remains of the Maglemosean culture, (which existed in a forest environment), are found frequently in peat-bogs which allow for the pollen analytical dating of the industries and also for the preservation of the organic remains.

On the other hand, the Post-Glacial peoples of southern and western Europe avoided forested areas and frequented sandy soils or exposed situations. Because of this, our knowledge of these cultures is confined frequently to the lithic content of the industries, and it is not possible to assign them to a stage in the vegetational sequence, as they are so rarely found in peat deposits. Therefore, more emphasis is placed on the typology of the flint implements as a means of determining the different cultures, and cave deposits are often of importance in establishing the relationship of certain industries. This is

naturally much less satisfactory than a well-dated vegetational sequence in which cultures can be placed. Some effort has been made to reach this goal in Britain, but in the adjoining continental areas with which we shall now deal, pollen dated industries are very rare.

#### MICROLITHIC DEVELOPMENT IN THE PLEISTOCENE

As the climate became milder and a new flora and fauna gradually replaced the plants and animals of the Ice Age, so Upper Palaeolithic equipments were modified to suit man's changing environment. These developments were by no means everywhere the same or contemporary, and we are concerned here only with those which may have influenced the British Mesolithic cultures.

A good deal of the cultural tradition of the Upper Palaeolithic survived into the Post-Glacial in south west France. The increase of microlithic forms in the Post-Glacial period was almost certainly a response to a changed environment and not external influences, for microlithic forms were already developed in the Pleistocene. Numerous examples of this development have been recorded from excavated caves and rock-shelters. At Parpalló (Valencia) on the east Spanish coast, the Post-Glacial microlithic industry can be seen to represent the culmination of an unbroken sequence (Pericot, 1942). The sequence begins with an Upper Aurignacian and continues through to a Magdalenian series, representing stages I - IV. Small backed points and one micro-burin were recorded from the Magdalenian III deposit, and micro-burins, geometric triangles and crescents and a number of obliquely blunted points from the Magdalenian IV layer.

Certain of the Upper Palaeolithic cultures of south west France are characterised by microlithic forms. For example, D. Peyrony (1939) has drawn attention to the presence of steeply retouched blades and



microlithic scalene and isoceles triangles from the Solutrean level at Laugerie Haute (Dordogne). The Magdalenian II deposits of the same region contain large numbers of micro-blades retouched down one edge, frequently with a concave back, and the culture is characterised by large quantities of scalene and isoceles triangles and some obliquely blunted points. So numerous are the scalene triangles that D. Peyrony (1936) has suggested that they might be regarded as the guide artifacts of Magdalenian II. At Laugerie Haute, obliquely blunted points and numerous scalene triangles have been found in a Magdalenian II deposit associated with a cold fauna (Peyrony, 1938, fig.4). These forms occur again in Magdalenian II deposits in the Perigord as at Saint-Germain-la-Riviere (Gironde) (Sonneville-Bordes, 1960, pp.389-391), and continue into the succeeding Magdalenian III as at Crabillat (Peyrony, 1941), Le Roc Saint-Cirq (Vezere), Abri Jolivet (Sonneville-Bordes, 1960, pp.391-394) and in the Correze at Puy-de-Lacan (Kidder, 1932). Similar microlithic types have been recorded from Perigordian III and IV deposits (Sonneville-Bordes, 1959), and scalene and isoceles triangles reappear in force in the final stage of the Magdalenian. The evidence for the Perigord region is well summarised by D. de Sonneville-Bordes, in her admirable publication "Le Paleolithique Superieur en Perigord".

#### THE AZILIAN

The culture which occurs at the beginning of the Post-Glacial period in western Europe was first defined by Eduard Piette as a result of his excavations at the type station Mas d'Azil (Ariege). At Mas d'Azil, Piette excavated two sites and in one found, above a rich Magdalenian deposit, two strata containing flat harpoons of stag-horn and pebbles painted with red ochre, associated with a flint industry and a Holocene fauna including red deer, roe deer, bear, badger, wild cat and beaver (Cartailhac, 1891; Piette, 1895; Dechelette, 1924, pp.315-316). These

layers were followed by a Neolithic deposit, and to this Post-Magdalenian industry Piette gave the name Azilian.

The Azilian culture is essentially characterised firstly by the establishment of temperate conditions and the disappearance of the cold fauna. Secondly, by flat harpoons of red deer antler which are generally perforated, painted pebbles, small round scrapers and geometric microliths. It is noticeable that the distribution of Azilian sites corresponds closely with that of the Magdalenian.

The question of the Azilian harpoons has been dealt with by Thompson (1954) and Obermaier (1925, p.340). They are broad, flat harpoons of red deer antler with either a single or a double row of barbs, and almost always a basal perforation. By far the greatest number were found at the type-station where Obermaier estimates the total at over one thousand, but elsewhere the Azilian deposits are marked by a poverty of harpoon heads.

The lithic component of the Azilian is characterised by the presence of microlithic types, small round scrapers and a scarcity of burins. The microlithic element consists chiefly of micro-blades with convex re-touched backs and fairly numerous triangles with rare trapezes. These types are inherited from a tendency towards microlithic forms already noted in the Upper Palaeolithic cultures, and it is in the Azilian that this tendency is emphasized as a response to the changed environment and the departure of gregarious animals. It is suggested, therefore, that the Azilian developed out of the Magdalenian.

Several industries are considered to be transitional between these two cultures (Niederlender, Lacam and Sonnevile-Bordes, 1956). Certain caves in the Pyrenees and the Franco-Cantabrian region have produced a possible transitional culture - the 'Proto-Azilian' (Malvesin-Fabre, 1954). One such locality is the Grotte de la Vache (Ariege), where the

'Proto-Azilian' contains harpoons reminiscent of certain harpoons of Magdalenian VI with two rows of flat barbs and a perforated protuberance at the base (Malvesin-Fabre, Nougier and Robert, 1951; 1952).

In the Dordogne D.Peyrony (1931) has distinguished an 'Azilian-Perigourdin' stratified above a final Magdalenian (Malvesin-Fabre, 1954). The assemblages include obliquely truncated blades, blades retouched down one edge (c.f. La Gravette), scrapers on blades, burins and scalene triangles. The typical Azilian harpoons are very rare and it is suggested that the facies may be derived ultimately from the Perigordian.

Apart from the fact that the Azilian succeeded the Magdalenian as the climate became warmer, we have little detailed evidence as to the date of the culture. The most recent suggestion is that the earliest Azilian industries date from the end of the Bölling Oscillation and the short Older Dryas (Zone 1c) phase (Movius, 1960, p.374).

It is doubtful whether Azilian influences reached Britain as the distribution of that culture on the continent excludes the north east where the land-bridge existed. The possibility exists that they may have travelled by way of the coastal plains now submerged, but it is unlikely that these areas would have attracted cave dwellers. The harpoons of the Obanian culture in Scotland, occasionally attributed to Azilian influences, have been assigned to the Atlantic climatic phase - far removed in time and place from the Azilian culture (Lacaille, 1954, p.241). Moreover, the former are more likely to be the product of local invention coupled with influences from the Baltic area.

#### THE SAUVETERRIAN

The excavations of M. Coulonges in the rock shelters of Le Roc Allan and Le Martinet at Sauveterre-la-Lemance, Lot-et-Garonne (Coulonges, 1935), and M.M. Lacam and Niederlender in the rock-shelter at Couzoul-de-Gramat (Guyenne) (Lacam, Niederlender and Vallois, 1944),

have produced a purely microlithic industry overlying strata containing Upper Palaeolithic type industries. This culture is known as the Sauveterrian, and it is characterised in general terms by the absence of axes or adzes and by the presence of minute geometric microliths, predominantly scalene triangles, made from narrow micro-blades. Its distribution is mainly in Lot-et-Garonne, Charente and the north central Plateau, as well as in east France as at Ain and further east in Switzerland, together with the Low Countries.

The lithic industry of the Sauveterrian is based on the production of large numbers of micro-flake forms, which results in the microliths being particularly small and narrow. (Coulonges, 1954). The characteristic microlithic types are geometric forms, particularly scalene triangles, as well as crescents in lesser quantities and a virtual total absence of trapezes on broad blades - a feature which distinguishes the culture from the succeeding Tardenoisian (Fonton and Lumley, 1957). Other microlithic types include lanceolate points retouched down one edge and needle-shaped points retouched down both edges (pointes-de-Sauveterre). The former occasionally have transverse or concave retouch at the base. The micro-burin is quite common but never found in such quantities as in the succeeding Tardenoisian.

At Le Martinet (Coulonges, 1935) the Sauveterrian industry was found to overlie a final Magdalenian from which it was separated by a sterile layer. The industry includes a large number of blades and flakes, scrapers, burins and cores and a few indeterminate bone points. A statistical analysis of the industry produced the following results:-

Micro-Burins	71	Truncated Blades	16
Burins	13	Triangles	132
Scrapers	47	'Blunted Blades'	112
Notched Flakes	14	'Pointes de Sauveterre'	14
		Rhomboids	3

Unfortunately, Coulonges does not distinguish between different triangular

forms, and includes points retouched down one or both edges and with transverse or concave retouch at the base ('pointes-du-Tardenois'), with scalene and isocetes triangles. However, the illustrations suggest that scalene triangles are the predominant microlithic type. Other geometric forms of interest among the assemblage are one ultra-narrow tranchet (Coulonges, 1935, fig.8,51), a rather sophisticated isocetes triangle with concave retouch (Coulonges, 1935, fig.8,11) and a micro-rhomboid with a developed 'tail' (Coulonges, 1935, fig.8,48).

Although there are slight variations between industries of Sauveterrian type the basic microlithic forms still persist. For example, at Rocher de Saint-Pierre (Vallee du Loing) a Sauveterrian industry has been recovered containing burins, scrapers, six scalene triangles, twenty crescents, six needle-shaped points retouched down both edges, a quantity of micro-burins, a number of points retouched down one edge and with transverse or concave retouch at the base, and a quantity of points retouched down one edge (Daniel, 1953).

Invariably, trapezes are extremely rare or totally absent and the microlithic component is characterised by a preponderance of triangles (predominantly scalene), needle shaped points retouched down both edges, crescents, a very few points with transverse or concave retouch at the base, and simple points retouched down the whole or part of one edge. A few rhomboids may be found as at Le Martinet and the industry as a whole is characterised by its small size.

An important site has recently been excavated in Switzerland at Birmatten-Basishöhle near Basle, where a sequence of five Mesolithic deposits have been recorded, dated from the Pre-Boreal to the Atlantic climatic phase (H.G. Bandi, Prehist. Soc. Conf. London, 1960). All these five layers produce geometric microliths, but the three lowest are characterised by a great number of scalene triangles and crescents whereas trapezoids are absent. The two uppermost levels, however, are

characterised by trapezoids and a smaller number of scalene triangles and crescents, together with notched blades and so-called harpoon heads of organic material. This suggests a succession from Sauveterrian to Tardenoisian with the former beginning in the Pre-Boreal climatic phase.

Unfortunately, there are no similar objective dates for demonstrably Sauveterrian industries in western Europe. This excludes the industry with possible affiliations to the Sauveterrian from Peacock's Farm, Cambridgeshire, which is assigned to a late Boreal phase (Clark, 1955). At Le Martinet the Sauveterrian was found to follow a final Magdalenian industry from which it was separated by a sterile layer, and at Le Roc Allan it succeeded a rather poor Azilian industry from which it was separated by a thick deposit of rubble.

M. Octobon has suggested that the Sauveterrian represents a survival of Upper Palaeolithic cultural traditions, and adopts as an example the rock-shelter of Cuzoul, forty miles from Sauveterre (Octobon, 1948). At this locality, the lowest occupation level rests on talus and contains backed bladelets, scalene triangles, burins and scrapers, - an industry similar to that from Sauveterre but rather more primitive. Octobon suggests that the industry is very reminiscent of the final Magdalenian, and possibly represents an intermediate stage between it and the Mesolithic industry at Sauveterre. However, the deposit containing the industry is Post-Glacial and does not provide the necessary link with a Palaeolithic industry.

D. Peyrony has suggested that it is the forms of Magdalenian 11 which are reproduced in the Sauveterrian (Peyrony, 1941), and we have already noted the preponderance of scalene triangles among the microlithic types in both cultures. This tendency in the Magdalenian towards microlithic types (particularly scalene triangles) reappears in the final stage of that culture, as at Le Martinet. At this site a Magdalenian VI assemblage is overlain by a Sauveterrian, the former

containing 'parrot-beak' burins, numerous points retouched down one edge, scalene triangles (denticulated and otherwise) and crescents (Coulonges, 1935, fig.4). Mme de Sonnevile-Bordes remarks on the similarity of the final Magdalenian and the Sauveterrian, and suggests the derivation of one from the other (Sonneville-Bordes, 1959, pp.471-484). The frequent occurrence of similar microlithic types in both cultures is a valid reason for suggesting this derivation, and the Sauveterrian industry from Cuzoul may indeed represent a transitional stage from the late survivals of the Magdalenian.

However, it is not yet possible to confidently derive the Sauveterrian from any one Upper Palaeolithic culture. Perhaps it is best to refer to it as an epi-Palaeolithic survival which represents "l'extreme fin du bloc aurignaco-magdeleno-azilien, c'est le Paleolithique expirant" (Coulonges, 1935, p.49).

#### THE TARDENOISIAN

In addition to providing the basic material from which the Sauveterrian culture has been defined, the excavations of L. Coulonges at Sauveterre-la-Lemance (Lot-et-Garonne) from 1923-1935, were the first to establish the chronological position of a microlithic industry based on the production of bread blades, from which trapezes were manufactured (Coulonges, 1935). The excavation of Cuzoul de Gramat (Lot) (Lacam and Niederlender, 1944) confirmed the stratigraphical position of this culture, which was first recorded from the Ile de France at Fère-en-Tardenois, from whence the culture takes its name.

The distribution of the Tardenoisian is confined to those areas which were free from woodland, and this is reflected in the absence of axes or adzes from their equipment. Essentially, the microlithic component is based on the production of bread blades, and the manufacture from them of trapezes<sup>and</sup> broad-based points by the micro-burin process. At Le Martinet, Le Roc Allan and Cuzoul several layers containing

Tardenoisian industries were stratified above Sauveterrian deposits, and a three-fold development of the Tardenoisian was defined from these sites.

Phase I is distinguished at Le Martinet by great numbers of long blades and asymmetrical trapezes. Other microlithic types include symmetrical and right-angled trapezes, points with a laterally projecting spur at the base (*pièces avec cran à la base*), and points retouched down one edge with transverse or concave retouch at the base (*pointes du Tardenois*). The last named also occurs in the Sauveterrian, but a noticeable feature in the Tardenoisian levels at Le Martinet, Le Roc Allan and Cuzoul, is the total absence of the microlithic triangles so characteristic of the Sauveterrian. The reciprocal absence of trapezes in the latter has already been noted, and these two features serve to distinguish between the Sauveterrian and Tardenoisian cultures. Phase II at Le Martinet contains the same microlithic types as Phase I but is distinguished from it by the absence of rhombic points in the former. Moreover, transverse arrowheads do not appear until Phase II, and they do not become abundant until Phase III, by which time the true trapezes are replaced by barbed and tanged and triangular arrowheads (Clark, 1958, pp.32-34). Furthermore, in Phase II the edge retouch is frequently cut deeper so that it becomes concave, and at times the retouch extends onto the face of the implement. During Phase III the culture develops or acquires Neolithic elements such as arrowheads and pottery and the retouch frequently extends over the whole of the upper face.

Typologically, it is possible to derive all forms of the Tardenoisian from the Sauveterrian (Barriere, 1955), and this derivation appears to be authentic, at least for the 'facies continental' of the Tardenoisian. For example, at Cuzoul, Octobon (1948) derives the Tardenoisian from the underlying Sauveterrian through layer 6 of the deposits, which contains a few rough trapezes and is therefore regarded as a



transitional Tardenoisian.

In the Seine et Oise area a "Tardenoisien ancien de faciès Sauveterrien" has been defined (Daniel and Vignard, 1954; Fonton and Lumly, 1957), which is a transitional culture combining Sauveterrian and Tardenoisian elements. The material culture includes cores, blades, rare scrapers and burins, micro-burins, 'pointes du Tardenois', trapezes, small triangles, lunates, crude scalene triangles and 'pointes de Sauveterre'. Sites belonging to the faciès have been identified at Rochers d'Auffargis (Giraud and Vignard, 1956) and Piscop (Giraud, Vache and Vignard, 1938). An analysis of the industry from the latter site gave the following results:-

Cores	241	Crescents	293
Micro-Burins	1,193	'Pointes du Tardenois'	422
Truncated Blades	64	Trapezes	3
Scrapers	29	'Pointes de Sauveterre'	8
Triangles	164	Notched flakes	88

In effect, the industry shows strong Sauveterrian influence in the triangles, crescents and 'pointes de Sauveterre', but the large quantity of 'pointes du Tardenois' and a few trapezes indicate that it belongs to a "Tardenoisien ancien de faciès Sauveterrien".

Evidence for the Tardenoisian culture in France has come from three main areas, that around Marseilles, the islands of Tevieg and Hoedic off the coast of Morbihan on the Atlantic littoral, and in the interior Guyenne and the Ile de France - home of the original Tardenoisian industry. The last area has produced the "faciès Ile de France" (Daniel and Vignard, 1954; Fonton and Lumly, 1957) where the type station of the Tardenoisian was found, the material being unstratified (Vielle, 1889; Daniel, 1948). The material appears to be similar to that assigned to the 'faciès Sauveterrien' as it consists of the usual right-angled trapezes and numerous 'pointes du Tardenois', together

with 'pointes de Sauveterre', scalene triangles and crescents of Sauveterrian type. However, the occurrence amongst the material of the "Pointes en forme de feuille de gui", with shallow pressure flaking on the convex surface, may well indicate contact with Neolithic peoples (Daniel, 1953, pp. 230-234). In that case the group is<sup>s</sup> considerably later than the 'facies Sauveterrien', and a probable explanation of the mixture of Sauveterrian and Tardenoisian forms is cultural blending between the two groups, and not transition. A similar blending is shown by the survival of the Sauveterrian tradition in the Low Countries, causing a composite material culture of triangles, crescents, lanceolate points, numerous<sup>s</sup> 'pointes du Tardenois' and small points with scale flaking (Ophoven, 1945; Verheyleweghen, 1952).

Miss Margaret Smith (1952, p.119) has recently suggested the existence of a cultural tradition common to the Mediterranean area and including microlithic industries from Iberia, north Africa and southern France. The industries from southern France, of which some mention must be made, have been grouped by certain French prehistorians in a 'faciès côtier Provençal' (Daniel and Vignard, 1954). The most significant industry is that from the basal layers of Chateaufort-les-Martigues near Marseilles (Fonton, 1956, B, pp.41-108), which produced a blade industry characterised by triangles, trapezes, burins and scrapers. The number of trapezes increases in the upper layers, and the forms are very sophisticated with concave retouch. Miss M. Smith suggests a community of culture with the Iberian industries and a connection with the Merbihan industries, which are about to be described.

The sites of the 'faciès côtier Américain' are situated on the islands of Tévéc and Hœdic off the Atlantic coast of Brittany and were excavated by M. and Mme. St. Just Peguart (1937, 1954). Apart from the lithic industries, the sites are of interest because of the evidence they provide for burial practises during Mesolithic times. Numerous

inhumations were found, generally placed in pits, the sides of which were sometimes defined by stones. The antlers of deer were frequently found in the graves together with schist pendants, perforated shells, perforated teeth and red ochre. A flint point was found embedded in a vertebra of skeleton 16 at Tévieq (Pequart, 1937, fig. 23). It can be concluded, therefore, that the dead were buried with some ceremonial, suggesting a form of settlement with communal instincts.

The flint industry from the two sites is homogenous and is characterised by an abundance of sophisticated trapezes with concave retouch, and an absence of right angled trapezes such as are found in the interior of France. Triangles, predominantly scalene, are quite common, but true crescents are virtually non-existent and micro-burins are not very numerous. Large numbers of elongated cylindrical sandstone pebbles with bevelled or battered ends were recorded and may have some connection with similar implements found along the western coasts of Britain. A bone and antler industry was preserved and included worked antler tines, awls, ('stylets' perforated at the butt and one 'baton-de-commandement' of red deer antler from a grave.

The lithic industry compares closely with those from the western Mediterranean area and the shellmounds of the Tagus Valley in Iberia. Because of the similarities with the latter, the existence of an 'Atlantic Culture' has been suggested. However, Miss M. Smith has drawn attention to the similarities with certain western Mediterranean industries, and it may therefore be incorrect to write of an 'Atlantic Culture'. Nevertheless, there is a strong community of culture between the Morbihan industries and those of Iberia.

Of great interest is the presence of domesticated animals (sheep and/or goat) amongst the fauna of the Morbihan sites. Moreover, a study of the fauna has established that the Tardenoisian peoples of Guyenne either kept or had access to domestic sheep and/or goats by Phase 1

(Cuzoul 11-111), and that by Phase 11 (Cuzoul 1V-V) a small variety of cattle was available (Clark, 1958, p.33). Evidence for sheep has also been found in the Tardenoisian levels at Chateauneuf-les-Martigues (Ducos, 1958), and sheep or goat occurred in the Mesolithic middens of Arrunda and Sebastião in the Muge valley. This evidence of domestication, together with the occurrence of Neolithic flint working techniques already noted in the final stages of the Tardenoisian, may indicate contact with the Danubian culture in central and northern France. However, as Clark (1958, p.33) has indicated, the evidence of domesticated animals from Brittany and Iberia may indicate that herding played a part in their predominantly hunting economy, and "it may turn out that the blade and trapeze industry was associated with a pre-pottery phase of farming economy". Unfortunately, it is as yet, impossible to say whether the late Mesolithic peoples obtained their animals by rustling those of the first Neolithic immigrants, or if animal husbandry was a part of their economy.

In this connection, it is necessary to state briefly that an industry of Sauveterrian affinities from Terbryan Cave, Devon, England produced the remains of domesticated sheep. The industries from the site will be described in detail below, and it is sufficient to indicate here that the domestication of animals in this instance is not associated with a blade and trapeze industry, but with an industry which appears to be an epi-Palaeolithic survival, with no signs of exotic influences.

#### THE MEDITERRANEAN REGION

A brief discussion of the relevant cultures is necessary even though they have no direct bearing on the Mesolithic cultures of Britain. Nevertheless, the description assists in the completion of the general picture even though it is in the nature of a digression. The material is taken largely from Miss Margaret Smith's article "The Mesolithic of

the South of France". (1952).

#### THE GRIMALDIAN

In the caves of the French Riviera a Grimaldian culture occurs which is characterised by abundant steeply backed micro-blades and poor bone work. The industries are also characterised by notched flakes and the tendency of the microlithic backed blades to assume geometric forms, including scalene triangles. From the association of four 'batons-de-commandement' with a Grimaldian industry at Arene Candide, it has been suggested that the industry is contemporary with the south French Magdalenian, which is not present in the Riviera or in Italy. A feature of great interest is the occurrence of micro-burins in Grimaldian industries as at San Feodora, north Sicily, Romanelli in south Italy and Arene Candide on the Italian Riviera. Therefore, the micro-burin technique was established in the east Mediterranean area by the end of the Pleistocene, whereas it apparently reached south-west France only in the Post-Glacial.

#### THE EPI-PALAEOLITHIC INDUSTRIES

A series of interesting 'epi-Palaeolithic' industries occur in the Mediterranean area, the most important of which are the Montadian and the Azilio-Romanelli cultures (Fonton and Lumly, 1955; Fonton, 1956 A). They appear to have developed solely from local Palaeolithic traditions without outside influence. There is little evidence for the date of these cultures, apart from the fact that they have some slight resemblances to an Azilian, which are probably due to parallel evolution from an Upper Palaeolithic culture.

## CHAPTER 11

### THE TYPOLOGY OF THE LATE-GLACIAL AND POST-GLACIAL CULTURES IN BRITAIN

#### 1. THE TYPOLOGY OF THE LATE-GLACIAL CULTURES

The importance of the Upper Palaeolithic cultures as a source of the Post-Glacial Mesolithic cultures has already been discussed in a previous chapter. In brief, it is that the microlithic types of the Mesolithic period are in the direct line of descent from similar forms in Upper Palaeolithic contexts, particularly the Magdalenian culture. As the ice-sheets retreated and the gregarious animals moved northwards so the inhabitants of southern and western Europe adapted their equipment to cope with the changed conditions, with the resulting emphasis on microlithic forms.

Therefore, a study of the Mesolithic cultures of southern and western Britain, must of necessity be prefaced by an account of the tool-types of the preceding Upper Palaeolithic industries in that area. These industries may reasonably be expected to have provided some influence in the composition of the Mesolithic cultures, and one of the problems facing a study of these cultures is to ascertain the degree of that inheritance. Therefore, a knowledge of the Upper Palaeolithic industries is necessary for the understanding of the Mesolithic cultures. The former have been studied only in those areas encompassed by the terms of the thesis, that is, Devonshire, the Mendips, the Wye Valley, south Wales and north Wales. The survey omits Derbyshire and Yorkshire as being irrelevant (in a geographical sense) to the area under study (fig.1).

Over thirty years ago, D.A.E. Garrod formulated the conception of the 'Creswellian' in Great Britain as representing a Late-Glacial Upper Palaeolithic culture, characterised chiefly by trapezoidal blades and shouldered points (Garrod, 1926, p.194). However, Garrod's review of the then present state of knowledge revealed the disastrous inaccuracy of the stratigraphical information, leading - as for instance at Kent's Cavern and Paviland - to the mixture of occupations of quite different ages. Moreover, many of the collections of artifacts amassed during the nineteenth century cave excavations have been dispersed, giving a misleading picture of many assemblages. It is for this reason that recent work by Dr. C.M.B. McBurney and Professor F.E. Zeuner on cave sites in south-west England and south Wales, has placed strong emphasis on the "adequate isolation of separate industries on the basis of maximum precision of stratigraphy". (McBurney, 1959, p.261). Furthermore, an account is given below of the first British open site of Upper Palaeolithic type, which it is suggested may span the typological gap between the Ahrensburg and Hamburgian cultures.

Unfortunately, Dr. McBurney's research on cave deposits in south west Britain has produced very little typological material, although attempts to elucidate the stratigraphy have been successful to a certain degree. Therefore, this section is concerned with the typology of the British Late-Glacial industries, with no attempt to relate those industries to the cave deposits, except where Dr. McBurney or Professor Zeuner has done so. Wherever possible the material has been examined at first hand, and the method of presentation is by individual localities. One feels that an attempt to produce a comprehensive typological scheme might give a distorted picture, owing to the dispersal of the collections and the failure of the excavators to recognise the more microlithic types. Therefore, the artifacts are described by localities, in the hope that a broad survey of the Late-Glacial industries of south west Britain will provide a basis for the better understanding of the Post-Glacial Mesolithic cultures.

A succeeding chapter deals with suggested indigenous developments from the Upper Palaeolithic stem, and is mainly concerned with caves where a Mesolithic industry has been found to overlie one of Late-Glacial age. It is thought preferable to describe those localities 'in toto', in order that any similarities between the Late-Glacial and Mesolithic industries may be noted with greater ease. Therefore, the Late-Glacial industries from these localities are omitted from the descriptions in this section, and will be dealt with when discussing possible indigenous Post-Glacial developments (Chapter III).

#### KENT'S CAVERN, DEVON (Fig. 2)

One mile due east of Torquay harbour, in the west side of a small valley is the site of Kent's Cavern which was initially explored by the Reverend J. MacEnery between 1825 and 1829. Numerous other excavations were carried out including those of William Pengelly and Edward Vivian between 1864 and 1880. A voluminous literature has accumulated round the subject of the cave, the most important of which are as follows: Pengelly (1876, 1878), Garrod (1926), Dowie (1933), Vachell (1951), Pyddoke (1954) and Rogers (1958).

Owing to unscientific excavation the stratification in the cave is quite unreliable, but in general terms the sequence of deposits ~~in the cave~~ is as follows:

1. Black mould.
2. Granular Stalagmite - varied in thickness and occasionally disappears altogether.
3. "Black Band".
4. The Cave Earth - a deposit of varying thickness which disappears entirely in places.
5. Crystalline Stalagmite. This is of harder and denser composition than the granular stalagmite and exceeds it in thickness.
6. The Breccia.



Of interest from the point of view of this thesis is the 'black band' noted by Pengelly, from which the majority of the artifacts were obtained, and which appears to have consisted of two layers of hearths.

Mr. E.H. Rogers (1958) in the most recent assessment of the material remains from Kent's Cavern, claims that a total of one thousand three hundred and seventy-eight flints remain extant, but that six hundred and thirty-six flints recovered in the third year of Pengelly's excavations are missing. However, among the Upper Palaeolithic types still available for inspection are three harpoons (Fig. 2, 13-15) and a perforated bone pin (No. 16). The former consist of two uniserial types with a basal protuberance and a biserial example with angular barbs. The lithic industry is characterised by broad angle-backed blades (Nos. 1, 5, 6), trapezoidal blades (Nos. 3, 4) and one broad blade with an oblique truncation (No. 2). Scrapers are on the ends of blades (Nos. 7-9) with one rostrate example (No. 10), and a hollow end-scraper with retouch down both edges (No. 11). D.A.E. Garrod (1926, fig. 4) illustrates one burin (No. 12). There is no stratigraphical evidence to suggest that the lithic industry and the harpoons are not associated, and the industry is assigned to the 'Creswellian' by reason of the trapezoidal and angle-backed blades.

#### GOUGH'S CAVE, CHEDDAR, SOMERSET (Fig. 3)

Gough's Cave is situated in the cliff of carboniferous limestone which forms the eastern side of the Cheddar Gorge. The earliest record of the finds from the cave is that of H.N. Davies (1904) and of Dr. Seligman and Professor Parsons (1914). They found a fragmentary 'baton-de-commandement' and flint artifacts, together with a human skeleton. The stone artifacts include an angle-backed blade (Garrod, 1926, fig. 17, 1,).

During the second decade of this century a series of excavations were carried out in the mouth of the cave, the results of which were

published in a series of articles (Davies, 1927, 1928; Parry, 1928, 1930). The stratification of the deposits is suspect, and Davies (1928, p.110) makes an arbitrary division into two zones - an Upper and a Lower. However, large numbers of flints were recovered - seven thousand in all, of which nine hundred and forty-seven show secondary working (Parry, 1930). Blades with retouched backs are very numerous and include blades with a slightly curved back (the typical 'Feder-messer' of Schwabedissen, (1954)), (fig. 3, 1-4), angle-backed blades (fig.3,5-16) and trapezoidal forms (Nos. 17-19), as well as a number of shouldered points (Parry, 1930, p.47). There are also a number of microlithic forms, particularly obliquely blunted micro-blades and points retouched down one edge (Nos. 21-29). The microlithic types are of importance in view of the succeeding Mesolithic cultures, and in connection with this one should note that the micro-burin also occurs at Gough's Cave (McBurney, 1959, p.266).

A large number of burins were recorded - seventy-five in all. The majority appear to be of the angle variety on the ends of long blades, and there are a number of burins with opposed scrapers (fig. 3,30-38, 43, 44). The industry also includes twenty-four piercing or graving tools (zinken) (fig. 3, 39-41) and fifty-three end-scrapers, mostly on long blades (Nos. 45-48). Apparently, eight blades were recorded the ends of which are worn smooth by abrasion against a hard surface (Parry, 1930, p.47). Similar blades smoothed at one end have been recorded from Mother Grundy's Parlour, Creswell Crags, the Late-Glacial industry at Three Holes Cave, Torbryan, Devon (see below), and the Late-Glacial 'open' site at Hengistbury Head, Hampshire (Mace, 1959, p.254). Two perforated canine teeth of fox were found, and a perforated shell of neritoides obtusatus (Davies, 1928, Plate 20).

One object of interest is a block of amber showing signs of flaking, for which the nearest natural source is the east coast of England (Tratman, 1950).

#### AVELINE'S HOLE, MENDIPS (Fig.4)

Aveline's Hole lies in the cliff of carboniferous limestone which forms the east edge of Burrington Combe, in the Mendips, about eleven miles south west of Bristol. The first excavations were carried out by Dr. Buckland, who was followed at various dates by the Rev. Dr. Williams, Professor Boyd Dawkins and the Bristol Spelaeological Research Society (Garrod, 1926, p.80). Finally in 1919 the Bristol University Spelaeological Society undertook several seasons' excavations of the cave, the results of which were published in a series of papers (Davies, 1921; 1922; 1923; 1924).

The following differentiations in the stratification of the deposits were noted:

1. Dark coloured humus.
2. Stalagmite Floor.
3. Red cave earth - Late Pleistocene fauna and flints.
4. Yellow loam or silt, finely stratified with no implements or bones.

Human remains were numerous in the stalagmite and in the first and second feet of the cave earth.

The lithic industry includes elongated points retouched down one edge with a slightly curved back ('Federmesser') (fig.4,1-5), trapezoidal blades (No. 6) and angle-backed blades (Nos. 7-8) as well as microlithic blades retouched down one edge (Nos. 11-14). Therefore, the blade types are similar to those from Gough's Cave. The industry also includes one borer with opposed oblique scraper and a few burins (Nos. 15-17). Unfortunately, all the flints from the earlier excavations have been lost. A biserial harpoon decorated with incised lines was obtained from the Upper part of the cave earth (fig. 4,18). It differs from the biserial harpoon recorded from Kent's Cavern, in that the barbs are alternate and not opposed. Numerous perforated shells of neritoides obtusatus

occurred throughout the cave earth (c.f. Gough's Cave).

A considerable quantity of shed reindeer antler was found in the cave earth but other remains of the animal were absent. This may indicate that the hunters occupied the cave during the autumn and winter and lived a nomadic existence for the rest of the year. It also suggests that reindeer antler was an important raw material.

#### SOLDIER'S HOLE, CHEDDAR

This cave is situated two hundred yards from Gough's Cave and the implements from the site were published by Parry (1930, pp.50-51). Thirteen 'Creswellian' type tools were recovered, the leading type being the angle-backed blade (Parry, 1930, Plate XII, figs. 2,3,4) with one trapezoidal type and one burin on a backed blade.

#### PAVILAND CAVE, GOWER, SOUTH WALES (Fig. 5,1-13)

Paviland Cave is situated on the south coast of the Gower Peninsula, nearly fifteen miles west of Swansea and about thirty feet above high water mark. The site has been excavated on numerous occasions with a complete disregard for the principles of stratigraphy, so that although a rich lithic industry and organic materials were recovered, it is impossible to subdivide the assemblage save on typological grounds. The principal excavations were those of Dr. Buckland (1823, p.82) who found the famous 'Red Lady' of Paviland, and those of Professor, W.J. Sollas in 1912, who recovered over three thousand and six hundred fragments of flint and chert of which eight hundred were artifacts (Sollas, 1913). The assemblage was classified by the Abbé Breuil and is now in the National Museum of Wales, Cardiff.

Bearing in mind that the classification of the implements rests solely on typology, four cultural streams could be distinguished - Mousterian, Middle and Upper Aurignacian, and a 'final Aurignacian'.

Among the artifacts which would be assigned on typological grounds to a Late-Glacial or 'Creswellian' context are points retouched down one edge (fig. 5, 3, 4, 8, 9, 11), (No. 3 also has opposed oblique retouch at the base), and trapezoidal blades (fig. 5, 5-7). The blade (No. 11) has a curved back which is very reminiscent of the 'Federmesser' of Schwabedissen (1954), and of particular interest is the micro-blade (No. 12) with convex retouch along one edge.

Unfortunately, owing to the complete absence of stratification and the probability of the confusion of several cultural streams, it is unwise to assign any other part of the material remains to a Late-Glacial or 'Creswellian' context.

#### CAT'S HOLE, GOWER, SOUTH WALES

The situation of the Cat's Hole Cave is on the southern side of the Gower Peninsula, in a limestone cliff on the southern side of the Parc Cwm Valley, about one hundred feet above sea level. The site was originally excavated by Colonel Wood in the 1860's when an industry of 'Creswellian' type was recovered but no record kept of the stratification (Garrod, 1926, pp. 64-66; Lubbock and Vivian, 1887). The implements recorded in Colonel Wood's excavations include two shouldered points (fig. 5, 14-15), a trapezoidal blade (fig. 5, 16), end scrapers on blades (fig. 5, 17-19) and a single blow burin (fig. 5, 20).

In 1958, the cave was re-investigated by Dr. McBurney (1959) and detailed attention was paid to the stratification of the deposits. From the base the sequence of deposits is as follows:

- A. Silt to clay grade, varying in colour from grey in the upper portion through a reddish zone to buff at the base.
- B. 'Yellowish thermoclastic scree' with small, sharp, unweathered elements, representing an abrupt transition from A.
- C. The deposit is more sandy, and the transition from B is

blurred with some sharp and some weathered elements and also humic discoloration.

D. Sand and silt containing predominantly weathered large elements.

E. Bronze Age, Medieval and nineteenth century deposits.

The great majority of the worked flints recovered by McBurney come from deposit B or the B/C contact zone, and the faunal remains come from the same horizon.

The flint industry is illustrated in fig. 6, and consists of a backed blade (No. 1), semi-microlithic backed blades (Nos. 4-8), semi-microlithic backed blades with a convex profile (No. 8-10), a stout awl worked over three faces (No. 12), small delicate end-scrapers (No. 19-20) and flat trimmed blades (Nos. 22-23). The former is of Adinole - a rare raw material which has only been recorded from a very few sites in south Wales. Of particular interest are the three micro-burins (Nos. 14-16) (c.f. Gough's Cave, Cheddar), and a true microlithic crescent (No. 3). McBurney also recovered the shaft of a needle and a small bone awl.

The faunal remains include *Rangifer tarandus*, *Cervus elaphus*, *Rhinoceros* sp., *Bos* sp., *Capreolus copra*, *Ovis* sp., *Ursus* (c.f. *arctus*), *Ursus* sp., *Vulpes alopex*, *Vulpes* sp., *Lepus* c.f. *timidus*, *Meles taxus*, *Lemmus lemmus*.

An important feature of McBurney's excavations at Cat's Hole is that he obtained a recurrence of the typical stratigraphical profile which he has recorded from other caves in the west country (e.g. Ebbor). Moreover, the industry from Cat's Hole is tied in with the deposits of the cave and also with a cold fauna. The interest of the industry is focussed in particular on the tendency towards microlithic types, such as the crescent and the microlithic blades with retouched backs. The three micro-burins are of especial importance, as providing evidence

for the development of the micro-burin technique in Late-Glacial times, and confirming the evidence of the unpublished micro-burins from Gough's Cave.

#### Longbury Bank, Pembrokeshire

In 1958 McBurney excavated the cave of Longbury Bank in south Pembrokeshire and recovered one backed blade associated with a cold fauna (information from a lecture to the Prehistoric Society, London, January, 1959). This supports the evidence of his excavations at Cat's Hole, Gower.

#### Hoyle's Mouth, Pembrokeshire (Fig. 5, 25-33)

The cave of Hoyle's Mouth, Pembrokeshire, lies one and a half miles west of Tenby in a carboniferous limestone spur of the ridgeway of old red sandstone, which runs from Tenby to Pembroke. The cave was excavated at intervals throughout the nineteenth century by G.N. Smith, H.H. Winwood, W. Boyd Dawkins (1874, p.289), and E.L. Jones (1882, p.282). As a result of these excavations the cave was completely cleared out, and some of the finds are preserved in the Tenby Museum (Leach, 1918, p.4; Garrod, 1926, pp.70-75).

The lithic industry includes blades with retouch down a slightly curved back (fig. 5, 25, 27), an angle-backed blade (No. 26), a blade with flat retouch down both edges (No. 28) and end-scrappers on blades (Nos. 29, 31, 32). The material in the Tenby Museum includes twenty-two blades and flakes of adinole - a mixture of quartz and albite, dark green in colour and found among altered Cambrian shales in south Wales. One graver of this material was found and also a burin spall with three 'steps', suggesting that the burin had been re-sharpened three times.

PRIORY FARM CAVE, MONKTON, PEMBROKESHIRE (Fig. 7)

This cave is three hundred yards west of Pembroke Castle on the south side of Pembroke River, about thirty to forty feet above sea level, and was excavated by Professor W.F. Grimes in the 1930's (Grimes, 1933). The sequence of deposits from the surface is as follows(fig.7):-

1. Top soil.
2. Loose clay with rock debris and detritus at least two feet deep in all places.
3. At the entrance of the rock shelter, layer 2. was followed by a deposit of gravel in which the flint industry was found.
4. In the interior of the cave layer 3. was absent and layer 2. was succeeded by a laminated clay which continued downwards to the rock floor. This consisted of bone breccia containing remains of ox, horse, reindeer, bear, hyaena and wolf. There was an indication of a stalagmite layer along the sides of the cave at a height of two feet to two feet six inches above the rock floor. However, it was in a disturbed state and has no chronological significance.

A feature of the lithic industry are four broad flint blades retouched down one edge and obliquely at the base (fig. 7,1-4). The backs are slightly curved and they are typical of the 'pen-knife' blade types of the 'Creswellian'. Three burins were recovered, two of single blow type (fig. 7,5-6) and one of medial type on an adinole flake (No. 10). The industry also includes a fragmentary blade retouched down one edge (No. 9), a micro-blade retouched down one edge and another micro-blade retouched down one edge and obliquely at the tip (Nos. 7-8). The fauna includes Elephant, Hyaena, Bear, Reindeer, Red Deer, Wolf, Horse, Ox, Pig, Badger, Sheep or Goat, Fox and Hare.

Therefore, the industry from Priory Farm Cave is of importance in so far as it demonstrated the association of true microlithic types with



artifacts of 'Creswellian' or Late-Glacial type. The Late-Glacial age of this association is shown beyond doubt at Cat's Hole and at Priory Farm Cave, Gough's Cave and Aveline's Hole the association is again demonstrated. Microlithic types similar to those from Priory Farm Cave continue into the Mesolithic period and, as we shall see below have a place in the classification of the microlithic types of the British Mesolithic cultures.

#### THE VALE OF CLWYD

We now turn to the problem of the Late-Glacial occupation of north Wales in order to complete the regional survey which began with Kent's Cavern in Devonshire. There are no industries in north Wales to compare with the 'Creswellian' industries of south Wales and west England. However, two caves in the Vale of Clwyd, Flintshire, have produced a few artifacts indicative of occupation at some point during the last glaciation.

#### FFYNNON BEUNO (Fig. 8)

About four miles south of St. Asaph, is the carboniferous limestone escarpment forming the north side of the gorge of Ffynnon Beuno in which the cave is sited. It was first excavated in 1885 by H. Hicks who described the results of his work in a series of publications (Hicks, 1886, A; B; C; 1887; Strahan, 1885). These researches were evaluated by D.A.E. Garrod (1926, pp.104-105).

The sequence of deposits is not very clear but in general they appear to have been:-

1. Surface soil
2. Stalagmite
3. Undisturbed cave earth with a few implements and a Pleistocene

fauna including abundant reindeer, giant Irish deer, horse and rhinoceros tichorhinus.

The flint implements are now in the Natural History Museum, South Kensington, and they include a fine 'proto-Solutrean' point (fig. 8,1), a well made beaked graver (fig. 8,3) and a single-blow burin (fig.. 8,4). There are no backed blades or any microlithic forms.

#### CAE GWYN (Fig. 8)

A few yards from Ffynnon Beuno is the Cae Gwyn cave which was also excavated by Hicks between 1884 and 1887 (Hicks, 1886, A; B; C; 1887; 1888; Garrod, 1926, pp.111-117). Very few artifacts were recovered from the cave earth, but the importance of the site lies in the fact that the mouth of the cave was sealed with glacial deposits, which must have accumulated after the occupation of the site. The glacial deposits apparently extended right up to the roof of the cave, and the cave earth, which contained the same fauna as Ffynnon Beuno and a very few flints, was found to emerge from the cave and to extend below the glacial deposits.

The only recognisable artifact from the site is a well-made end-scraper on a blade with edge retouch (fig. 8,2) and one unretouched blade (fig. 8,5).

#### HENGISTBURY HEAD, HAMPSHIRE (Fig. 9-14)

Up to the present we have discussed only those Late-Glacial industries found in caves in the limestone regions of west England and Wales. However, as we have seen, recent work by Rust, Mathiassen, Schwabedissen, Böhmers and others, suggests that evidence of Late-Glacial open settlement ought to occur in Britain. Evidence for this

type of settlement in Late-Glacial times has in fact been produced from three localities. The most important of these is that on Hengistbury Head, near Christchurch, Hampshire, which has been excavated in recent years by Mrs. A. Mace (1959).

A standard section (fig 9) occurs throughout the site, the deposit consisting of wind-blown sand in which the flints were found from a depth of nine inches to a depth of two feet three inches - most of them coming from between the one foot and two feet levels. The deposit exhibited the features of heavy weathering, being leached for the upper thirty cms.; no organic remains were recovered and there was no hope of dating the industry by pollen analysis or C 14.

A total of two thousand, two hundred and sixty three flints were excavated of which 11% are artifacts, 7.7% are used waste products and 81.3% are unused. Of two hundred and fifty one tools, 54% are 'backed pieces', 28% are burins and 16% are scrapers. However, a considerable number (115) of the 'backed pieces' are too fragmentary to type, and the actual classifiable totals are twenty two 'backed pieces', sixty two burins and seventeen scrapers. These implement types are also found in the extensive collection of flints from the surface of the site, amassed by the late Mr. Druitt and housed in the Red House Museum, Christchurch (fig. 11,12).

The backed pieces include two obliquely truncated blades, sixteen blades retouched down one edge (fig. 10,4,9,5,11) one tanged point (fig. 10,19) and two shouldered points (fig. 10,13,14). There are also five fragmentary shouldered points (fig. 10,15,18). Unfortunately, it was not possible to assign the one hundred and fifteen fragments to one or another of these types, but two tanged points (fig. 11, 1,2) and one shouldered point (fig. 11,3) were recovered from the surface.

Among the burin types the most numerous are angle burins (fig. 13, 1-8) and single blow burins (fig. 13, 9-14; fig. 14,1), as well as a

crude variety with no prepared burin platform (fig. 14, 2-5). These three types in equal proportions make up the burin total, together with a lesser number of medial and other forms (fig. 14, 6-10). In all important respects the surface collection burins are similar to the excavated ones, the ends of two of the latter being rubbed smooth and rounded (fig. 13,3). Only 16% of the artifacts are scrapers although it is possible that they are under represented. The majority are made from flakes on which a proportion of the cortex is retained and the remainder are on the ends of blades.

There is only one scraper burin (fig. 14,11) and awls and saws are virtually unrepresented in the excavation material. However, a few piercing or grooving tools were found on the surface (fig. 12,10-12). There is one piece (Mace, 1959, fig. 7, No.65) which may be the result of the use of the micro-burin technique, and a few blades exhibit at one end a smooth and polished appearance caused by rubbing and abrasion (Mace, 1959, Plate XVI, fig. 7,62). Flints with similar abrasions have been noted from Upper Palaeolithic and Mesolithic contexts in Britain (e.g. Mother Grundy's Parlour, Creswell Crags, Three Holes Cave, Torbryan and Dozmare Pool, Cornwall (see below)).

The industry from Hengistbury Head is a homogeneous one, characterised by tanged points, shouldered points and backed blades. Until the excavation of this site our knowledge of the British Late-Glacial cultures was largely confined to the Creswellian cave-industries, but now there is evidence of a Late Upper Palaeolithic cultural tradition distinct from the Creswellian. The trapeziform and angle-backed blades characteristic of the latter are not found at Hengistbury Head, and there is only one dubious example of a micro-burin.

Mrs. Mace points out that although the Hengistbury industry has some obvious analogies with those from Late-Glacial open sites on the

north European plain, (e.g. the Hamburgian, Bromme/Lyngby and Ahrensburg cultures), it is not exactly similar to any of them. For example the backed blades are absent from Bromme, and the small Ahrensburg tanged points and microliths are absent from Hengistbury. However, a number of sites of the 'Federmesser Group', described by Professor Schwabedissen (1954) combine non-diminitive tanged points with a strong backed blade element (e.g. Rissen, Grande and Sprengel). At the type site, a Rissen industry has been found stratified below an Ahrensburg industry and dated imprecisely by C14 to c. 11,000 years B.P. This would place it at the transition from the Allerød period to the Younger Dryas period. Unfortunately, there is no means of obtaining an objective date for the industry from Hengistbury Head.

#### OARE, KENT (Fig. 15,23-25)

A collection of flints from Oare, Kent is in the British Museum as part of the collection of the late Garraway-Rice who purchased them from a J. Wilkie Morris. The collection was published by J.G.D. Clark (1938), who illustrates two tanged points and an edge-retouched blade (fig. 15,23-25), which were identified by Dr. Rust as having affinities with the Late-Glacial industries of the north European plain.

These specimens have additional interest in view of the recent excavations at Hengistbury Head.

#### FLIXTON, YORKSHIRE

In 1954 J.W. Moore published a small shouldered backed blade and another without retouch in association with the remains of three horses, from a deposit of Allerød age at Flixton (site 2) in east Yorkshire (J.W. Moore in Clark et al., 1954, Appendix and Plate XVI). On account of the age of the deposits in which they were found, the flints can be

assigned to the same complex of Late-Glacial hunting groups as Hengistbury and Oare.

### DISCUSSION

The context of the British Upper Palaeolithic has altered fundamentally since D.A.E. Garrod originally formulated the conception of a 'Creswellian' over thirty years ago. As we have seen, recent work in the Low Countries and north Europe has brought into focus a picture of the Late-Glacial hunting communities of those areas and also in Britain.

Professor Schwabedissen in his study of the Late-Glacial hunting communities of the north European plain (1954), has suggested that the origin of the Tjonger Group (see above) is to be found in the British 'Creswellian' (Schwabedissen, 1944; 1954, p.70). The similarities between the two cultures have also been discussed by Bohmers (1947), who emphasizes the common factor of angle-backed and trapezoidal blades.

Moreover, Bohmers (1956, pp.23-24) has recently drawn attention to a possible typological division of the British Late-Glacial cave industries. On typological grounds Bohmers divides the 'Creswellian' into two groups, the one in the Pennines and the other in south west Britain. The name 'Creswellian' is retained for British sites such as Mother Grundy's Parlour and continental sites such as Neer ll, but Bohmers suggests the name 'Cheddarian' for the south west British group and continental sites such as Zeyen. The main reasons for the division of the 'Creswellian' into two groups are as follows:-

1. Shouldered points are numerous in the Mother Grundy's Parlour facies but rare in south west Britain (e.g. Gough's Cave).
2. Mother Grundy's Parlour and Neer ll have many angle-backed blades, Gough's Cave and Zeyen have numerous trapezoidal blades.
3. Gravers are much more numerous in the Cheddarian.

If this division is legitimate it is of great importance. However, it appears to be based on the detailed analysis of the artifacts from two sites only, Mother Grundy's Parlour and Gough's Cave. Moreover, although the writer cannot claim to have examined all the material from Gough's Cave, the published evidence indicates thirteen angle-backed blades as opposed to four of the trapezoidal type. This is not in accordance with Bohmers' theory. Moreover, one has the presence of micro-burins in the 'Creswellian' but they are absent from the Tjongerian.

Finally, of great importance to the study of the Mesolithic industries of southern and western Britain, one has the development of microlithic types in the Late-Glacial industries of the caves. The recent investigations of Dr. McBurney have emphasized the existence of these microlithic forms, and also the development of the micro-burin technique in Late-Glacial times, (as at Cat's Hole and Gough's Cave), a technique which is very characteristic of the British Mesolithic cultures. The possibility of the continuation of these forms into the Post-Glacial cultures is discussed in Chapter III.

## 2. THE TYPOLOGY OF THE BRITISH MESOLITHIC CULTURES.

In general terms the lithic industry of the Mesolithic period can be dealt with under the two headings of microliths and macroliths. The latter can be subdivided further into cutting, piercing, scraping and chopping tools. However, it is the microlithic component of the industries which has lent itself to the greatest degree of classification, and it is largely on the evidence of the percentages of the different types of microliths that the Mesolithic cultures are distinguished from each other.

### A. THE MICROLITHIC COMPONENT

In 1934, Professor Clark published the first objective detailed classification of microlithic forms in Great Britain, based on the Piffard Collection now in the Barbican House Museum, Lewes. The main classes were enumerated by capital letters - A, B, C etc., and these again were sometimes divided into smaller subsections numbered by small Roman numerals - (1), (11) etc. In 1939 in order to meet the demands of classifying the huge amount of material from Farnham, Surrey Professor Clark made a few minor modifications within the system:- (Trapezoids and Rhomboids were grouped under the heading of 'Quadrangular' forms with three edges blunted'), and a separate class was added to include chisel-edged or transverse arrowheads.

This scheme has the distinct advantage of providing an objective basis for the comparison of microlithic industries, but one finds it difficult to echo Professor Clark's suggestion that "the scheme . . . may be expanded or elaborated by other workers" (Clark, 1934, p.55). For it is felt that if this scheme has a weakness, it is the laudable



one of over-classification. For example, the minute typological division of the obliquely blunted microliths into eight varieties is certainly supported by the evidence of the microliths themselves, but is not of great value in defining relationships between different groups. In determining such relationships, it is sufficient to distinguish only two varieties of the obliquely blunted point at the most.

A move towards such a simplification of his original scheme was made by Professor Clark in 1955 to assist the identification of a facies of the Continental Mesolithic culture - the Sauveterrian, in Britain. In the writer's opinion the simplified scheme, (admittedly not containing as many types as did the earlier classifications), was an improvement from the point of view of illustrating comparisons and divergencies between cultures. In the scheme, the microliths of the Sauveterrian facies are grouped under six main headings defined by Arabic numerals, and subdivided when necessary by small letters and small Roman numerals. The advantage of this system is that divergences between facies of microlithic cultures can be presented concisely and legibly, without recourse to the many sub-varieties amongst the microlithic types.

Professor Clark's system of classification has found widespread acceptance in this country as a means of setting out the facts fully, and at the same time rendering them readily comprehensible. One could have wished for this method to have been adopted on the continent to facilitate comparison between the Mesolithic industries there and in Britain. However, this aspect of Mesolithic studies on the continent received scant attention until 1956, when Bohmers and Wouters published an initial report on their intensive studies into the typology of the Upper Palaeolithic and Mesolithic periods in western Europe (Bohmers and Wouters, 1956).

This admirable classification of microlithic types is not divided and subdivided by cyphers, (save in three instances), but a descriptive

term such as 'triangle' or 'crescent' is used to describe the type. The classification is kept extremely simple and yet loses nothing when used to compare different cultures. In fact, the scheme is oversimplified at times, especially with regard to the triangular points or 'pointes du Tardenois', where Professor Clark's more detailed system is to be preferred. On the other hand, the classification of Bohmers and Wouters is in some cases more applicable to British microlithic industries than is that of Professor Clark. For example, the former distinguish between lanceolate points with one edge steeply retouched and microlithic blunted back blades, a distinction which is by no means clear in Professor Clark's scheme. Moreover, Bohmers and Wouters introduce a class of triangular blunted back blades which are closely related to microlithic scalene triangles, but which deserve a separate classification on account of their larger size. It is on account of these necessary modifications to the classification of the microlithic cultures in Britain, that the research of Bohmers and Wouters has been taken into consideration when defining their typology (below).

The classification employed in this thesis has inevitably been strongly influenced by Professor J.G.D. Clark in his publication of 1934. However, in the cause of practicability and application his scheme has been simplified somewhat and more emphasis placed on descriptive rather than numerical nomenclature. The system of A. Bohmers has influenced the writer's scheme by its combined merits of simplicity and applicability, and by the slight amendments which it suggested for Professor Clark's classification. However, an essential factor in compiling this classification system was the examination and systematic recording of the Mesolithic material from southern and western Britain at first hand. It is this study which has provided the basis for this classification.

#### CLASSIFICATION OF MICROLITHIC FORMS

The exact definition of a microlith is not without difficulty.

For example, if the definition is adopted from Clark (1934, p.55) where it "is applied only to flakes from which the bulb of percussion has been removed, and which show the typical steep secondary work", then it could include blades with blunted backs of infinite length. Bohmers (1956, p.27) has suggested a solution by distinguishing large microliths from macroliths by their thickness, and suggests four mm. as the boundary. However, a length of under four to five cms. should also be a necessary qualification. Illustrations of the various microlithic types described in this classification are to be found in figs. 16 and 17.

### 1. OBLIQUELY BLUNTED POINT

One edge is always steeply retouched, the secondary work stopping short of the base. Frequently, the unretouched portion of the edge makes a more or less distinct angle with the retouched portion, but the base is always left untouched.

1A. Blunted Obliquely

1B. Blunted obliquely with opposed oblique retouch at the tip.

### 2. RETOUCED MICRO-BLADES

This type is very similar to the obliquely blunted point except that the retouch extends to the base.

### 3. LANCEOLATE POINTS

Manufactured on an elongated micro-blade with steep retouch along one edge which is generally slightly convex. One end has a clearly defined point, the lower end being rounded and unretouched. The main distinction between lanceolate points and microlithic points retouched down one edge is the length and elegance of the former.

#### 4. NEEDLE-SHAPED POINTS

Microlithic points with two steeply retouched edges converging to a point. This type is occasionally of large dimensions and is included with the double point (*pointe-de-Sauveterre*) of Bohmers, despite his distinction of them on the grounds of the former having one point and the latter two. It is felt that the distinction in this case is too subtle and incapable of application in a large number of cases.

#### 5. SINGLE POINTS

This type blunted down one edge and obliquely at the tip, is in effect a sub-variety of the lanceolate point. However, it is sufficiently distinctive to deserve separate classification.

#### 6. SYMETRICAL POINTS

These points are triangular and more or less symmetrical with various types of retouch at the base. Sub-varieties could be made with regard to whether the basal retouch was from the bulbar or the flake surface. Because of doubts as to the diagnostic value of these distinctions, they were not made.

- 6A. Oblique retouch at the Base.
- 5B. Transverse retouch at the Base.
- 6C. Convex retouch at the Base.
- 6D. With opposed retouch at the Base.

Type 6B is in reality the '*pointe du Tardenois*' but this phrase has not been employed on account of its cultural implications. Not infrequently the varieties are blunted obliquely at the tip instead of all down one edge.

## 7. HOLLOW-BASED POINTS

This type is closely related to Type 6, and consists of a point retouched down one or both edges or obliquely at the tip, and with concave retouch at the base. The type has been thoroughly sub-divided by Professor Clark but for the purposes of this classification only two varieties are employed.

7A. Symmetrical

7B. Assymetrical

## 8. OBLIQUE ARROWHEADS

As a result of parallel oblique retouch at the base and tip an arrowhead of Rhombic type is produced which was presumably hafted with one pointed corner at the fore end. Three variants are suggested in this classification and Professor Clark describes them as sub-variants of completely different forms (Clark, 1934, pp.56-58. Types Ca and D4). However, it is included here as a separate British type mainly on account of its recognition as such in Scandanavia, where it is particularly characteristic of the Gudena and Kongemose cultures (Mathiassen, 1937, 1938).

8A. With two edges retouched

8B. With three edges retouched

8C. With four edges retouched

## 9. ANGULAR BACKED BLADES

This type consists of triangular blunted back blades which are larger than the microlithic scalene triangles to which they are closely related, but their size entails a separate classification for them.

## 10. TRIANGLES

The Varieties of this type can be retouched on two or three sides.

- 10A. Scalene Triangles
- 10B. Isocetes Triangles

#### 11. CRESCENTS

This type is rarely more than 1.5 cms. long after which it is assigned to Type 2 or 3. It may be retouched on both the arc and chord.

- 11A. Blunted along the arc
- 11B. Blunted along the chord
- 11C. Blunted along the arc and chord

#### 12. SUBTRIANGULAR POINTS

This is a triangular microlith with one natural end which is not deliberately pointed and is therefore not a true geometric triangle, but a sub-triangular form.

#### 13. TRAPEZES

"The essence of trapeziform microliths is that they retain the sharp edges of the parallel sided blades from which they were manufactured and of which they form in effect sections". (Clark, 1958, p.24).

- 13A. Right-angled micro-trapezoids with squared base
- 13B. Symmetrical Trapezoids,
- 13C. Elongated symmetrical Trapezoids.

#### 14. RHOMBOIDS

This type is closely related both to trapezes and to the Rhombic points or oblique arrowheads of type 8. However, whereas the rhombic arrowheads are manufactured on broad blade segments, rhomboids are made from narrow segments and probably had a completely different purpose.

- 14A. With three edges blunted
- 14B. With three edges blunted and developed tail
- 14C. With four edges blunted

#### 15. CHISEL ENDED (TRANSVERSE) ARROWHEADS

In reality this type is most characteristic of the early Neolithic cultures but it is included here for the sake of completeness. However, the ultra-narrow trapezoids do occur infrequently in the full British Mesolithic cultures.

- 15A. Broad-based transverse arrowheads
- 15B. Ultra-narrow transverse arrowheads
- 15C. Transverse arrowheads with concave retouch

#### THE MICRO-BURIN

As micro-burins are intimately connected with the production of microliths they are included at this point for the sake of completeness. However, technically they are a waste product from the manufacture of microliths. At one end of the reject is a point formed at the intersection between a worked notch and an oblique facet which was obtained by snapping (fig. 17,1). It is extremely unlikely that it was used as a separate implement, but it was introduced as such into the archaeological literature and therefore the name is misleading.

#### B. THE MACROLITHIC COMPONENT

##### SCRAPERS

Scraping implements form a very large proportion of Mesolithic finished products. In the excavations at Farnham, Surrey (Clark and

Rankine, 1939) scrapers formed 25% of the total number of finished implements, and at Freshwater West, Pembrokeshire, the percentage was as high as 72% (Wainwright, 1959).

A. Flake Scrapers (scrapers made on flakes). Many retain a proportion of the cortex, which indicates that they were made from the primary flakes struck from a flint nucleus in the preparation of a core.

B. End Scrapers (scrapers made on the ends of blades).

C. Thumb or micro-scrapers - small, round scrapers with the scraping edge all round, or nearly all round the edge. These types are more common in the western coastal regions, (Wainwright, 1959), than in southern and eastern England. The difference is almost certainly due to the raw material obtainable in those areas.

D. Core scrapers. It is often difficult to distinguish between a core scraper and a utilized core. However, a distinguishing feature is that in the former the flake ridges are chipped off to form a scraping edge, whereas no such modification has taken place on utilized cores (fig. 17,2).

## GRAVERS

Essentially, a graver is a strong flint flake, or less commonly a core, from which a spall has been removed to produce a narrow tough chisel edge. The many varieties of the graver or burin in the Upper Palaeolithic have resulted in many detailed classifications (Bordes, 1956) but the Mesolithic forms are more simple and thus a less detailed classification will suffice (fig. 17,3).

A. Single Blow Burin, in which the burin spall is removed from a plain platform. The burin blow can be repeated on the other edge and also on the base thus forming a multi-blow burin.

B. Angle burin, in which the platform is retouched. The retouched platform can be transverse, oblique, concave or convex.

C. Bec-de-flute or Medial burin, in which the cutting edge is



formed by the opposition of two facets which may be off set considerably.

D. Polyhedric burin, in which the cutting edge is formed by the junction of three or more facets against one.

E. Prismatic burin, in which the cutting edge is formed by the junction of three facets against two or more.

#### SERRATED BLADES

Typical Mesolithic saws are usually made on blades averaging about 2" in length, and the number of serrations vary from twenty to thirty to the inch. The teeth are made by notching which is effected from either surface, but generally from the upper. The extent of serration varies, and rarely takes up the entire length of the edge. (fig. 17,4).

#### AWLS

Although awls and borers do occur in Mesolithic contexts, they are remarkably rare. When found they consist of flakes and blades which have been retouched to a point at one end and are generally incapable of standing up to hard work (fig. 17,5).

#### BLADES TRUNCATED BY RETOUCH

Small blades with diagonal or transverse retouch at the tip are often difficult to distinguish from microlithic obliquely blunted points. However, the distinguishing feature is that the truncated blades possess a thick bulb of percussion which eliminates this type from the category of microliths (fig. 17,6).

#### UTILIZED PIECES

In any Mesolithic industry a large number of flakes are found, which although not worked by secondary flaking to any very definite forms, have obviously undergone use. Frequently such flakes show signs

of localised trimming, though it is not always easy to distinguish secondary flaking from the flaking which results from use.

### AXES

A. Core Axes. - manufactured from a nodule of flint or some similar material by flaking from all sides into the shape of an axe. The implement is frequently, but not invariably, sharpened by the removal of a flake with a blow from the side at one end, thus producing the typical tranchet scar. The transverse section may be lenticular, of the form of a parallelogram, a rhomb or a trapeze. No core axe has ever been found hafted, though one was discovered set in a sleeve of stag antler at Svaerdborg. However, a number of core axes are so small that they must have been hafted to have been effective (fig. 18,1).

B. Flake Axes - manufactured from a large flake whose sharp edge is used as the cutting edge of the axe. One side retains the original flake surface whereas the other is trimmed into shape. In this way the cutting edge is usually assymetrical. The side edges almost invariably possess a secondary retouch (fig. 18,2).

C. The Thames Pick - an elongated 'pick' of flint with a quadrangular section. It is concentrated in south east England and is generally believed to belong to a late variant of the Mesolithic culture.

### AXE-SHARPENING FLAKE

Core axes are frequently sharpened by striking off a flake from one end with a blow from one side, thus forming a cutting edge. The waste product is the axe-sharpening flake (fig. 18,3).

### C. THE WASTE PRODUCTS

Micro-burins and axe-sharpening flakes which are technically waste

products have already been dealt with above. Therefore, it remains only to discuss the waste products of a Mesolithic industry, which can total 96% of the whole on average.

### CORES

The short narrow blades from which microliths were fabricated were produced from cores, which are extremely numerous on chipping floors.

- A. Single Platform (fig. 18,4)
- B. Two Platforms (fig. 18,5)
- C. Three Platforms (fig. 18,6)
- D. Flaked from two directions to form an edge (fig. 18,7)

However, there are always a large number of cores which are not classifiable.

The different methods employed to revive the striking platforms of cores maltreated through the removal of blades, produce a number of types of core trimming. In the main they are triangular flakes easily recognisable for what they are. A second source of wastage is the preliminary knapping of a flint nodule to prepare the required core. This produces flat flakes retaining a considerable amount of cortex on the upper surface and known as Primary Flakes.

### D. ARTIFACTS OF STONE OTHER THAN FLINT

Included in this section is a brief survey of the stone types, other than the flint implements, which occur in Mesolithic industries in Britain. Only the more common types are included and the remainder described in a more appropriate place.

### STONE 'MACEHEADS'

Made from rather flat circular pebbles. They are sometimes slightly

bruised around the edges with a central perforation formed by drilling from both sides, thus causing the 'hourglass' perforation. The raw material may be quartzite, sandstone or limestone. (fig. 18,8).

#### HAMMERSTONES

Made from rounded pebbles of a suitable size to fit the hand. The ends are bruised or fractured owing to their use as hammerstones in the manufacture of flint implements. Also to be included under this heading are the 'fabricators' of flint which consist of stout rods battered on all edges and put to the same purpose as the hammerstones.

#### ANVILS

Large natural pebbles with pitting and bruising on one or both surfaces owing to their utilization as anvil stones. They are more common among the Mesolithic Littoral communities owing to the presence of such pebbles in those areas.

#### PEBBLE 'RUBBERS'

Elongated and water-rolled pebbles of sandstone have been recorded from Mesolithic sites in central and southern England. Their use is uncertain but they may have been used in the preparation of skins. They are found in very small numbers unlike the 'limpet scoops' of the western Littoral.

#### THE 'LIMPET SCOOPS'

A full discussion of these interesting artifacts occurs below and so it is sufficient here to indicate the presence in Cornwall, west Wales and Scotland of numerous 'limpet scoops'. These are elongated, water-worn pebbles of sandstone and limestone with bevelling at one or

both ends caused by abrasion. The pebbles were presumably derived from the sea-shore, and they are very numerous in Mesolithic industries along the western Littoral, particularly in Scotland. The name, 'limpet scoop' is derived from their supposed purpose, which is the removal of limpets from their shells.

#### E. THE USE OF ORGANIC MATERIALS

It is reasonably safe to infer that the Mesolithic peoples in southern and western Britain made use of organic materials. Unfortunately the natural conditions under which the industries were found, were not conducive to the preservation of bone and wood. Therefore, apart from three barbed bone points of Maglemose type from the Thames, and a few simple bone and antler points from a small number of Mesolithic sites, we know nothing of the organic content of the Mesolithic industries of southern and western Britain.

However, in Yorkshire, Professor Clark has recently excavated a hunting camp of the Maglemose hunters at Star Carr, where the natural conditions were such that articles of antler, bone and wood were preserved. As a result, a remarkable series of barbed bone points were recorded together with other artifacts of bone and wood (Clark, 1954). The superb selection of finds of organic materials from this site, is an extension of what one already knew the Maglemose hunters of Scandinavia to possess, in the way of barbed bone points, antler sleeves for axes, bone gouges, leister prongs, wooden paddles and the like. Therefore, when dealing with the Mesolithic industries of Britain, one must bear in mind that it is only the lithic aspect which we have and that the equipment of organic materials has long since perished.

## CHAPTER 111

### INDIGENOUS DEVELOPMENTS FROM THE UPPER PALAEOLITHIC STEM

#### INTRODUCTION

One of the most difficult problems facing a study of the British Mesolithic cultures is how far they are descended from the native Upper Palaeolithic industries and how much they owe to exotic influence. From a study of the British Late-Glacial industries (above), it would appear that the microlithic types of the Mesolithic period can be derived from indigenous sources, and even the specialised technique of manufacture can be derived from the same source. In particular one should note the true microliths from Cat's Hole, Gough's Cave and Aveline's Hole, and the possible derivation of the scalene triangle from the angle-backed blade.

In the determining of the relationship between the Upper Palaeolithic and the earlier Mesolithic industries, cave sites with two such superimposed industries are of the greatest importance. It is for this reason that the few sites which have produced this sequence are described below, separate from the general discussion of the British Late-Glacial industries in Chapter 11. <sup>section is a description of these Mesolithic Industries</sup> Also included in this <sup>which on</sup> typological or other grounds may represent indigenous developments from the Upper Palaeolithic stem.

#### THREE HOLES CAVE, TORBRYAN, DEVON

The material from this site is unpublished and the writer is indebted to Professor F.E. Zeuner for permission to examine the Late-

Glacial and Mesolithic industries, and to Miss A. Rosenfeld for information regarding the stratification.

The cave lies a few miles to the West of Kent's Cavern and was initially excavated by J.L. Widger in the 1870's, but unfortunately no scientific record was kept of his work (Lowe, 1918). In recent years, however, the cave has been re-excavated by Professor F.E. Zeuner under the auspices of the Devon Archaeological Exploration Society and a clearly defined Mesolithic horizon has been found to overlies one of Late-Glacial age. The relevant deposits are at the entrance to the cave where the sequence from the top is as follows:-

5. Black 'ash' layer which contains the majority of the Mesolithic material

6. Grey 'ash' layer - the colour is probably due to less charcoal and more calcium carbonate and a quantitative analysis of the organic matter and phosphate content, shows that they are concentrated in layer 5. The faunal remains are calcined and broken but the remains of sheep occur in layers 5 and 6, (teeth and a fragment of a cervical vertebrae), and the remainder of the fauna includes Roe Deer, Pig and Ox.

7. Stony sterile deposit. The stones are superficially weathered and the deposit may represent the weathering horizon of the thermoclastic scree,(8). There is a slight soil formation and there was probably a chronological hiatus between the Late-Glacial industry of layers 8 and 9 and the Mesolithic industry of layers 5 and 6.

8. Thermoclastic Scree of the last Glaciation. The hearth level in this Pleistocene deposit had to a very great extent been removed by Widger, and only a narrow strip of it remained in the deposits against the cave wall near the entrance. The flints were found in this lens and never in the purely thermoclastic scree. The hearth was near the top of the deposit and therefore the industry can probably be assigned to a Late phase in the last Glaciation. Further inside the cave the deposit was covered by a layer of stalagmite.

The total number of flints recorded from the hearth level in the Pleistocene deposit was only forty three. This is probably because most of it had been removed by Mr. Widger who found "a portion of a human jaw, the teeth and jaws of bear, lynx, fox, badger, wild boar, teeth of ox, horse, deer, one stone hammer, flint knives, bone awls, etc." (Lowe, 1918, p. 206).

The industry recovered in the recent excavations is rather indeterminate, but its stratigraphical position suggests a Late-Glacial context, and its typological content is not dissimilar to other Late-Glacial industries found in Britain. The industry includes a blade retouched steeply down one edge and obliquely at the base (fig. 19, 1), and fragmentary blades retouched down one edge (fig. 19, 7-9). Other types include broad blades with oblique retouch at the tip (fig. 19, 2-4) and semi-microlithic points with edge retouch (fig. 19, 5-6). There is also an interesting group of three artifacts which consist of broad blades notched at the upper left hand corner, with the tip rounded and abraded by rubbing (fig. 19, 10-12). Similar signs of abrasion were noted on a few flints from Hengistbury Head, Hampshire and Gough's Cave (above), where it was suggested that the polished appearance was caused by rubbing the flint against a hard surface. In the case of No. 10 the tip of the blade was first chipped and the subsequent abrasion has all but removed the flake scars. Probably<sup>e</sup> by-products from the manufacture of narrow backed blades are represented by the 'Krukowski Burins' (fig. 19, 13-14. See appendix), and there is one piece which may be the result of the use of the micro-burin technique (fig. 19, 15). As we have seen, this technique has previously been recorded in a Late-Glacial context as at Cat's Hole, Gower and Gough's Cave.

The Mesolithic flints from layers 5 and 6 cannot be separated on grounds of typology or patina and may therefore be taken to represent the same industry; The comparatively small number of flints found, (about six hundred in the black layer and less than half this in the grey



band), may be due to the fact that Widger excavated most of the deposits and only a part of them, to the side of the entrance, were left intact. Widger only records that he found a number of flints and "a small bone implement about the size and shape of a vent spile, with a small loop in the centre". (Lowe, 1918, p.206).

The raw material is of a poor quality and was probably obtained from the beach. Thirty microliths and a number of micro-burins were recorded representing a diversity of types:-

Obliquely blunted points (fig. 20, 1-5)	
1A	3
1B	2
Points retouched down one edge (fig. 20, 6-11)	6
Single Points (fig. 20, 12)	1
Points retouched down one edge and obliquely at the base (fig. 20, 13)	1
Needle shaped points (fig. 20, 14-17)	4
Scalene Triangles (fig. 20, 18-25, 28)	10
Sub-Triangular forms (fig. 20, 26-27)	2
Crescents (fig. 20, 29)	1
Total	<u>30</u>

The most significant features of the microlithic assemblage are the large number of scalene triangles and the needle shaped points (pointes de Sauveterre). Both these features are characteristic of the Sauveterrian culture as defined by Professor Clark (1955), and the remainder of the microlithic types correspond to this definition.

A feature of the industry is the large number of utilised blades and flakes - probably due to the intensive use of the available raw material. Scrapers (fig. 19, 16) and burins (fig. 19, 17-18) are represented as well as one large obliquely blunted blade (fig. 20, 31). There is no sign of an axe element which would link the culture to that of the Weald, the only sign of heavy equipment being three choppers of

a volcanic rock which are very crudely made.

The number of micro-burins found is not high and does not exceed five specimens (fig. 20, 30-33). The Krukowski burin is again represented (fig. 20, 34), the sole example being much smaller than the two specimens recorded from the Late-Glacial deposits. A few cores were found, the majority of which had been worked into steep scrapers.

No hammerstones were recorded but the end of a flint fabricator of typical type was found (fig. 20, 35). These fabricators with a D-shaped section are rare in west Britain.

It is not often that objects of personal decoration are found in association with Mesolithic industries in Britain. However, numerous pierced shells of Litorina obtusata and of Cowrie (Cyprea europea) found at Torbryan are presumably intended to be the components of a necklace.

### CONCLUSION

The Mesolithic industry from Three Holes Cave, Torbryan, is separated from an underlying Late-Glacial industry by a sterile deposit, which shows a slight soil formation and superficial weathering.

The Late-Glacial industry is not sufficiently distinctive to be assigned to any phase of the contemporary cultures in Britain. However the Mesolithic industry from layers 5 and 6 (and to much lesser extent 7), belongs to a group characterised by the absence of axes or adzes and by the presence of geometric microliths (predominantly scalene triangles), needle shaped points and a low percentage of micro-burins. The affinities of this group lie with the continental Sauveterrian, (without prejudice to its origin), and similar industries occur in Wales, the Pennines and west Britain. A discussion of the British facies of the Sauveterrian will be given in a later chapter.

Unfortunately, the Late-Glacial industry from Torbryan is not

sufficiently rich for one to determine what influence, if any, it had on the Post-Glacial industry. The similarities are the occurrence in both industries of a point retouched down one edge and obliquely at the base (fig. 19, 1; fig. 20, 13) - microlithic in the Post-Glacial industry; and the continuation of the Krukowski burin into the Post-Glacial industry.

#### KING ARTHUR'S CAVE, ROSS-ON-WYE, GLOUCESTERSHIRE (Figs. 21-22)

King Arthur's Cave is the westernmost in a series at the foot of a low limestone cliff, four hundred feet above sea-level near Whitchurch, Ross-on-Wye. It was initially excavated in 1871 by the Reverend W.S. Symonds and descriptions of his finds are in the Second and Fifth Annual Reports (1912, 1915) of the Gloucester Museum.

In 1924 the cave was excavated by the Bristol University Spelaeological Society under the direction of T.F. Hester (1925), who concentrated on the passage and found a hearth at a depth of 1'6" "on the right hand side of the passage looking from the entrance." Associated with the hearth was a flint industry which was characterised by a series of blades and micro-blades with edge retouch (fig. 21, 43-53). These pieces include one angle-backed blade (fig. 21, 43) similar to those characteristic of Late-Glacial industries in Britain, fragmentary broad blades retouched down one edge (fig. 21, 45-48) and a series of micro-blades retouched down one edge (fig. 21, 49-52). An additional type is an oblique angle-burin on a blade (fig. 21, 44) and one incisor tooth of a pig, with a hole bored through the root for suspension (fig. 21, 53).

The fauna apparently associated with the hearth is as follows:-  
H. Spelaea, R. tichorhinus, Equus caballus, all very numerous; also present were Ursus spelaeus, Ursus arctos and a few teeth fragments of Bos primigenius and Elephas primigenius. In other words, if the association of the fauna with the flint industry is a true one, then the

latter must be assigned to some phase of the last Glaciation. This date is supported by the angle-backed blade and the burin; in which case the series of micro-blades retouched down one edge are of great interest as representing microlithic development in the Pleistocene. In any case, from a purely typological aspect, the association of the angle-backed blade and burin of 'Creswellian' type with the series of micro-blades retouched down one edge, is of some interest.

In 1926 and 1927 the Bristol University Spelæological Society undertook further investigations in the cave which were directed by H. Taylor (1927). The excavations were concentrated on the platform outside the cave and a sequence of deposits containing hearths was recorded.

1. Old spoil heap
2. Humus - 9"-18"
3. First Hearth - 1'
4. Yellow rubble - 15"
5. Second Hearth - 9"
6. Mammoth layer
7. Red and yellow clays and red silt.

#### Humus

The humus contained a mixture of many periods, including Mesolithic, Neolithic, Bronze Age, Roman and Medieval. The Mesolithic types are illustrated in fig. 21, 54-56 and include a micro-blade retouched down one edge (No. 54) and a micro-burin (No. 56). Two barbed and tanged arrowheads from the humus are illustrated in fig. 21, 57-58.

#### The first Hearth

The fauna of the layer associated with this hearth in order of frequency is Deer, Pig, Horse, Ox, Beaver, Brown Bear, Wild Cat or Marten, Hedgehog. Reindeer and the Giant Irish Deer occur very rarely

and only at the base of the deposit.

The artifacts are illustrated in fig. 21, 1-42, and include obliquely blunted points (Nos. 1-4), needle shaped points (Nos. 8, 11, 14, 29, 31), micro-blades and rods retouched down one edge (Nos. 12, 15-24), single points retouched down one edge and obliquely at the tip (Nos. 10, 13), a crescent (No. 30) and a few scalene triangles (Nos. 25-27). The industry also includes end-scrapers on blades (No. 32), discoidal scrapers (Nos. 33-35) and two prismatic burins (Nos. 36, 41). In the top of the deposit occurred two knives with scale flaking over the upper surface (Nos. 40, 42).

Of stone other than flint are a number of anvils and pounders, together with a series of long, thin sandstone pebbles, which closely resemble the 'limpet scoops' of west Wales and Cornwall (Taylor, 1927 Plate 111B).

#### The Yellow Rubble

This deposit consists of "sharp edged fragments packed with sand" and the fauna includes Lemming, Giant Red Deer, Horse, Ox, Hare, Pika, Microtus Anglicus, Microtus Ratticeps and Hedgehog. From the upper half of the rubble were recovered a few blades retouched down one edge (fig. 22, 1-4), a broad point retouched round its whole circumference (fig. 22, 5) and a micro-blade retouched down one edge (fig. 22, 6). From the lower half of the layer were recorded a number of blades with edge retouch (fig. 22, 7-11) and broad blades with edge retouch at the tip (fig. 22, 13, 15).

#### The Second Hearth

From this deposit were recorded a number of blades retouched down one edge (fig. 22, 19, 20, 22), an obliquely truncated blade (fig. 22, 21) and a fragmentary angle-backed blade (fig. 22, 23). Other types include scrapers (fig. 22, 24) and burins (fig. 22, 27-29, 33).

### Conclusion

If the stratification can be relied upon, it is clear that the first hearth represents a Mesolithic horizon with a Post-Glacial fauna, and that the 'Yellow Rubble' and Second Hearth are Late-Glacial deposits. This conclusion is arrived at by analogy with recently excavated cave-sites in the west of England and south Wales, where similar strata have been assigned to the Late-Glacial period (McBurney, 1959).

The Mesolithic industry appears to be characterised chiefly by micro-blades and rods retouched down one edge and needle shaped points with only a very few scalene triangles. There are no micro-burins, and although the pebble tool element may link it with the industries of west Wales and Cornwall, there is little affinity between the microlithic components. The needle shaped points and the emphasis on the production of narrow micro-blades suggest an industry of Sauveterrian affinities, but there is a lack of the typical scalene triangles. The industry in effect, cannot be assigned to any known Mesolithic culture and has the appearance of being an indigenous development from a Late-Glacial industry, under the influence of Post-Glacial conditions. In this connection one should note the occurrence of Reindeer and the Giant Irish Deer at the base of the Mesolithic deposit, suggesting an early Post-Glacial date for the industry.

The industries from the 'Yellow Rubble' and the Second Hearth would not be out of place in a 'Creswellian' context. They are characterised by blades retouched down one edge, (fig. 22, 1, is a typical 'Federmesser' type), and by micro-blades retouched down one edge. The latter, particularly Nos. 6-10, are very similar to those micro-blades retouched down one edge which are so characteristic of the Mesolithic industry from this site.

It is possible, therefore, that at King Arthur's Cave one has an indigenous Post-Glacial microlithic industry, overlying an industry of

the Late-Glacial period. Certainly, it is typologically possible to derive the one from the other, and the evidence of the industries corroborates that of the stratification.

#### NANNA'S CAVE, CALDEY ISLAND, PEMBROKESHIRE

Caldey Island is situated on the west side of Carmarthen Bay. It is five hundred and fifty six acres in area, two thirds of which is composed of Carboniferous Limestone, in which are a system of caves. Nanna's Cave is sited on the north coast of Caldey Island, about seventy feet above sea level and one hundred and fifty yards south east of Den Point.

In 1911 the cave was partly excavated by Mr. W. Clark and Mr. J. Coates Carter who recovered potsherds, animal bones, utilised red deer antlers ground to a point, stone rubbers, fish bones and quantities of shells of sea-shore molluscs. In 1912 the late A.L. Leach found a few flints in some blocks of stalagmite that had been thrown out of the cave. They include a blunted back blade which is now housed in the Tenby Museum. Recently the cave has been re-excavated by Mr. A.D. Lacaille and Professor W.F. Grimes (Lacaille and Grimes, 1955), and the finds from their excavations are housed in the National Museum of Wales, Cardiff.

The sequence of deposits in the cave is as follows (fig. 24):-

1. Basal limestone rock.
2. Yellowish sandy silt.
3. Reddish loam damp and plastic in places and uniformly 2' thick. It contained angular pieces of limestone.
4. Confused topsoil - mixed refuse.
5. The remains of the stalagmite in which the flints had been found by Leach.

Samples of the basal deposits were submitted to Dr. I.W. Cornwall of the London Institute of Archaeology for analysis which produced the following results.

1. Layer (2) is a yellowish silty sand which was windbourne and assignable to a period when the climate was drier than at present.

2. Layer (3) is a reddish loam assignable to soil creep and rain-washing, when the Post-Glacial submergence was under way and the climate was wetter than at present.

In general terms layer (2) is assignable to a dry phase and layer (3) to a wet phase, which Dr. Cornwall suggested could be correlated with the Boreal and Atlantic climatic periods. However, it is clear that this correlation is very tentative with no direct evidence to suggest that the particular dry phase of layer (2) is in fact the Boreal. Indeed, we shall see that the evidence of the lithic industries suggests that this is not the case.

The molluscan remains from layer (5) (the stalagmite) include cockle, limpet, oyster and land snails. Most important were the shells of two estuarine species, the bivalve Sorobicularia piperata Gmelin and the univalve Paludestrina ulvae Penn. Today, neither could be found in a locality nearer to Caldey than the estuarine mudflats of the River Towy, twelve miles to the north east. Remains of ox and pig were recovered from the silty sand (layer (2)) and goat, dog, fox and pig from the reddish loam (layer (3)).

#### Yellowish Silty Sand

The lithic industry from the basal silty sand is made from beach flint with occasional fragments of adinole (Lacaille and Grimes, 1955, fig. 14,7). The industry is characterised by a series of blades of typical 'Creswellian' type. They comprise two blades retouched down a convex back (fig. 25, 1-2), one blade retouched down one edge and



obliquely at the base (No. 3), a semi-microlithic angle backed blade (No. 4), a broad point steeply dressed down one edge (Nos. 5), an absolutely typical trapezoidal blade (No. 6) and two semi-microlithic types retouched down one edge and with opposed oblique retouch at the tip (Nos. 7-8). All these types are typical of the Late-Glacial cave industries which have been described above.

What appears from the illustration to be one example of the Krukowski burin was recorded (fig. 25, 9) (c.f. two examples in a Late-Glacial industry from Three Holes Cave, Tarbryan - see above). The problem of the Krukowski burin is discussed in an appendix (below). Other implement types include scrapers on blades (fig. 25, 20, 22) and two angle burins (Nos. 23, 29).

Therefore, the industry is typical of the Late-Glacial industries of the caves which have previously been discussed and can confidently be assigned to that complex. However, industries of that group have been assigned to a Late-Glacial context as at Caffe Hole and Little Hoyle in Pembrokeshire. The latter is only a few miles from Nanna's Cave and it is unlikely that the 'Creswellian' could have survived until Boreal times in that area. Therefore, it is improbable that the dry phase represented by the silty sand corresponds to the Boreal period.

#### The Red Loam

This deposit rests directly on the silty sand containing the 'Creswellian' industry and contains an assemblage of flints that can be assigned on typological grounds to the Mesolithic culture. The soil analysis suggests that the deposit was laid down during a period when the climate is wetter than it is today.

The lithic industry from the red loam is characterised by five non-geometric microliths and a micro-burin (fig. 23, 12-17). The microlithic element consists solely of micro-blades retouched down one edge

with no geometric forms. The only other flint artifact is an angle graver with the graver edge backed against oblique retouch (fig. 23, 11).

A few fragments of bone and antler were found which had been worked in some way or other. These include two short slivers of bone which have been worn, rubbed or ground to a round convex end (fig. 23, 19, 21), a pig's tooth brought to a very fine point by rubbing down the end of the root (fig. 23, 18) and a tine of red-deer antler sharpened artificially (fig. 23, 20). One object of stone other than flint is a small 'limpet scoop' (fig. 23, 22), of a type which is characteristic of Mesolithic industries along the coast of west Wales.

There is little that one can say about the typological affinities of the Mesolithic industry from the red loam, except that it contains a small number of micro-blades retouched down one edge and one micro-burin. There are no evolved types in the assemblage and nothing which could not have been derived from a purely indigenous source, (the micro-burin technique has been shown to be present in the 'Creswellian'). In this respect the industry is very similar to that from the First Hearth at King Arthur's Cave, - both industries are based on the production of the micro-blade which is then retouched along one or both edges.

As in a number of 'Creswellian' industries described above, (e.g. Gough's Cave, Aveline's Hole and Cat's Hole), a tendency towards microlithic types can be seen in the industry from the basal silty sand at Nanna's Cave. In particular one should note the tendency towards microlithicism in the slender angle-backed blade (fig. 25, 4), which survives into the Post-Glacial period as the scalene triangle, or in its present form as an angle-backed blade. The points retouched down one edge and at the tip (fig. 25, 7-8) are also of interest for they survive into the Mesolithic cultures, and apart from Nanna's Cave have also been recorded in a 'Creswellian' context at the Priory Farm Cave, Pembrokeshire (see above).

It is impossible to tell whether this tendency towards microlithicism produced the industry of the red loam at Nanna's Cave. Nevertheless, there is a strong possibility of it having done so, strong enough to obviate the necessity of an exotic source.

#### THE HOYLE, TENBY

The late Honorary Curator of the Tenby Museum, Mr. A.L. Leach, collected a number of flints from rocky ground near the well-known cave of Hoyle's Mouth (see above). A brief description of the collection is given in his exhaustive survey of flint chipping sites in South Pembrokeshire (Leach, 1913, pp. 405-406), and the material is now housed in the Tenby Museum where it has been examined by the writer. The collection numbers about fifty flints and includes two end scrapers on short blades, one small double ended scraper, several blades with trimmed edges and waste flakes, together with a microlithic rod retouched down one edge

The industry is clearly of Mesolithic type and is of particular interest on account of a few flakes of adinole amongst the raw material. As we have seen above, adinole is a raw material used exclusively in Upper Palaeolithic contexts in south Wales, and this industry is the sole instance of it being found in a Mesolithic context. This fact, together with the proximity of the industry to the Cave of Hoyle's Mouth (where an industry of Upper Palaeolithic type using beach flint and adinole has been recorded), suggests some continuation of tradition from the Upper Palaeolithic.

#### GODREVY POND, GWITHIAN, CORNWALL

In recent years Mr. A.L. Thomas has been directing the excavation of a series of sites at Gwithian, Cornwall, which range in date from Mesolithic to Medieval. The Mesolithic material is in the possession

of Mr. Thomas who permitted the writer to examine the collection. The majority of the sites will be described below, but it is necessary at this point to discuss the site of Godrevy Pond, Gwithian.

This site is on the Godrevy Peninsula a few yards inland from the edge of a cliff (fig. 27). On account of its importance Mr. Thomas accompanied the writer to the site, a sketch section of which is shown in fig. 26. The situation is that a pond has been dug through deposits consisting of holocene blown sand overlying rubble 'head' or angular debris, which is generally considered to have formed under a cold climate (Zeuner, 1959, pp. 27, 282). At intervals this pond has been cleared out and the resulting mixture of blown sand and rubble 'head' deposited around its perimeter as shown in fig. 26.

A series of flints have been recorded from this mixed deposit and it is possible that they may have been derived from the 'head'. The flints are in the main abraded but unpatinated and contain no distinctive forms amongst the two dozen fragments. In particular one should note a large double ended scraper (fig. 179, 30), a blade with irregular retouch (No. 32) cores and blade flakes. (Nos. 31, 33-35).

The implication of the Godrevy Pond industry is that if it is indeed associated with the 'head' then it can be assigned to a late stage of the last Glaciation. Unfortunately the industry possesses no definitive tool types, but the series as a whole would not be out of place in a Mesolithic context. Moreover, the industry from Godrevy Pond would be the first clear instance of an industry being obtained from the 'head'.

However, it is clear from the section that although the bottom of the pond is cut into the 'head', it does not mean to say that all artifacts retrieved from the bottom of pond are contemporary with the 'head'. Implements contained in or sealed by the dune sand may have become incorporated in the deposits at the bottom of the pond, and so

have become included in the material dumped around its perimeter. Therefore, it is by no means certain that the industry from Godrevy Pond is associated with the 'head'. If it is, then it represents an industry of Mesolithic types occurring in a Late-Glacial context.

#### BLACKSTONE ROCKS, CLEVEDON, SOMERSET (Fig. 28)

In 1934 a mixed industry was found by Mr. L.M. Sykes between the high and low water marks, half a mile south west of Clevedon Old Church. The industry was found on a ridge of shingle which runs out from the sea wall to the Blackstone Rocks (Sykes, 1938). The collection was examined by the Abbé Breuil who suggested three distinct typological groups - Upper Palaeolithic, Mesolithic and Early Bronze Age.

The Upper Palaeolithic element consists of a large blade retouched down a slightly curved back (fig. 28, 4) with one end utilised as a burin, two single blow burins (Nos. 2-3), broad points with retouch at the tip and a micro-blade retouched along one edge (No. 5). The great proportion of the raw material is beach flint but a black carboniferous chert is also used as in Nos. 1, 2, 5, 18. Five microliths are present in the collection and include a rhomboid retouched on three edges (No. 10), a point retouched on one edge and obliquely at the base (No. 11), an obliquely blunted point (No. 12) and two scalene triangles (Nos. 13, 14).

It must be remembered that the industry represents the mixture of several cultural streams. Nevertheless, the backed blades (Nos. 5 and 4) the broad points and the burins are very reminiscent of the Late-Glacial industries discussed above. It is impossible to say whether the microlithic element should be associated with these types, but such an association would not be singular in view of the tendency towards microlithicism already noted in the Late-Glacial industries of the caves.

## DISCUSSION

The tendency towards microlithicism in Late-Glacial times and the appearance of the micro-burin at the same time has already been discussed in Chapter 11. This tendency can also be seen in the industries from Three Holes Cave, Farbryan, King Arthur's Cave and Nanna's Cave, where microlithic forms become the basis of the Post-Glacial industries.

Unfortunately it is still very difficult to say how great is the debt which these Post-Glacial industries owe to the ones of the Late-Glacial date from the underlying strata. At Three Holes Cave, the two cultures are separated by a sterile deposit which is superficially weathered and shows a slight soil formation. However, it is impossible at the moment to give an absolute date for the formation of this deposit. At Nanna's Cave there is no such intervening stratum, and the Mesolithic deposit rests directly upon that containing the Late-Glacial type industry. Moreover, at King Arthur's Cave, Pleistocene fauna occur in the very base of the Mesolithic deposit, suggesting an early Post-Glacial date for the industry. Therefore, the deposits in which the industries are found suggest a gap of unknown duration between the Late-Glacial and Post-Glacial industries at Three Holes Cave, but no such gap at King Arthur's Cave and Nanna's Cave, where the deposits containing the Mesolithic industries rest directly on the Late-Glacial deposits. In the case of King Arthur's Cave the evidence is substantiated by the fauna.

A case can be made for supporting this distinction by typological methods. There is a clear distinction between the Mesolithic industries from King Arthur's Cave and Nanna's Cave and that from Three Holes Cave. The latter is characterised by triangles, ('pointes de Sauveterre', sub-triangular forms and micro-burins. However, it will be recalled that the industry from King Arthur's Cave and that from Nanna's Cave are characterised above all else by the absence of geometric forms and the preponderance of micro-blades retouched down one or both edges. Numerically,

there are more microliths in the Mesolithic industry from King Arthur's Cave than from Three Holes Cave (34:30), but the microlithic types in the latter are infinitely more varied and contain a much higher percentage of geometric forms (4:13). The Mesolithic industry from Nanna's Cave contains very few microlithic types but they are all non-geometric.

In general the industry from Three Holes Cave is more evolved than those from the other two sites and can be described as an industry with Sauveterrian affinities. This is in accordance with it being separated by a sterile layer from the Late-Glacial deposit. The industries from King Arthur's Cave and Nanna's Cave, on the other hand, contain an overwhelming proportion of simple non-geometric microlithic types, which are essentially characteristic of the Late-Glacial industries which preceded them (see above). The micro-blade retouched along one edge is the characteristic type in each case. (This is less true of Nanna's Cave). The Post-Glacial industries from these two sites are very probably indigenous developments from an Upper Palaeolithic source, and this conclusion is supported by the fact that no sterile layer interrupts the deposits containing the two cultures.

The question of the indigenous development of the British Mesolithic cultures from an Upper Palaeolithic source will be returned to when discussing the question of a British Sauveterrian. However, from the above account it will be realised that our knowledge of the indigenous development of microlithic cultures in early Post-Glacial times is scanty and confined to very few sites. The conclusions expressed above are based on the evidence from three cave sites, two of which have been excavated in the last ten years, and one can expect the situation to change rapidly in the face of new discoveries. However, the evidence at present could be interpreted in terms of the conclusions expressed above, which are little more than an attempt by the writer to bring some order to an aspect of the southern British Mesolithic cultures of which little is known.

CHAPTER 1V1. THE MAGLEMOSEAN IMMIGRANTS.INTRODUCTION

The Maglemosean culture of the north European plain has been discussed in an earlier section, where it was indicated that the culture is almost certainly a result of the ecological changes that occurred during the Pre-Boreal period. These imply a radical change of environment and consequently a transformation of the material culture of the inhabitants of northern Europe. The heavy element in the equipment of the Maglemosean people such as axes and adzes, represent adaptation to a forest environment, and there may also be evidence of Upper Palaeolithic survivals in the burins, harpoons and art.

The Maglemose culture is found over the whole plain of northern Europe. The coast of the present North Sea then extended from Holderness to the north of Jutland, which together with the Danish Islands and a part of north Germany formed a land-bridge to southern Sweden, separating the Baltic from the North Sea. Therefore, the whole area from the Lowland Zone of Britain to Poland, Russia and southern Sweden, formed a single region undivided by water. This contributed towards a certain cultural homogeneity over much of the north European plain, at a time when the eastern part of Britain was joined to the continent, and the Baltic was still a lake.



Evidence of this homogeneity has been forthcoming from eastern and southern England, and although our main preoccupation is with the area south of the Thames, it is necessary to provide a brief survey of the finds to the north of this line.

In 1922 the Abbé Breuil drew attention to the Maglemosean affinities of two barbed bone points from Holderness in Yorkshire (Breuil, 1922), and this view was supported by A.L. Armstrong and others (Armstrong, 1923). A similar 'harpoon' was recovered from the Leman and Ower banks of the North Sea, and fragments of barbed points of bone or antler from the Thames (Godwin, 1933). Flint industries comparable to the Danish Maglemosean material have been recorded from Kelling in Norfolk, as well as from several localities south of the Thames such as Thatcham, Broxbourne, the Colne Valley, Hullbridge, Uxbridge etc., which will be described in detail below.

This was the situation until J.W. Moore discovered microliths, transversely sharpened flint axes and their sharpening flakes in the Carrs around Flixton, Yorkshire. As a result of his discoveries a site was selected for excavation under the supervision of Professor Clark, which appeared to offer good possibilities for the preservation of organic materials.

#### STAR CARR, SEAMER, YORKSHIRE

Although the Mesolithic settlement at Star Carr, Yorkshire, lies well outside the terms of reference of this thesis, its excavation by Professor Clark provides the most complete picture of a Mesolithic hunting camp that we have in Britain. As such, a brief description of the remains is essential. The site has been published in great detail by Professor Clark (1949, 1950, 1954), and the description of the settlement which follows, is a condensation of his work.

The Star Carr settlement belongs to an earlier phase of Post-

Glacial time than the classic Maglemose sites, what is, to a late phase in the Pre-Boreal period (Zone IV). The results of a radiocarbon test carried out on a sample of birchwood from the platform gave an absolute age of  $9488 \pm 350$  years B.P. In Scandinavia, the Klosterlund occupation in central Jutland and the Øgaaarde I occupation in the Aamosen bog both fall in Zone IV and at the opening of Zone V. Moreover, the material culture, especially that in antler and bone, differs markedly from that recovered from Maglemosean sites of Boreal age.

Excavation revealed the existence of a rough birchwood platform, which had been laid down on the edge of a lake and consolidated by stones and clay. Intermingled with the brushwood was the living debris the remains of wild animals, artifacts of flint, antler and bone and the debris of their manufacture, beads and a number of tightly wound rolls of birchbark. On the lakeward side of the platform were two recumbent birch trees and other birchwood - possibly the remains of a primitive landing platform. Recording the worked flints by the transect method, it was found that the settlement covered an area of about 220-240 square yards, and an analysis of the animal remains suggests that the occupation was confined to the winter and early spring.

The animal remains in order of frequency are Red Deer, Roe Deer, Elk and Ox, Wild Pig was comparatively scarce. The flint industry is substantially homogeneous, but slight stratigraphical differences can be noted in relation to antler or bone forms.

#### THE FLINT INDUSTRY

##### Micro lithic elements:-

Obliquely blunted points	126
Scalene triangles	33
Isocles triangles	9
Elongated trapezes	45
Irregular crescents	4

Rhomboids	2
Slightly tanged	3
Fragments	20
Total	<hr/> 245

One elongated trapeze was found with part of the retouched edge still embedded in resin. The microburin technique was sparingly employed as only fifteen microburins were recorded, nine micro-intermediates and three mishits.

The macrolithic element includes blades obliquely truncated, transversely truncated and with battered backs, as well as two tanged flakes, five saws and awls - the vast majority on the tip of narrow flakes or blades.

Scrapers:- Core scrapers, discoidal scrapers, straight scrapers on short parallel-sided flakes and double ended scrapers.

Burins:- An enormous number of burins were recorded - three hundred and thirty four. They include single blow, angle and double ended burins as well as a few scraper burins.

Core axes and adzes:- Seven core axes and adzes were recorded together with twenty six certain axe-sharpening flakes.

#### ANTLER AND BONE

Red Deer Antler:- The 'Groove and Splinter' technique was used, that is, splinters of antler were defined by more or less parallel grooves, and then forced or pulled out to serve as blanks for the fabrication of harpoon heads and other objects. One hundred and ninety one barbed points were recorded, - one hundred and eighty seven from antler, two from bone and two from bone or antler. Only one could be classified as a harpoon head, having a perforation halfway down the tang. The barbed points are entirely unilateral and little information could be obtained from a detailed typological classification of

them. However, the vertical distribution suggests some progression from finely to medium and coarsely barbed points.

Tines:- With tips bevelled from one or both sides.

Elk Antler:- From this material was made a series of perforated mattock heads with the perforation driven obliquely through the head, so that the handle would be set at an acute angle. Apart from two cases the heads were mounted as adzes. Moreover, the metacarpal bones of Elk were adapted for use as bodkins or fastening pins.

Urus Bone:- A class of tool with a hollow working edge, of a type used among the Eskimo for working animal skins was fashioned from the metacarpals, metatarsals and femora of Urus.

Teeth:- One deer canine perforated through the root.

Worked Stag Frontlets:- Twenty one examples were found, all of which are fragmentary. Trouble was taken to lighten the antlers by the hollowing of beams and tines. There are also signs of special treatment for the rim and parts of the inner surface of the brain case, which was designed to smooth it. Therefore, they were probably intended to be worn as some kind of mask or head dress. There appear to be two alternative possibilities for which they could have been worn.

1. Stalking.

2. Some fertility ritual to ensure the supply of deer, c.f. the headdress of the sorcerer at Les Trois Freres, and the crowning of inhumations at Teviec with antlers. (Pequart, 1937).

Amber:- Two amber beads were found with hourglass perforations.

Shale:- Numerous perforated beads of shale discs were recorded. The examination of the perforations shows that the drills were probably rotated with a bow, and an awl of flint which has been worn at the tip to a conical form supports this.

Rolls of Birch Bark:- Numerous tightly wound rools of birch bark were a feature of the material remains - they were also found at Mullerup.

A possible explanation is that it was a convenient method of storing the material, which was employed as a source of resin for mounting arrowheads and spearheads.

Stone Pebbles:- A number of pebbles were abraded at one or both ends, or showed pitting from use as an anvil.

Wood:- Remains of this material consist of the carbonised head of a handle found in place in an antler mattock head; and one wooden paddle which constitutes the earliest evidence for water navigation in this country.

## CONCLUSIONS

General resemblances to the full Maglemosean culture are apparent in the flint and bone and antler work.

### Differences:-

1. Flake and blade burins are much more numerous at Star Carr.
2. The micro-burin technique was used much more sparingly
3. The microlithic element is closer to that from the Schelwig-Holstein site of Duvensee, assigned to an early phase in the Boreal, rather than to those from the classic Maglemosean sites which are assigned to the full Boreal period. Both produce isocles and scalene triangles, and also irregular elongated trapezes which grade insensibly into triangles.

Bone and Antler:- The differences are much more radical.

1. The Maglemosean barbed points are made from bone, whereas the ones from Star Carr are almost invariably made from red-deer antler by the employment of the groove and splinter technique, which is of Upper Palaeolithic origin.
2. At Star Carr the vertical distribution of the barbed bone point suggests some progression from finely to medium and coarsely barbed

points. The range of the finely barbed point argues in favour of an early origin. Moreover, all the barbed points from Duvensee (early Boreal) are of the finely barbed type (Schwabedissen, 1944, p.105-8), and of the Zealand sites - Mullerup, Svaerdborg and Holmegaard, only the earliest, Mullerup (early Boreal), has yielded a point of this type (Sarauw, 1903, fig.30).

3. The slotted points with flint insets found on Boreal sites in the Maglemosean territory are entirely wanting from the Star Carr assemblage.

The only contemporary site is Klosterlund on the shore of the former Bølling Sø in mid-Jutland (Mathiassen, 1937). Unfortunately there was a lack of organic remains and only flint and stone artifacts were recovered. This site also exhibits primitive Maglemosean affinities, and its broad affinity to Star Carr suggests a broad community of culture between eastern England and the west Baltic region during the Pre-Boreal (Zone 1V) phase of the Post-Glacial forest period. With this in mind we now turn to a detailed survey of the Maglemosean industries in southern Britain (fig. 29).

#### THE COLNE VALLEY, ESSEX (Fig. 30)

The industry was brought to light whilst excavating gravel from the lowest terrace of the Colne Valley and published by Layard (1927) and Clark (1932, pp.59-62, fig.32). The flints were found above the surface of the stratified gravel in which were artificial depressions, in one case 8' wide and 4' deep, which may have served as dwelling places. Hearths were also found on the surface of the gravel and in the depressions. Unfortunately, the stratification of the industry does not give much indication of its date, other than that it is later than the deposition of the river gravels.

Out of seventy two microliths, sixty six are points retouched all

down one edge or obliquely at the tip (fig.30). Other types include one needle-shaped point (No. 55), and the only possible geometric form is an elongated crescent of which the chord is blunted and most of the arc trimmed (No. 56). Large quantities of serrated flakes were found (No. 81) and over one hundred cores (No. 75), but there are no convincing burins and no illustrated examples of either micro-burins or scrapers. However, one notched flake is illustrated by Clark (1932, fig.32, 17) and one feels that a certain number of scrapers must have been recorded. A number of tranche axes were recovered and Clark found an axe-sharpening flake in Miss Layard's collection of flints from the site.

An interesting find was a flat circular pebble, split along its length and perforated for suspension (No. 67). It is similar to shale beads recorded from Star Carr (Clark, 1954, pp.165-166, Plate XX), and Nab Head in Pembrokeshire (Gordon Williams, 1926, Plate 5).

#### HULLBRIDGE, ESSEX (Fig.31,19-24)

This industry was found on the south bank of the River Crouch covered by the silt of the river and sealed by two layers of peat separated by river silt (Reader, 1911; Warren, 1911; Clark, 1932, p.62). The industry produced microliths, scrapers and axes with transverse cutting edges. The microlithic element includes one shouldered point (fig. 31,19), an elongated trapeze (fig. 31,20), points retouched along one edge and obliquely at the tip (fig. 31,21,24) and two microblades retouched along one edge (fig. 31,22,23).

#### BROXBOURNE, HERTFORDSHIRE (Fig.32-36)

The site was located by Hazzledine Warren at Rickof's gravel pit on the Lea Marshes, a few hundred yards to the east of Broxbourne Railway Station (Warren, S.H. et al., 1934). The find was studied by a

team of five investigators who established that the flints were in a sandy layer which overlapped a buried bank in the holocene alluvial series of the flood plain terrace, and covered by peat which was dated by pollen analysis to the Boreal period. Unfortunately, only one indeterminate splinter of bone was recovered from the leached sand (fig. 32).

Large quantities of primary flakes were recorded, some of which showed signs of secondary working, and a number of flints were calcined. Unfortunately, the number of microliths recovered was rather small, twenty five in all, but they were sufficient to show the character of the assemblage. Of the twenty five microliths, fourteen are obliquely blunted points (fig. 33, 1-18), - all but one are blunted down the left hand edge and four examples have opposed oblique retouch (fig. 33, 19). Of the remainder two points are blunted all down one edge and one obliquely blunted point has opposed oblique retouch at the base (No. 18). The microlithic component also includes a needle shaped point retouched along both edges; the remainder are fragmentary and of indeterminate type. However, as in the Colne Valley and Hullbridge assemblages, geometric types are non-existent.

The proportion of micro-burins to microliths is very high, 22:25. This is a characteristic feature of the full Maglemosean assemblages in Scandinavia during the Boreal, and should be contrasted with the very low ratio of micro-burins to microliths at Star Carr which is of Pre-Boreal age. This is further evidence for the Broxbourne industry being later than that from Star Carr, and having affinities rather with the Boreal industries.

The macrolithic element includes twenty eight scrapers with secondary edge trimming. The majority are discoidal (fig. 34, 1-17) but there are also end-scrapers on blades (fig. 34, 18-25). Two true burins were recorded, both of polyhedral type (fig. 35, 7; fig. 36, 2), as well



as two tranchet axes (fig. 35, 1; fig. 36, 3) and sharpening flakes (fig. 35, 2). Cores were fairly numerous, seventy three being recorded and an unusual feature for southern England was two or three quartzite hammerstones (fig. 36, 1).

Therefore, at Broxbourne one has a non-geometric microlithic industry associated with scrapers, burins and tranchet axes, dated to the Boreal period on the grounds of pollen analysis; but unfortunately lacking a bone or antler industry.

#### UXBRIDGE

The site was initially located on a gravel ridge by the river Colne by J.H. Haward (Clark, 1932, p.67). The industry lay directly on the natural gravel and was overlain by peaty soil. No tranchet axes were found but several axe-sharpening flakes imply their use. One angle burin of heavy type was also recorded. The microlithic element consists of obliquely blunted points and 'rough triangles' manufactured by the micro-burin technique.

The site has recently been reinvestigated by A.D. Lacaille, who found a flint industry stratified beneath peat and shell-marl, which was dated by pollen analysis to the Boreal period. The industry consists of a mainly non geometric microlithic element associated with burins and tranchet axes, similar to those from Sites 1 and 11 at Thatcham, Berkshire, and typical of the full Maglemosean cultures (Conf. Prehist. Soc., London, March, 1961).

#### THE MIDDLE AND LOWER THAMES

Large numbers of tranchet axes and Thames Picks have been recovered in dredging the Lower and Middle reaches of the Thames. One author wrote in 1930 that he had recovered well over one hundred from many parts

of the river (Laurence, 1930), and numerous small tranchet axes exist in the Reading Museum and Thames Conservancy Collections, most of them dredged from the Thames. A tranchet axe possessing the typical scar was obtained from the Thames at Erith and is now in the British Museum (Jessup, 1930), and numerous large tranchet axes have been obtained from the neighbourhood of Swanscombe (Rankine, 1956, p.21).

In addition to the tranchet axes, at least three harpoons of Maglemose type are known from south east England (Clark, 1932, p. 18; 1936, p.236, fig. 42). One of these is now in the British Museum (fig. 37,2) labelled 'Royston, Cambridgeshire', having been purchased as part of the Fenton collection. The harpoon is very incomplete, only the top half remaining, and diagonal scratches are visible on one face. The other two harpoons derive from the Thames and are both in the London Museum, fig. 37, 1, is from Battersea, and No. 3 from Wandsworth. In each case, only the lower half of the specimen is preserved.

#### THE KENNET VALLEY

The Kennet valley is a tributary of the Thames which it joins at Reading, and it leads from the Thames into mid southern England. Just as the Thames appears to have been a primary area of settlement for the Maglemosean immigrants, so the Kennet Valley appears to have been a well frequented route from the main waterway into mid southern England. For this reason it is considered here as a single entity.

#### THATCHAM, BERKSHIRE (Fig. 38,39)

In 1921, Harold Peake and O.G.S. Crawford recorded and excavated a Mesolithic site near the Moor Brook on the Newbury Sewage Outfall Works, following the observations of some Corporation workmen. They recorded a quantity of flint artifacts <sup>w</sup>to feet beneath the surface, sealed by shell marl and a black, compact material resembling peat. (Peake and

Crawford, 1922).

Crawford, in describing the flints, divides them into two groups. Firstly, those which were found under the compact layer of peaty soil or under the shell-marl, and secondly those which were found elsewhere on the site. The flint implements found scattered on the surface include five transept axes, cores, blades, a few scrapers and microliths of non geometric type. Of material other than flint is an unfinished 'macehead' of sarsen stone with two opposed depressions. The flints found under the peaty soil and shell-marl were less distinctive, consisting of cores, blades, scrapers, notched blades and non geometric microliths.

The flint implements were compared with those from Yorkshire, Svaerdborg in Denmark and the axes in particular, to the shell-mound period in Denmark. Professor Clark (1932, pp.65-67) related the industry to the Maglemosean culture as does RanKine (1956). In fact, the black compact material sealing the Mesolithic occupation at Thatcham is not peat at all, as was pointed out by A.H. Lyell (Peake and Crawford) 1922, p.509), and also by G.W. Dimbleby in the report on the pollen remains from the recent excavations at Thatcham, who suggests the name 'charcoal layer'.

In 1956 it came to the notice of the curator of the Newbury Museum that quantities of flints were being collected from Thatcham Sewage Outfall Works, and that recently evidence had been found of concentrations associated with bones under 'peat'. These finds included a series of burins, a number of microliths (nearly all obliquely blunted points but one broken Harsham point), blades, cores and a few conjoined flakes, but no axes.

The site (Wymer, 1959, fig.1) is divided naturally into two by a shallow depression about 100' wide. The area to the north west is close to Peake and Crawford's original trench, and that to the south east on a

slope down to the present swamp of the Moor Brook. In December 1957 J. Wymer commenced a trial excavation on the lower site (Site 2, Wymer 1959, fig. 4) and a scatter of Mesolithic artifacts and several scraps of bone were found beneath a 9" seam of a black, compact material resembling peat. The flints lay above or in the top 3" - 4" of the natural gravel, which to this depth was humified and disturbed, as distinct from the clean stratified gravel beneath. All the artifacts are in mint condition and the level at which they were found is the original land surface of Mesolithic times. Further investigations were undertaken in 1958, the results of which were published by Wymer in 1959.

#### Site 1.

The site was chosen close to the original trench dug by Peake and Crawford in 1921. The humus contained a few flint flakes and Romano-British sherds, and the charcoal layer beneath the humus was 3" - 5" thick. This layer thinned out towards the western end of Site 1 and was covered by a layer of soft shell-marl which seals the occupation debris - (fig. 38, Section A-B). Dr. Dimbleby in his report on the pollen remains describes the 'peat' as "an organic layer composed largely of finely divided carbonised remains, probably of wood", therefore it was designated the 'charcoal layer'.

The Mesolithic occupation was upon the natural gravel. The majority of the flints and bone lay horizontally immediately beneath the charcoal layer, but could be found from 3" - 6" below this level in the gravel, which was disturbed and humified to this depth.

The excavation was by yard transects, and two concentrations of Mesolithic flint artifacts were identified (Wymer, 1959, fig.3). The concentrations do not represent true chipping floors as the quantity of the waste material is not sufficient, and the proportion of finished implements too high. They may represent dwelling sites, but there was no evidence of fire other than scattered burnt flints. One small bone

implement was recorded. It is of interest to note that the flint densities thin out from the bluffs on the south and west, and so it seems very likely that these bluffs existed at the time of the occupation of Site 1.

## Site 2

The area investigated was about 500' south east of Site 1 on a small area of land which was probably an island in Mesolithic times. To the north, separating this area from Site 1 is the shallow depression mentioned above, to the south and west is the swamp of the present Moor Brook, and the section produced by the gravel workings to the east shows a silted channel, the shell-marl of which truncates and overlies the charcoal layer. The stratification was identical to that of Site 1 - fig. 38, Section C-D.

The flint density (Wymer, 1959, fig. 4) shows two concentrations. The centre of the concentration nearer to the swamp coincided with the middle of a shallow natural gully (Wymer, 1959, Plate 1) and also with the remains of a hearth, represented by charcoal, calcined pebbles, flints and burnt bone and antler fragments. An outstanding discovery was a finely made bone point, a foot away from the hearth. The flint industry was not large and includes ten microliths, four gravers, a flake with a ground edge, five scrapers and a bone point.

Fifteen feet away was a collection of large flints, about 3" in diameter, which overlay a thin lens of silt and had all the appearance of being placed there artificially. Its purpose is unknown, but it was not a heap of knapping material as it included sarsen stones, and nodules full of incipient frost fractures.

Fifty feet away, excavation revealed part of another concentration with the remains of three hearths, which again is connected with a natural gully about 2' deep. The stratification was similar to that

noted above - fig. 38, Section E-F.

#### THE FLINT INDUSTRY

Although flint artifacts and waste were plentiful from both sites, no prolific concentrations were discovered to suggest actual chipping floors. The highest yield of flints in any square yard of the concentrations was ninety two, compared with two hundred and seventy six at Star Carr and three hundred and twenty in a square foot at Oakhanger. That flint knapping was actually carried out on the site is shown by the replacing of flakes on cores found nearby. The raw material was derived from the river gravel and most of the flints are in mint condition.

#### THE MICROLITHIC COMPONENT

Sixty nine microliths were found at Thatcham up to and including 1958, and of these, sixty one are obliquely blunted points (fig. 1-9, 18, 21-27). Three microliths are blunted all down one edge and one blunted down one edge and obliquely at the tip (No. 28). A number of micro-burins and one unsnapped notched blade were recovered and two are illustrated (Nos. 12,13).

Two microliths (Nos. 29,30) are of the elongated trapeze forms (c.f. Star Carr, Clark, 1954, p.101, Nos. F. 42-53), and two of rod-like form (Nos. 16,17). No geometric types were found and the most evolved form was an unstratified hollow-based point (No. 19), which was found on the surface in the vicinity of Site 2. A similar microlith is illustrated by Peake (1922, p.507, fig.4), but it is not clear whether it was stratified or not. Several small blades were found truncated at both ends (Nos. 31-36).

Cores:- fifty six cores were found, all but one of which have two or more striking platforms.

Scrapers:- Many scrapers were found of both discoidal and end-of-blade type. A few flakes were found with delicate serrations along one edge, and six flakes with ground edges were recorded; three occurring together in Site 1 near a pair of severed red deer antlers (No. 51). A quantity of well made gravers of simple form were recorded (Nos. 40, 42-49), and two small tranche axes, one from each site (Nos. 38-39), as well as an axe-sharpening flake (No. 41).

SUMMARY OF THE MICROLITHIC FORMS (After Clark 1934, 1939)

<u>Micro lithic Type</u>	<u>Site 1</u>	<u>Site 2</u>	<u>Total</u>
Obliquely blunted points			
Ala	16	18	34
Alb	1	1	2
Alc	8	4	12
Ald	-	2	2
A2a	1	4	5
A2b	1	-	1
A2c	-	2	2
B1	1	-	1
B2	1	-	1
B4	1	-	1
Concave	-	1	1
Rod-like	2	-	2
D8	-	2	2
F2b	-	1	1
7c	<u>2</u>	<u>-</u>	<u>2</u>
Total	<u>34</u>	<u>35</u>	<u>69</u>

### THE BONE INDUSTRY

One of the most important features of the Thatcham sites is the association of faunal remains and implements made of organic materials, with the less perishable stone industry.

Two stumps of red deer antlers were found, one from each site, both artificially severed from the frontal bone. On Site 1, two large red deer tines were found close to each other (Wymer, 1959, Plate 2) cut away from the beams. The technique of removal was a series of V shaped cuts around the base of the tine until it could be snapped off.

The first bone implement to be found was the bevelled bone point from Site 2 (Wymer, 1959, fig.4, Plate 3). It is  $4\frac{5}{8}$ " long, bevelled at the base and with the point apparently finished by grinding and polishing. The only other bone artifact (fig. 39,50) is a splinter of a long bone  $3\frac{3}{4}$ " in length, pointed at both ends. This was found on Site 1 and identified as being made from the long bone of a bird. A similar implement but of circular section was found on the Hamburgian site at Meiendorf, and was considered to have been used as an arrow tip for shooting birds.

### FAUNA

Both sites produced a fair quantity of animal bones, teeth and pieces of antler at the same level as the Mesolithic industry. Red deer is the most numerous animal represented on both sites and the remainder in order of frequency are Roe Deer, Pig, Marten, Beaver, Bos, Horse, Fox and Dog.

### CHRONOLOGY

Pollen analysis carried out by Dr. G.W. Dimbleby suggests that Site 1 may have been occupied in late Boreal (Zone VI times) and Site 2



in the subsequent Atlantic (Zone Vlla) period. In Dr. Dimbleby's own phrase: "any assessment of age from pollen analysis on this type of material and from such a situation must, of necessity, be tentative. With this reservation in mind the data suggest that Site 1 may have been occupied in late Boreal (Zone VI) times and Site 2 in the subsequent Atlantic (Zone Vlla) period". (Wymer, 1959, p.29). However, the charcoal obtained from Site 2 was sufficient to enable a C14 date to be estimated. This was in the region of 8,100 B.P. and suggests that either the pollen analysis, or the absolute dating is at fault. (Information from J. Wymer).

#### THE EXCAVATIONS IN 1959 AND 1960

The information with regard to Mr. Wymer's excavations during this period is as yet unpublished, and I am indebted to him for permission to examine the material and also for discussions concerning the industries as a whole.

In recent excavations a third concentration of flints, Site 3, was identified and included a hollow based point, several triangles and some other geometric forms. A rare find for the Mesolithic period was a broken human humerus from Site 3, - the first recorded human remains from a Mesolithic context in this country.

In 1960 the depression between Sites 1 and 2 was examined, and two living sites were found covered by some 3' of flood deposits. Some of the finds include two microliths of geometric type, (a crescent and an isocles triangle), a sarsen hammerstone, the tip of a broken gouge made of antler, a small flint axe with its re-sharpening flake and a number of burins. In all, fifty two microliths were recovered and a large number of scrapers. The waste material includes several thousand flakes and forty two cores. Therefore, Sites 1 and 2 have now been linked and the ancient surface of this newly discovered area appears to

be sloping gently into the present swamp, which was a lake in Mesolithic times. It is possible that a small promontory existed just at this point, and Mr. Wymer intends in the future to examine this part of the site.

### CONCLUSION

It is clear that, typologically, Sites 1 and 2 are to be connected with the initial colonization of the Thames valley by the Maglemosean immigrants, c.f. Broxbourne and the Colne Valley. However, Site 3 is more akin to the later industries which have been recorded from south east and southern England by Professor Clark and W.J. Rankine, and which have their type sites at Horsham, Sussex and Farnham, Surrey. The presence of the geometric microliths and the hollow based point, (c.f. two surface finds of hollow based points), separate Site 3 typologically and probably chronologically from Sites 1 and 2. For this reason Site 3 is included with the industries of the Horsham culture, with which it has typological affinities.

### ALDERMASTON, PADWORTH MILL, BERKSHIRE

A few ochrous stained flakes and blades of Mesolithic type were found by J. Wymer (1959, p.3) beneath silt and shell-marl upon gravel in a gravel pit at Aldermaston near Padworth Mill. A broken obliquely blunted point was found in a nearby ploughed field at a slightly higher level.

### WOOLTON HILL, NEWBURY, BERKSHIRE

A Mesolithic site has been recorded at Woolton Hill near Newbury, on a sandy hill above a small tributary of the river Enbourne, in sight of the Hampshire Downs. (Wymer, 1959, p.3).

KINTBURY, BERKSHIRE

A rich site has been recorded near Kintbury, sealed by flood deposits of the Kennet. (Wymer, 1959, p.3).

SANDHURST, BLACKWATER VALLEY

There are some ochrous stained microliths and a tranchet axe in the Reading University History Museum labelled Barossa, Sandhurst, in the Blackwater Valley. (Wymer, 1959, p.3).

HACKPEN HILL, WILTSHIRE (Fig.40)

In the first decade of this century, H.G.O. Kendall amassed a collection of flints from ploughland on Hackpen Hill and Windmill Hill and published the results of his researches in 1922. Hackpen Hill 888'O.D, is on the highest ridge of the Marlborough Downs. The area under plough and which was therefore searched for flints was  $1\frac{1}{2}$  miles long and a third of a mile wide. A number of the flints show 2-period flaking and there are later admixtures, including barbed and tanged arrowheads. The finds include cores (fig. 40,1-3), numerous blades, a few microliths, scrapers, tranchet axes (fig. 40, 4-5), two fragmentary polished stone axes, notched blades, pounders and a few fabricators.

WINDMILL HILL, WILTSHIRE

The flints from Windmill Hill were collected under the same circumstances as those from Hackpen Hill (Kendall, 1922). The collection includes cores, blades, no microliths, scrapers, "chipped celts of Cissbury type, more evenly made than the Hackpen Hill examples, some made from polished celts." Also recorded were pounders, numerous fabricators, arrowheads, "dos rabattu" flakes, and "small, rude celt-like

tools, some showing tranchet affinities."

#### MARLBOROUGH, WILTSHIRE

An industry similar to that from Hackpen Hill was discovered at the Sewage Works, Marlborough by J.W. Brooke (Kendall, 1922, p.518). The industry includes cores, flakes and 'pigmy tools', all apparently coming from the same stratum. This industry is probably connected with those of the Kennet Valley in which the site lies.

#### THE KENNET VALLEY - SUMMARY

The Valley of the Kennet in Mesolithic times must have been a series of connected lakes, marshes and islands, providing an ideal environment for the hunter fishers of the Maglemosean culture. It would appear that this valley provided a route from the Thames valley, (which was probably a primary area of settlement), along the Kennet onto the chalk downs of Wiltshire, from whence the Maglemosean peoples spread into Somerset and Cornwall. The evidence for the route along the Kennet valley is provided by sites such as Thatcham, Aldermaston, Woolton Hill, Kintbury and Sandhurst, and the break-through onto the chalk uplands by industries from Hackpen Hill, Windmill Hill and Marlborough, Wiltshire.

#### SHAPWICK, SOMERSET (Figs. 41,42)

Lying north of the Polden Hills and south of the River Brue in Somerset are the Burtle Beds, which consist of "sea sand with layers of sandy shell-limestone and occasionally rounded pebbles of flint, lias limestone, Upper Keuper Marl, Triassic Sandstone etc.," (Richardson, 1928). These Beds are not confined to the north of the Poldens but extend intermittently around the edges of the Bridgewater Level.

In 1933, Professor J.G.D. Clark published the finds from two microlithic industries which are sited on the Burtle Beds not far from Bridgewater (Clark, 1933). The material was mainly collected by H.S.L. Dewar of Catcott in association with Mr. A. Bulleid, and the results of their researches are in the Somerset County Museum at Taunton. Further investigations by Messrs. Dewar and Bulleid since Professor Clark's paper in 1933 have resulted in the collection of artifacts which put the assemblages in a rather different light. This material was examined by the writer in the Somerset County Museum, Taunton (Wainwright, 1960).

At Shapwick, north of the Poldens, the first of these sites, the flints occur on the disturbed surface of a ploughed field with no recorded stratification. The microlithic component of the industry consists chiefly of long, elegant, obliquely blunted points with bold secondary working (fig. 41, 1-16). Other microlithic types include points retouched down one edge (Nos. 22-23), elongated points retouched down both edges (Nos. 17-18), and points with opposed retouch at the tip (Nos. 19-20). Amongst the microlithic element is one angular backed blade (No. 25) and a truncated broad blade (No. 28). The bladelet with convex backing (No. 21) is rather too elongated to be termed a true crescent, but it is in the same tradition. The assemblage also includes the basal end of a large blade with steep retouch down one edge (No. 26), micro-burins (Nos. 29-32) and straight scrapers on short blades as well as discoidal scrapers (fig. 42, 6-11). Two burins were recorded from the site (Nos. 1-2) and also a typical axe-sharpening flake (No. 5), which is the diagnostic feature of the industry.

#### MIDDLEZOY, SOMERSET (Fig. 43,44)

The second industry described by Professor Clark and reviewed in the light of further evidence, occurs at Greylake, Middlezoy, to the

south of the Polden Hills. The industry occurs in the top-soil, and is separated from the Burtle Beds proper by an intervening stratum of grey, sandy subsoil (Wainwright, 1960).

Although the microlithic component of the industry is not very extensive, it compares well with that from Shapwick. The obliquely blunted points and angular-backed blade again occur (fig. 43, 1-2, 6) as do the truncated blades (Nos. 9-10) and a fragment of a very large blade with steep retouch along one edge (No. 8). An additional microlithic type is one retouched down one edge and obliquely at the tip (Nos. 3-4). The burins (Nos. 12-14) and scrapers (fig. 43, 15-17; fig. 44, 2, 3, 5-11) are similar to those from Shapwick, and the microburin also occurs. The burin (No. 14) is made on a core-tablet. One serrated blade (fig. 44, 4) was found among the flints in the museum. As at Shapwick, the Middlezoy industry contains a heavy element, in this case a flake axe with a very large tranchet scar (fig. 44, 1).

Therefore, typologically, the industries from Shapwick and Middlezoy belong to the same cultural tradition, which combines an axe element together with burins and an elegant non-geometric microlithic industry, with elongated, obliquely blunted points predominant.

#### DOZMARE POOL, CORNWALL (Fig. 45-49)

On Bodmin Moor in Cornwall is a large sheet of water known as Dozmare Pool, 900' above sea level and one mile in circumference, lying on a tableland at the base of a hill or Tor called Bran Gilly (fig. 45). In the summer of 1866, owing to the exceptional drought, the pool was entirely dry, and a local Antiquary, Francis Brent, obtained numbers of flints from the exposed surface (Brent, 1880, 1898). That same year he held an exhibition of the material in Plymouth Museum, where his collection is now deposited. (Information from a manuscript in the Plymouth Museum).

Apart from brief references by authorities such as St. George Gray (1908), H.G.O. Kendall (1906 and 1907) and W.F. Rankine (1956), no attempt has hitherto been made to consolidate and analyse the various collections from the site. There are about 2,500 flints from Dozmare Pool in the Plymouth Museum, but material from the site is also scattered throughout a number of museums and Institutions in southern England. Apart from the collection of Francis Brent in the Plymouth Museum, the most noteworthy are the Gibbs Collection in the County Museum, Truro; the Handsford-Worth Collection in the Torquay Natural History Museum; the Stone Collection in the Exeter Museum and the Kendall Collection in the London Institute of Archaeology. There is also a large collection of flints from the locality in the British Museum, but they are virtually all of Neolithic or Bronze Age type with no recognisable microlithic forms. The material from these various collections was seen and consolidated by the writer (Wainwright, 1960).

Owing to the fact that they were obtained from peat (Brent, 1898) the Mesolithic flints are in the main unpatinated and the raw material is a black translucent flint. No natural flint occurs within forty miles of Dozmare Pool and it seems likely that the material was transported from Beer Head in Devon, where there is an outcrop of chalk with flints (Lewis, 1907). Amongst the raw material is a button scraper of Blackdown Chert from the borders of Somerset and one blade flake of Portland Chert. These may belong in the Mesolithic context. On the other hand it must be remembered that large numbers of Neolithic and Bronze Age arrowheads have been recovered from this locality, and the foreign materials may therefore belong to either of these phases.

Among the extensive series of artifacts the predominant microlithic type is the obliquely blunted point, many of which are elongated (fig. 47, 1-38). Other microlithic types include lanceolate points retouched down the whole of one edge (fig. 48, 41-48), points retouched down one edge and obliquely at the tip (Nos. 49-50), angular backed blades

(Nos 54-57) and elongated needle shaped points with steep retouch down both edges (Nos. 51-52). The elongated trapeze (No. 59) is virtually an angular backed blade. The micro-burin is present (Nos. 58, 61-64) as are truncated blades (Nos. 65-68), serrated blades (fig. 49, 76-77) and quantities of very typical straight scrapers on blades (Nos. 78-88). A number of burins were recorded of similar type to those from Shapwick and Middlezoy (Nos. 70-75).

Despite the absence of the axe-element from Dozmare Pool, the typological affinities between this industry and those from Shapwick and Middlezoy are so marked that the three of them should be put into the same cultural complex. These affinities are best described in the summing up on the Maglemosean culture in Britain where the relative proportions of the microlithic types are given. It is unfortunate that the total number of microliths from the Middlezoy site is so small. Nevertheless, taken as a whole, the assemblage has marked affinities with those from Dozmare Pool and Shapwick.

In general terms, the Dozmare-Shapwick-Middlezoy complex may be described as one represented by heavy equipment, burins, scrapers on blades, and an elegant microlithic industry from which geometric forms are absent. Therefore, the industries compare closely with those from Broxbourne, the Colne Valley and the Kennet Valley, and represent a penetration from the east coast across southern England to Cornwall.

#### FOWEY VALLEY, BODMIN MOOR

A few miles from Dozmare Pool a similar industry has been recorded from the Fowey Valley (Kendall, 1914). However, it has not been possible to trace the industry to any museum in western England. According to H.G.O. Kendall, the raw material is similar to that from Dozmare Pool.



BIGBURY BAY, THURLESTONE SANDS, SOUTH DEVON

The following stratigraphy was noticed when a submerged forest was exposed at Bigbury Bay, South Devon (Pengelly, 1866; Winder, 1924).

1. An upper bed 15" - 18" of blue clay and vegetable remains.
2. An 'under clay' 9" - 12" thick resting on the bed-rock.

From the lower clay Winder obtained what was described as a portion of a wooden dug out canoe, - "one end of it had been rounded off somewhat like the bow of a canoe, and its underside rounded up to meet the flat upper surface. . . . on the underside of the curved bow or keel were eight carefully scored parallel grooves . . . several . . . were very clearly undercut, so that on inserting a coin into the end of the groove, and sliding it down the groove, it could not be lifted out. Some of these grooves appeared to extend the whole length of the keel". Also from the lower clay were recorded a flint core, part of a stone adze with a 'tranchet' cutting edge, and a quartz pebble with an oval depression as well as some flint flakes.

It is claimed that the remains are in the Plymouth Museum but the writer was unable to find them. However, it seems clear that the quartz pebble is an unfinished macehead which was intended to have an hour-glass perforation and that the whole assemblage may well be further evidence for the Maglemosean colonisation of western England.

## 2.

THE ISLE OF WIGHT

Our extensive knowledge of the Mesolithic period in the Isle of Wight is due largely to the researches of the late H.F. Poole, who carried out a survey of the entire island (Poole, 1929; 1936). Some eighty microliths have been published from the island, but apart from a fragmentary scalene triangle no geometric types have been recorded, neither has the micro-burin been recognised. The character of the industries from the island and the adjoining mainland suggests a strong Maglemosean influence. Because of this, and on account of Mr. Poole's admirable survey, it was decided to discuss the Mesolithic cultures of the Isle of Wight altogether, to avoid dispensing with Mr. Poole's division of the Mesolithic industries on the island. Following the description of the latter, the Maglemosean penetration of the immediate hinterland will be discussed.

THE TOPOGRAPHICAL BACKGROUND

In early Post-Glacial times the Isle of Wight was still attached to the mainland, and the island extended much further to the south than at present, as is shown in fig. 50 (Hooley, 1922; Chatwin, 1936). There is abundant evidence in the Solent region of Post-Glacial submergence. All the rivers entering the Solent now flow in drowned valleys, and the Southampton Docks excavations have revealed deposits of the Submerged Forest series extending down to 20' O.D. (Oakley, 1943). There is little doubt, in fact, that the Solent itself represents a river valley drowned up to its old cliff line and that the Isle of Wight came into existence as a result of a Post-Glacial submergence, the initial stages of which took place in Mesolithic times.

The Mesolithic cultures of the Isle of Wight can be divided into three groups:-

1. A concentration of tranchet axes along the northern littoral of the Isle of Wight in deposits related to the Post-Glacial submergence of the Solent margin. There is also another concentration of tranchet axes in south Hampshire (Rankine, 1956, p.32).

2. The Group 1 sites of Poole (1936), which are sited on brick-earths and gravels, and characterised by tranchet axes, gravers and a few microliths. The most important sites of this group are Chilton Chine, Afton Down on the western Yar, Werrar and Shide on the Medina.

3. The Group 11 sites of Poole (1936), which are on subsoils resembling the Wealden Greensand, characterised by a few tranchet axes, more microliths and occasional transverse or chisel-ended arrowheads. All sites of this group are surface industries and are situated more or less on the Lower Greensand Outcrop. The most important sites are Redcliff, Newchurch, Blackpan Farm and Yaverland.

#### THE DISTRIBUTION OF THE TRANCHET AXES

An outstanding feature of the Mesolithic culture in the Isle of Wight is the occurrence of a large number of tranchet axes on the northern littoral. This is significant when one considers the occurrence of tranchet axes on the opposite side of the submerged channel.

Three specimens have occurred in undisturbed deposits at Chilton Chine and Great Pan Farm, Shide (Poole, 1929) (fig. 52,1) and a series of twenty six large axes or picks has been found by G.W. Colenutt on the north coast of the Isle of Wight. All were found loose on the beach or at the mouths of creeks and show a varying degree of patination. The cutting edge in fourteen cases is produced by a tranchet blow on one or both faces, the remainder by producing a tranchet edge on one

side and the removal of flakes from various directions on the other. The localities at which the series has been found are:- Bouldnor(1), Hampstead (3), Satlmead (3), Elmsworth (3), Thorness Bay (1), King's Quay (6), Woodside (1), Chapel Corner Copse (4), Wooton Creek (3) and Binstead Point (1). Another series of picks five in number was found at Gurnard Bay by E.J. A'Court Smith, and are now in the Carisbrooke Castle Museum (fig. 52,2). Four picks have been recorded by S.

Hazzledine Warren, two from a gravel pit on Afton Down, another from the lower northern slope of High Down, near Alun Bay House and the fourth was a surface find on Afton Down. Core axes have also been recorded from the following localities:-

1. Between King's Quay and Wooton - discovered by F. Morey and now in the Carisbrooke Castle Museum.
2. Yaverland, near Sandown - recorded by J.C.S. Barton on the slope of the cliff near the Battery.
3. New church district - two specimens discovered by C. Woodford.
4. Lea Farm, near Sandown - one fragmentary example recorded by L.T. Salt.
5. St. Boniface Down, Ventnor - one example discovered on the lower slope by H.A. Ives.
6. Yaverland, Sandown - two not quite typical specimens discovered by C. Woodford.
7. A number of axes have been discovered at Redcliff where they are mixed with Neolithic and Bronze Age forms.
8. Two small transept axes have been recorded from near Bowcombe (fig. 52,3) and near Yaverland respectively.

A distribution map of these axes (fig. 51) shows that thirty two out of the total of forty eight specimens occur along the north coast

of the Isle of Wight between Bouldnor and Ryde. How far this may be due to organised search in this particular area is difficult to say, but it seems very probable that this distribution is due to the land surface exposed during Mesolithic times (see above). In other words, the concentration is caused by adherence to the ancient Solent River. As we shall see (below), there is a similar concentration on the opposite side of the Solent margin.

A smaller concentration of axes occurs in the east sector of the Lower Greensand belt which runs across the island. It is of interest that this concentration coincides with that of the Group 11 sites (see below).

#### THE SITES OF GROUP 1

The industries of Group 1 are characterised by transept axes, gravers and a few microliths, and they occur in deposits of brickearth or gravel, or below a deposit of alluvium. Seven localities have been identified, of which A - C are in the channel of the old western Yar (fig. 53).

#### LOCALITY A

This locality is comprised of the area from Brightstone Grange Chine to Chilton Chine, where the brickearth is about 3' thick and includes fragments of charcoal, flint flakes and a few small implements. The artifact types include an obliquely truncated blade (fig. 55,4), one scraper, two notched flakes, cores and flakes.

#### LOCALITY B

This locality includes the area from Chilton Chine to four hundred yards west. The deposit of brickearth is still present and the sequence of deposits is as follows:- Topsoil 10" - 12"; Brickearth 4';

Silt 3" - 4"; Gravel 4'6"; Wealden Clay. Worked flints are scattered throughout the brickearth and include an axe-sharpening flake (fig. 55,8) which was found 3' down in the latter. A core axe was discovered in this deposit by R.W. Hooley, who described it as sticking out of the cliff half a mile west of Chilton Chine, at the base of 2' of red brickearth. The microlithic types include three obliquely blunted points (fig. 55, 1-3), and a fragmentary blade with steep re-touch along one edge (fig. 55, 6). The industry also includes scrapers, serrated flakes and cores.

#### LOCALITY C

A continuous spread of gravel and brickearth is exposed in the cliff face from Brook Chine to near Hanover Point. The most important aspect of this section is the so called 'Plant-Bed', which is strongly developed in this area, (it was represented by the silt in locality B). It is more than 2'6" thick in places and contains quantities of twigs, branches and trunks of trees, and probably represents an old land surface in early Post-Glacial times when the Isle of Wight was joined to the mainland. It is therefore of great interest to find that worked flints have been recorded from this bed.

From the base of this deposit has come a transversely truncated blade (fig. 55, 5) and a side-scraper (fig. 55,10). From the undisturbed brickearth (above) have been recorded three rough cores, one calcined flake and twenty two other flakes. The report on the flora from the 'plant-bed' is given below.

#### AFTON

Two picks, both of triangular section and showing the characteristic tranchet scar, were obtained by Hazzledine Warren from the diggers in a

gravel pit under Afton Down in about 1900 (Poole, 1936, pp.561-562).

#### WERRAR

The brickyard at Werrar<sup>15</sup> situated on the west side of the Medina estuary about two miles north of Newport. The sequence of deposits is a few inches to one foot of peaty silt, below which is 2'6" of estuarine clay resting on Oligocene clay. "The old land surface is indicated by a distinctly darker shade of clay, an interrupted and scanty line of flints, occasional hearths<sup>5</sup>, and in some places roots and stools of trees." (Poole, 1936, pp.562-566). It appears to coincide with the junction between the Oligocene and Estuarine clays - hearth pits having been dug into the former. The majority of the artifacts were recorded from this old land surface and include four transept axes (fig. 56, 1-4), one microlithic point retouched down one edge (No. 5) and two burins, one single blow (No. 6) and one with the graver facet backed against oblique retouch (No. 7). The industry also includes scrapers, one serrated blade, cores and flakes (Poole, 1936, fig. 24,27).

#### THE ASSOCIATED FLORA

The plant remains in association with Mesolithic industries recovered in the Isle of Wight by Poole, divide themselves broadly into two series - those from the alluvium of the old western Yar, and those from the Medina estuary at Werrar (Clifford, 1936).

##### Trees abundant:-

*Alnus Glutinosa*

*Corylus avellana*

##### Trees present:-

*Quercus* sp.

*Taxus baccata*

##### Herbs:-

*Rubus fruticosus*

*Cnicus* aff. *arvensis*

*Lactuca* aff. *satura*

*Polygonum* sp.

## Trees present:-

*Fraxinus excelsior*  
*Sambucus nigra*  
*Tilia* sp.

## Mosses:-

*Septobryum pyriforme*  
*Neckera complanata*  
*Eurhynchium praelongum*

Unfortunately the flora remains are not sufficiently numerous to allow any extensive reconstructions of the climate. However, they imply no appreciable difference in climate from that of today, since everyone of the plants identified, with the possible exception of *Taxus baccata* (Yew) grows readily in the Isle of Wight at the present time. Nevertheless, the presence of Alder material in such abundance in the Mesolithic flora would seem to suggest an Atlantic date, for it does not become prominent until the onset of Atlantic time.

GREAT PAN FARM, SHIDE

Two picks from this locality were found 'in situ' in a white gravel beneath a chalky rainwash (Poole, 1936, pp.566-567).

THE NEWTON ESTUARY

At the mouth of the Newton Estuary, on its east bank, a small series of implements of Mesolithic character have been collected from the estuarine clay below high water mark. The sequence of deposits is not very clear, but the general impression gained by Poole is that they were lying on an old land surface in the same manner as those found at Werrar. Overlying the estuarine clay is a brickearth containing Neolithic remains. The Mesolithic industry (fig. 55, 11-17) includes a double angle-graver, scrapers and a microlithic point retouched down one edge (No. 12). Many calcined flints were recovered together with the teeth of Horse and Ox. Numerous bones of ox occur, and many of the long bones were split longitudinally for the extraction of marrow.



This site is of interest as being the only instance of Mesolithic remains associated with a fauna in the Isle of Wight.

#### THE SITES OF GROUP 11

The industries of this group in most cases lie just below the surface and are to be found on ploughed land or in rabbit scoops, etc. Fourteen distinct sites have produced surface finds of implements (fig. 54).

#### EAST COWES

One obliquely blunted point was found by Captain G.C.C. Damont at the base of the soil overlying gravel in a pit at East Cowes. The specimen is now lost. (Poole, 1936, p.571).

#### COMPTON FARM (Fig. 57, 1)

One obliquely blunted point was found by the late T.E.B. Gunyon on ploughed land near the farm at Compton. The specimen is now in the Carisbrooke Castle Museum. (Poole, 1936, p.571).

#### MOTTISTONE (Fig. 57,2-25)

Over two dozen microliths have been found by various collections in the vicinity of the Longstone at Mottistone on the Lower Greensand belt. A number were collected by the late T.E.B. Gunyon and are now in the Carisbrooke Castle Museum. Others are in the private collection of Mr. G.W. Colenutt (Clark, 1932, p.68,fig.36). On the Longstone Plateau itself the Mesolithic industry appears to be mixed with flints of a later date (Poole, 1936, p. 571).

The Majority of the microlithic types are obliquely blunted points

(fig. 57, 2, 3, 5-9, 11, 12, 14, 19-21, 24, 25) and lanceolate points retouched down one edge. (Nos. 13, 15, 23). There are no geometric forms and the other types include 'single points' retouched down one edge and obliquely at the tip (Nos. 17, 22) and one angle-backed blade (No. 18). Professor Clark (1932, fig. 36, 12) also illustrates one needle-shaped point retouched down both edges.

#### HOARSTONE LANE, BRIGHSTONE (Fig. 57, 26-27)

One obliquely blunted point and one sub-triangular point were found by the late T.E.B. Gunyon at the top of Hoarstone Lane, north east of Brighstone (Poole, 1936, p.572).

#### WHITECROFT (Fig. 57, 28-31)

Two obliquely blunted points, and two 'single points' retouched down one edge and obliquely at the tip, were found by F.M. Walker within a limited area on ploughed land at Whitecroft. The site is known as Hungry Hill and is on the Lower Greensand. Associated with the microliths were a small quantity of flakes, blades and scrapers. (Poole, 1936, p.572).

#### SHANKLIN (Fig. 57, 32)

One point retouched down one edge was found by the late H.N. Bull at Batts, Shanklin, in a stratum of dark sandy soil, below about 2' of yellow sand and resting on undisturbed Lower Greensand. (Poole, 1936, p. 572).

#### NINHAM (Fig. 57, 33)

One lanceolate point was obtained from a small chipping floor situated above a stream that flows at the back of the America Woods.

A petit tranche arrowhead was recorded from the same site (Poole, 1936, p. 572).

#### NEWCHURCH (Fig. 58, 10)

Two picks have been recorded from ploughed land near the church. The locality has produced abundant flakes and bladelets, including a serrated flake (Poole, 1936, p.572, fig. 121) and a chisel-ended arrowhead.

#### LEA FARM (Fig. 57, 34-37)

This is one of a group of four sites situated within half a mile of each other, the others being Blackpan Farm, Blackpan Common and Sandown. They are separated from each other by the tributaries of the eastern Yar, and each occupies elevated ground above the valleys. All have produced implements of Mesolithic, Neolithic and Bronze Age type (Poole, 1936, p. 573).

The site at Lea lies in the hillside between the aerodrome at the bottom and the deserted chapel at the top. The industry includes five microliths, one pick, serrated flakes and chisel ended arrowheads. The microlithic types include two obliquely blunted points, a broad blade retouched down one edge and a fragmentary broad blade retouched down both edges.

#### BLACKPAN FARM (Fig. 57, 38-52)

This industry was obtained from a rather restricted area at the top of a small hill. There are thirteen microliths (fig. 57, 38-52), mainly large obliquely blunted points and a few points retouched down one edge. The industry also includes a small tranche axe, serrated flakes, scrapers, cores and waste flakes. Neolithic and Bronze Age

types also occur on the site and the collection is now in the Carisbrooke Castle Museum (Poole, 1936, p.573).

#### BLACKPAN COMMON

This site is on an elevated triangular outlier of the Lower Greensand, with tributaries of the Eastern Yar on two sides and the main river to the north. The Mesolithic industry includes one pick, two microlithic points retouched down one edge, a serrated flake and a typical single platform core (Poole, 1936, Plate 6, p.573).

#### SANDOWN (Fig. 58, 1-4)

This site lies on the slope west of Sandown station and the Mesolithic industry came from an area not more than ten yards in diameter. The industry includes microliths together with Neolithic and Bronze Age admixtures (Poole, 1936, p.574). The microlithic types include two obliquely blunted points (fig. 58, 2-3), a broad blade retouched down one edge (No. 4) and a 'single point' retouched down one edge and obliquely at the tip (No. 1).

#### YAUERLAND (Fig. 58, 5-9)

West of the main road near Yaverland Manor lies a site which has produced four transept axes, two flake axes (fig. 58, 9) and four microliths (Poole, 1936, p.574). The microlithic types include three obliquely blunted points and one point retouched down one edge (Nos. 5-8).

#### REDCLIFF, NEAR SANDOWN (Fig. 58, 11-13)

The industry is situated on the edge of the cliff between Sandown and the Culvers about one mile north east of Sandown. The section at the cliff face varies, but may generally be expressed as Top Soil - 12";

Blown sand containing the flint industry - 15" resting on the denuded surface of the Lower Greensand (Poole, 1936, pp. 574-578; Clark, 1932 pp.68-69). One foot from the top of the sand Poole found a hearth with calcined flints and a few pebbles. Twelve inches below this hearth and immediately above the Greensand, a sherd of pottery was found, showing a thickened rim and finger nail decoration. Associated with a Mesolithic industry were three arrowheads of Neolithic type, which are probably contemporary with the potsherd. This suggests a mixture of periods due to the shifting of the sands.

However, eight microliths can be isolated from the assemblage (Poole, 1936, figs. 102-109). They include obliquely blunted points, lanceolate points, one 'single point' retouched down one edge and obliquely at the tip and rods retouched down one edge, as well as a transversely truncated blade with retouch down one edge. The site has also produced a series of typical tranchet axes (fig. 58, 9-13).

#### THE ISLE OF WIGHT: DISCUSSION

The distribution of Group 1 sites appears to correspond to the courses of the fossil and present day rivers (fig. 53). The brick-earth between Brighstone Grange and Compton Grange Chines and the deposits at Freshwater and Afton belong to the valley of the Old Western Yar. Moreover, the Great Pan Farm and Werrar deposits are those of the later stages of the Medina Valley; and the estuarine clay of Newton Creek, a drowned river valley, is that of the Newton River.

The distribution of the Group 11 sites (fig. 54) contrasts sharply with that of Group 1. The forest bearing claylands and the river valleys are no longer occupied, neither are the chalk uplands. With one exception, all the Group 1 sites so far discovered are distributed over the sandy beds of the Lower Greensand (fig. 54). The exception occurs at West Cowes, where an industry producing only one microlith is

sited on gravel capping the Osbourne Beds. In other words, a well drained soil and an avoidance of the forested areas appear to have been of significance in the Mesolithic settlement.

The predominant implement of the Group 1 industries is the tranchet axe, which according to Poole, is a longer and heavier type than that associated with the Group 11 industries. However, in Group 11 the microlith becomes predominant, the axes are rarer and tend to be smaller in size. Burins no longer occur, and the micro-burin, whilst probably occurring has yet to be found.

Nevertheless, the common factor of both groups is the association of tranchet axes with non geometric microliths. It has already been noted that with one exception, (a sub-triangular microlith from Hoarstone Lane) geometric microliths are completely absent from Mesolithic industries in the Isle of Wight. There are no significant typological differences between Groups 1 and 11 of Poole, and the microlithic component of the industries is characterised by the large size of the individual specimens, together with a predominance of obliquely blunted points and elegant lanceolate points, with occasional 'single points' and one angle-backed blade. Burins only occur in Group 1.

As we have seen, industries characterised by tranchet axes and an elegant non geometric microlithic industry are assigned to the Maglemosean colonisation of south Britain. The concentration of such industries in the Isle of Wight, and the large numbers of tranchet axes along the northern littoral of that island, suggests an intensive Maglemosean settlement of the area.

We now turn to the mainland immediately adjacent to the Isle of Wight, in order to trace any manifestations of Maglemosean settlement in that area.

#### THE OCEAN DOCK, SOUTHAMPTON, HAMPSHIRE (Fig. 59)

A sarsen mace head with an hour-glass perforation was discovered

during the excavation of the Ocean Dock at Southampton in 1883 (Shore and Elwes, 1889), which is of particular interest in connection with the Post-Glacial depression of the Solent margins.

Dr. Godwin (1940) examined the section of the peat beds exposed in digging out the neighbouring George V Graving Dock at Southampton. This section showed<sup>e</sup> three horizons of abundant prostrate trees, the lowest probably pine and the others alder, whilst the upper peat surface below the harbour mud was penetrated thickly with vertical alder roots. At two horizons, pockets of shell marl were particularly abundant, making somewhat discontinuous layers. "The whole section suggested deposition in a wide river valley filled with fen, which at some times became dry and at other times shallowly flooded."

The base of the peat falls in the birch-pine Zone IV, which can be considered as the Pre-Boreal climatic phase. In Zone V pine is dominant and VI is characterised by the rapid establishment of oak and elm with very high hazel values. The opening of Zone VII is shown by the expansion of alder at the expense of pine.

The round macehead with hour-glass perforation was found in the Ocean Dock excavation, where deep deposits of peat and shell-marl from the old valley of the Itchen were overlaid by deep estuarine mud. It was recovered from a level "near the bottom of the peat, twenty feet below the surface of the mud". As the section is adjacent to that in the Graving Dock, the features of the deep peat were probably similar to those described above. Therefore, the mace head could have come from the Boreal or early Atlantic layers but unfortunately there is no direct proof of this.

The mace head, now preserved in the Tudor House Museum at Southampton is made of sarsen with faint superficial iron stainings (Rankine, 1949, pp. 70-71). It is spheroidal in shape (Rankine, 1949, fig. 1), with the surface showing slight irregularities which are probably due to the pecking technique by which the implement was shaped. The hour-glass

perforation shows clearly the striae produced by the rotating implement used in the final grinding of the perforation.

The mace head was associated with flint flakes and a polished bone implement. The bone tool (fig. 59, 11) associated with the mace head is a stiletto-like implement with the pointed tip broken off. Its length is 187 m.m. and originally it was probably 200 mm. long. It has been produced by working down the one half of a longitudinally split metapodial bone. The implement shows signs of working and its high gloss may indicate the use of an abrasive. Only general identification of the bone was possible and it appears to be a fragment of a metapodial bone of some ungulate.

The fourteen flint flakes associated with the macehead are small ranging from  $1\frac{3}{4}$ " to  $\frac{3}{4}$ " in length (fig. 59, 1-10). Only one blade fragment calls for detailed comment (No. 1) with typical Mesolithic retouch down one edge. The other flakes are not particularly distinctive.

The problem of the cultural affiliations of the mace heads with hour-glass perforations is dealt with below. Therefore, it is sufficient to say at this point that the mace heads are found in Maglemosean contexts and continue in use to early Bronze Age times. The fact that the deposit in which the artifacts were found appears to equate with a deposit of late Boreal or early post Boreal age, suggests that the industry has a Maglemosean context.

#### CAMS, FAREHAM, HAMPSHIRE

This site was discovered between high and low water marks on the foreshore at Cams, Fareham by J.C. Mogridge, later it came under the observation of Mr. Draper. The chipping floor is completely exposed at low tide and extends for about one hundred yards along the beach. The flints lie mingled with a scatter of gravel (Rankine, 1951).



The industry includes cores, blades, scrapers, one broad blade truncated obliquely and one microlithic point retouched down one edge (Rankine, 1951, fig. 2). The position of the site between high and low water marks suggests that it antedates the rise of sea level along the Solent margin.

Inshore is a field with a rich scatter of surface material from which a graver and a tranchet axe were recovered.

#### SOUTHWICK, HAMPSHIRE

Mr. Draper has located a system of sites in the Fareham district which include Wickham, Hipley, Walton Heath and an important settlement at Southwick. A common feature of the industries is the association of tranchet axes with non geometric microliths.

Southwick:- Two tranchet axes and four axe-sharpening flakes have been found, as well as one graver.

Walton Heath:- On Walton Heath is a compact site, the industry from which includes microliths, micro-burins, one tranchet axe, one axe-sharpening flake and one saw (Draper, 1951 A).

Hipley Copse:- One axe, one large axe-sharpening flake and other Mesolithic material have been recorded from this site (Draper, 1951).

#### RAINBOW BAR, MEON, HANTS

This site is just outside the mouth of the estuary of the River Meon and is only accessible at very low tides. Like the site on Cams Foreshore it is related to the Solent depression.

About two and a half hours after high tide a gravel bar appears about one hundred yards west of the river channel. It is known as Rainbow Bar and is crescent shaped with one tip near the beach, a lagoon is formed within it as the tide recedes. On the east side the bar

slopes steeply into the mud, and the western edge merges into muddy shingle (Draper, 1951 B).

Over one thousand worked flints have been collected by J.C. Draper from the mud at low tide between Rainbow Bar and the beach. The bulk of the collection consists of a rather crude flake industry with no diagnostic features. It has been suggested that certain of the flakes resemble those of the Larnian Culture of Ireland (Draper, 1951 B), but the evidence seems hardly sufficient to justify such a comparison.

The material from the site is divided between the British Museum the Tudor House Museum, Southampton, the City Museum, Winchester and Mr. Draper's private collection.

#### BARROW PLOT, WICK LANE, HANTS

This site is half a mile west south west of Christchurch Priory and has produced microlithic debris including one microlith, seven tranche axes and two axe-sharpening flakes (Calkin, 1951).

#### FURZY, LATCH FARM, HANTS

This industry is sited on the river gravels of the old Christchurch terrace near the west bank of the River Avon. The material consists of microlithic debris including six tranche axes (Calkin, 1951).

#### THE NADDER VALLEY

In the hinterland of Southampton and the Isle of Wight are a number of waterways which would provide access to the interior for the Mesolithic peoples. This river system is illustrated in fig. 50. However, although these rivers provide natural routes to the interior, no evidence of the Maglemosean culture has been recorded from the rivers Nadder, Wylye and Avon in Wiltshire, apart from the dubious

evidence of two stray finds of tranchet axes from Alderbury and Hurdcott (Rankine, 1955, pp.159-160).

Although there is a Mesolithic settlement along these rivers which has been recorded by W.F. Rankine (1955), the industries are related to the Horsham Culture (see below) and not to the Maglemosean settlement. This is in spite of the fact that the Maglemosean culture reached north Wiltshire via the Thames and the Kennet valley, as at Hackpen Hill and Marlborough (see above). In other words, the Maglemosean settlements of the Kennet valley and the Isle of Wight cannot be linked on the ground by any intermediate sites, despite easy access via the river valleys.

### 3. INDUSTRIES OF INDETERMINATE TYPE

#### INTRODUCTION

The industries described in this section are those which may belong to the Maglemosean colonisation of southern England, but are not sufficiently distinctive to be assigned to it with any degree of certainty. In general the industries are characterised by an axe element, burins and non geometric microliths, the last being too few in number to allow the classification of the industries. However, until further research has proved otherwise, the industries below are classified as being of indeterminate type, which are most likely to belong to the Maglemosean colonisation of southern England.

#### EWELL, NORTH SURREY

Three localities producing Mesolithic material have been discovered in the vicinity of Ewell in north Surrey. All three sites are situated on the Hogsmill Stream.

Glyn House, Ewell: (Fig. 31, 12, 13, 15). From this locality have come cores, graters a fragmentary blade retouched down both edges and an axe-sharpening flake (Carpenter, 1958).

Ewell Court: (Fig. 31, 11, 14). This locality is about one mile from the Glyn House site and has produced cores, blades, scrapers, graters, and an axe-sharpening flake (Carpenter, 1958).

Council School, Ewell: (Fig. 31, 16-17). Mr. S.S. Frere has recovered Mesolithic flints during the excavation of a Roman ditch at the Council School site, Ewell (Frere, 1943; Batstone, 1943). The industry includes an elongated obliquely blunted point (fig. 31, 16) and what is described by the excavator as a core-trimming flake (No. 17).

However, the illustration suggests that it is in fact an axe-sharpening flake.

SANDOWN PARK, ESHER (Fig. 31, 1-10)

The site was discovered by J.P.T. Burchell and is a hundred feet above the river Mole at the Warren, Sandown Park (Burchell and Frere, 1947). The industry was found in a blown-sand deposit lying on Bagshot Sands and includes core gravers (fig. 31, 9-10), non geometric microliths (Nos. 1-5), scrapers (Nos. 7-8), micro-burins (Nos. 6) and quartzite hammer-stones. The microlithic element comprises three elongated obliquely blunted points (Nos. 1,4,5) a lanceolate point (No. 2) and a form similar to the shouldered point recorded from Hullbridge (No. 3, c.f. fig. 31, 19).

NEW CUT, LEATHERHEAD, SURREY (Fig. 129, 16-21)

During the diverting of the course of the River Mole by the Surrey County Council bulldozing operations disturbed a Mesolithic floor in clay silt beside the stream (Carpenter, 1952; Rankine, 1956, p.28). Numerous cores and blades and three axe-sharpening flakes together with one tranche axe were recorded from a deposit seven feet below the surface. Microliths were very scarce and only a few obliquely blunted points were recorded. The material is now in the possession of the Surrey County Council.

Below the clay silt was a peat containing tree trunks, sedges and grasses.

FIDEOK PARK, SOMERSET (Fig. 60)

The site at Fideoak Park, Bishop's Hull near Taunton is situated three hundred yards from the east bank of the River Tone, at a height

of about eighty five feet above sea level. The industry was discovered by Mr. W.A. Seaby whilst inspecting trenches and the 'throw-out' from the foundation of steel towers. The following uniform section was noted in the trenches:-

1. Humus
2. Twelve foot to fifteen foot medium brown alluvium
3. Red Keuper Marl.

At one point a deposit of patinated and abraded chert and coarse gravel was found at a depth of about nine inches to a foot. A Mesolithic industry was recorded from this gravel layer at depths extending to eighteen feet. It was published by Seaby (1951) and the collection deposited in the County Museum, Taunton Castle where it was examined by the writer (fig.60).

The great proportion of the raw material is chert derived from the Upper Greensand beds of the Blackdown Hills, three or four miles to the south. The chert varies in colour from dark grey-black to an almost clear silica. Flint comprises less than 15% of the total raw material and is mostly dark grey in colour. Chert from the Blackdown Greensands was extensively used in Mesolithic times, and was transported to the Quantocks, Brendons, Exmoor, the coast and other Somerset sites (see below).

Possibly owing to the type of raw material the industry appears crude and unrefined. It is characterised by microlithic forms, scrapers (fig. 60, 22), two angle-burins (No. 23), numerous cores (No. 25) and thousands of waste flakes and spalls. An important feature of the industry is a carefully flaked axe or adze of dark brown chert (No. 26). It is plano-convex in section with the flat under surface trimmed by the removal of large flakes. The microlithic component is characterised by the absence of geometric or evolved forms. The types include eight obliquely blunted points (Nos. 1-3,7,8,11,14,16), blades with edge retouch (Nos.4,

13), one micro-blade retouched down one edge (No. 12) and a number of blades with inverse retouch along part of one edge (Nos. 5,6,9,10,17). There is one probably<sup>e</sup> micro-burin (No. 18) and a mis-hit (No. 19), together with two notched blades of flint (Nos. 20,21).

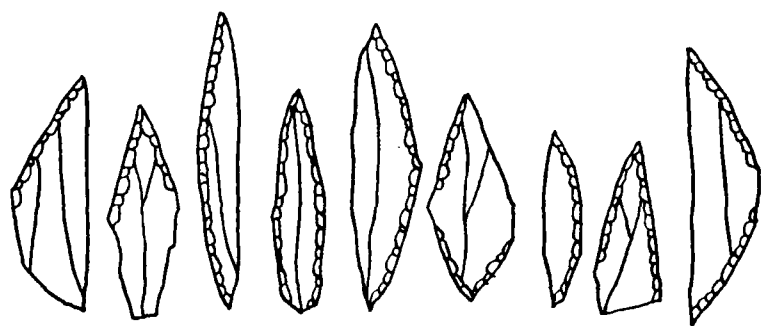
The essential features of the industry are the axe, burins and non geometric microliths, which, as we have seen, are characteristic of the Maglemosean industries in south Britain. The discovery of Maglemosean industries as far west as Bodmin Moor (Wainwright, 1960) suggests that the industry from Fideoak Park may belong to the same settlement.

4. THE MAGLEMOSEAN SETTLEMENT OF SOUTHERN BRITAINSUMMARY AND CONCLUSIONSA. TYPOLOGY

The examination of the individual industries of the Maglemosean culture in southern Britain has indicated that one has to deal with a culture characterised above all by heavy equipment, burins, scrapers on blades and flakes and an elegant non geometric microlithic assemblage.

The characteristic microlithic types as represented in the most important sites are shown in Table 1. The figures for the Isle of Wight should be regarded with some caution as they represent accumulated totals from the various industries. However, it has been shown that these industries have a considerable typological homogeneity. It will be noted that the microlithic assemblages as a whole are remarkably homogenous and that there is a complete absence of geometric forms. Out of eight distinct microlithic forms the predominant type is the obliquely blunted point; the elegant lanceolate point is second in importance and these types occur in all the industries quoted in Table 1. Of frequent occurrence is the needle shaped point and the angular backed blade; the former occurs in all the industries, except Middlezoy which has a very small number of microliths. Of less frequent occurrence are obliquely blunted points with opposed oblique re-touch at the base, 'single points', elongated trapezes and atypical elongated crescents. There is a significant correspondence between the richest industries from Dozmare Pool and the Colne Valley.



TABLE I

									TOTAL	
Dozmare Pool	40		10	2	4			2	1	59
Shapwick	16	1	3	2	1	1	1			25
Middlezoy	4		1		1			2		8
Broxbourne	20	1	2	1		1				25
Coane Valley	56	2	8	3	2		1			72
Thatcham 1 and 2	x	x	x	x					x	
Isle of Wight	38	5	18	1	2		1	5		72

The other features of this group are axes, burins, scrapers, truncated blades and serrated blades. The main typological difference between the British industries under discussion and the classic Maglemosean sites such as Svaerdborg, Mullerup and Holmegaard in Zealand and Duvensee near Lübeck, is the absence of triangles from the English sites. The essential features of the Maglemosean culture of southern England are typological simplicity and homogeneity, represented by burins,

scrapers on blades and flakes and an elegant microlithic industry from which geometric forms are absent.

## B. DISTRIBUTION (Fig. 29)

A constant feature in the distribution of the Maglemosean industries is their proximity to a river or lake. This is true for the majority of the sites from the Thames to Dozmare Pool. A study of the distribution of the Maglemosean industries in southern Britain, indicates that they can be divided into three groups:-

- (i) The Thames Area and the Kennet Valley
- (ii) The Isle of Wight and its immediate hinterland.
- (iii) The Dozmare - Shapwick - Middlezoy complex in the west.

(i), The importance of the River Thames as an area of settlement and route of penetration, is shown by the concentration along its banks of such sites as Battersea, Wandsworth, Uxbridge and north into East Anglia at Broxbourne and the Colne Valley (fig. 29). A second revealing factor is the large quantity of tranchet axes which have been dredged from its bed (see above). The Kennet Valley is a tributary of the Thames which it joins at Reading, and leads from that river into mid southern England. It would appear that this valley provided a route from the Thames onto the chalk downs of Wiltshire. The evidence for this route along the Kennet Valley is provided by sites such as Thatcham, Aldermaston, Woolton Hill, Kintbury and Sandhurst, and the break through onto the chalk uplands by industries from Hackpen Hill, Windmill Hill and Marlborough in Wiltshire. It should be noted that both tranchet axes and microliths reached the Upper Thames which is extra regional to this discussion (Rankine, 1956, p.23). Of particular interest is the industry from Kimble Farm on the Oxfordshire - Buckinghamshire border, which has produced a number of tranchet axes and flake axes together with twelve

obliquely blunted points (Clark, 1932, pp.67-68, fig. 35).

(ii) The survey of the Mesolithic industries of the Isle of Wight carried out by H.F. Poole, has shown the concentration in the island of a number of industries of Maglemosean type, together with a large quantity of Mesolithic axes along the northern littoral. These axes, and certain of the industries, can be related to the time when the Isle of Wight was still attached to the mainland and the Solent was an active river valley. This concentration of Maglemosean type industries is also reflected in the immediate hinterland as at Southampton, Cams, Southwick, Barrow Plot and Latch Farm.

However, in spite of the fact that the Maglemosean culture reached north Wiltshire via the Kennet valley from the Thames, this settlement and that of the Isle of Wight and its immediate hinterland, cannot be linked on the ground by any intermediate sites. This is in spite of the fact that there are well defined routes between the two areas by way of the rivers Nadder, Wylge and Avon.

The possibility arises that one has two isolated areas of Maglemosean settlement in southern England - the Thames/Kennet valley and the Isle of Wight and its immediate hinterland. However, it is impossible to say as yet whether this distribution has a cultural or chronological significance.

(iii) The importance of the Maglemosean industries at Shapwick and Middlezoy in Somerset and at Dozmare Pool on Bodmin Moor, is that they represent a penetration by the Maglemosean immigrants to a much greater extent than has been realised hitherto. As the Maglemosean settlement in the Isle of Wight area appears to have a limited distribution, it would seem likely that the penetration originated on the east coast and came via the Kennet Valley across southern England to Cornwall.

The extent of this penetration suggests that the length of southern England was known to the Maglemosean immigrants, and that they were not

confined to the east coast and the Thames and its tributaries as has appeared hitherto. This excludes the industry at Southampton, which has been considered to represent an outlier of the Maglemosean culture, instead of a member of a second settlement area as has been shown above. This widespread penetration of the Maglemosean immigrants is of great importance as the culture strongly influenced the succeeding Mesolithic groups of southern England. It facilitates the appreciation of this influence, if one realises that the Maglemosean culture penetrated the length of southern England and not solely its eastern area.

### C. CHRONOLOGY

One result of the tendency for the Maglemosean peoples to hunt along the banks of rivers and lakes, is that in some cases their material remains have become incorporated in deposits which enable them to be dated by pollen analytical means. Five of the industries under discussion have been dated in this way, and in the case of Thatcham a C14 date has also been obtained. The results of these investigations are portrayed in Table II, with the addition of the early Maglemosean industry at Star Carr, Yorkshire, for the sake of comparison.

TABLE II

	Position in the Climatic Sequence	Zone	C14 Date
Star Carr	A late Phase in the Pre-Boreal	IV	9488 <sup>±</sup> 350 B.P.
Broxbourne	Sealed by Boreal Peat		
Uxbridge	Sealed by Boreal Peat		
Thatcham I	Late Boreal	VI	
Thatcham II	Early Atlantic	VIIA	8100 <sup>±</sup> 150 B.P.
Southampton	Late Boreal or Early Post-Boreal		

With the exception of Site 11 at Thatcham the industries appear to fall in Boreal and Late Boreal contexts (Zones V-VI). In the case of Thatcham Dr. Dimbleby suggests that the pollen analyses are only tentative (see above). The C14 date from Site 11 suggests a date in Late Boreal times.

It would be of great interest to obtain objective dates for the Maglemosean industries in the Isle of Wight area and for those in the west country. Unfortunately no direct evidence is yet available. However, at Dozmare Pool, a series of samples was taken through the deposits of the lake, which consist of peats and organic muds resting on Nekron muds (Connolly, Godwin and Megaw, 1950). The botanical analysis of the samples (fig. 46), revealed thin layers of ash and charcoal in a peat deposit assignable to the early middle Atlantic climatic phase. However, no flints were recorded, and there is no evidence that these layers of ash and charcoal are in any way associated with the Mesolithic occupation. Indeed, they may be the residue of heath fires.

A date in the Boreal or Late Boreal climatic phases for the south British Maglemosean sites, is in agreement with that arrived at for the full Maglemosean cultures in Scandinavia and north Germany (see Chapter 1). The British facies differs from the industries of that area in the absence of triangles and the rich organic component, which is so characteristic of the continental sites. Until more is known about the use of organic materials in the south British Maglemosean industries it is unwise to compare them with their continental counterparts.

## CHAPTER V

### THE DESCENDANTS OF THE MAGLEMOSEAN IMMIGRANTS

#### 1. THE HORSHAM CULTURE

##### INTRODUCTION

From a large number of sites in southern England have been recorded a group of industries which differ in detail, but which have features in common that distinguish them from other microlithic industries. A discussion of this culture, which Professor Clark (1934 A) has termed the Horsham Culture, will be left until after the description of the industries. However, to anticipate certain of the conclusions, the sites of the Horsham culture occur on light gravelly or sandy soils, and are characterised by axes and a variety of microlithic forms including triangles and other geometric types and hollow-based points. The focus of the culture appears to be in south east England, particularly Sussex, Surrey and Hampshire, with very little extension into the western areas of south Britain.

A group of sites east of Horsham in Sussex, from which the late E.F.G. Piffard collected over three thousand microliths, provides the type collection for the Horsham culture. The most characteristic microlithic type in the group is the hollow-based point, (26% of all the microliths), and as a result it has been called the Horsham Point. This results in the implication that it is the guide artifact of the

Horsham Culture. However, as we shall see, although it is characteristic of a number of sites of this group, there are certain industries from which it is absent but which can be assigned to that culture.

With this brief introduction we shall proceed directly to a description of the industries which make up the Horsham culture, leaving the discussion until the end. The industries are divided into four groups on typological grounds to facilitate their description.

A. INDUSTRIES WITH HORSHAM POINTS AND AXES

ABINGER COMMON, SURREY

This site was first identified by Major Beddinton Behrens and excavated by Dr. L.S.B. Leakey in 1950 (Leakey, 1951). The excavations resulted in the finding of a Mesolithic pit-dwelling and an industry which includes axes, gravers, scrapers and non-geometric microliths.

The industry is the first to be described because although it has affinities with the Horsham culture in the adoption of a pit-dwelling and the finding of one 'Frensham Point' (see below), it would appear to be more primitive than the industries of that culture. There is an absence of triangles and trapezoids as well as such specialised forms as the Horsham Point. The implications of this will be discussed below and it is sufficient to say here that the industry from the Abinger pit-dwelling is by no means representative of the Horsham Culture.

The site is situated on Greensand about four hundred yards away from a spring, in the vicinity of the Leith Hill.

THE PIT DWELLING

The relation of the pit dwelling to the concentration of flints is shown in fig. 61, and a detailed plan of the pit and its environs is given in fig. 62. Considerable numbers of flints were found immediately surrounding the pit itself and Leakey suggests that other pits may be in the vicinity. The plan of the pit dwelling is long and narrow with a roughly V - shaped cross section (fig. 63).



In the pit dwelling itself, as distinct from the old land surface immediately surrounding it, one thousand and fifty six flints were found, of which eighty five are implements, cores and utilised flakes. There were no later admixtures. The fact that the pit dwelling contains so few flints as compared with the surrounding old land surface, may be due to the fact that it was used primarily as a dwelling and not as a workshop.

#### THE FLINT INDUSTRY

Although there is a Neolithic admixture from the industry around the pit, it is possible to separate the Mesolithic artifacts on typological grounds and there is no contamination in the pit filling. There is no apparent reason for separating the Mesolithic industries from the different deposits and therefore they are described as one group. The material is in the Abinger Museum.

Over ninety seven microliths were recovered of which the vast majority are obliquely blunted points and micro-blades retouched down one edge (fig. 64). The only signs of sophistication are occasional inverse retouch at the base or the tip (Nos. 30-34). There are no geometric types and no specialised forms such as the Horsham Point. However, the specimen illustrated in fig. 65, 13 closely resembles the Frensham Points which have a limited distribution in the Horsham culture (see below). The ratio of micro-burins to microliths at Abinger is 1:6. The remainder of the artifacts include truncated blades (fig. 64, 59-60), scrapers on blades and flakes (fig. 66, 67), two burins (fig. 65, 10-11) of double angle and single blow type, eight fabricators (fig. 67, 11-13), utilised blades and flakes and one utilised flake with lustre along the cutting edge. Two transept axes and eight axe-sharpening flakes were found during the excavations (fig. 68). The flake with lustre along the

cutting edge (fig. 67, 15), can be paralleled in several Late-Glacial industries (see above), and in certain Mesolithic industries as at Thatcham (see above) and Freshwater West in Pembrokeshire (Wainwright, 1959). The waste material includes a fine series of blade-cores (fig, 69), primary flakes and core rejuvenation flakes.

The industry, in other words, is composed of an axe element together with two burins, scrapers, truncated blades and a simple non-geometric microlithic industry. The type sites of the Horsham culture are characterised by the predominance of the hollow-based point, and by the presence of a fairly high proportion of trapezoidal, rhomboidal and other truly geometric forms. (Clark, 1934A). In varying proportions the same can be said for the other prolific sites of the Horsham culture. Compared with these sites, the Abinger assemblage looks much more primitive as it lacks the true geometric forms and also the specialised Horsham points. This point will be returned to below, when discussing the origin of the Horsham culture and its probable derivation in part from the Maglemosean culture. The non-geometric character of the microlithic industry at Abinger may possibly be a reflection of its derivation from a Maglemosean source.

However, the assemblage at Abinger can be said to have affinities with the Horsham culture by reason of the pit dwelling (which occurs again in that group), and also on account of the probable Frensham point. Moreover, although the microlithic assemblage from Abinger is non-geometric, it does not possess the elegance of the British Maglemosean industries, and refinements such as the inverse retouch at the base have their parallels in the Horsham culture.

#### ABINGER, "THE CHALK'S FIELD", SURREY (Fig. 70)

On a ridge at the top of the field in which the pit dwelling was

excavated, Major Beddington Behrens has recorded and described (1951) a scatter of Mesolithic flints.

This surface industry is of importance for it includes microliths of a type that were absent from the pit dwelling. These include hollow-based points (fig. 70,1) and a geometric form (fig. 70,3). Other microlithic types include blades with edge retouch and a needle shaped point. The micro-burin is present, together with one Mesolithic axe and an axe-sharpening flake (fig. 70, 21-22). One specimen of interest is a large variety of the Frensham Point (fig. 70, 14), of similar type to that obtained from the pit dwelling.

This typical industry of the Horsham culture shows that the latter did in fact extend into the Abinger area. This adds strength to the possibility that the industry from the pit dwelling does not belong to the Horsham culture proper, but may represent an early stage of it.

#### HAM COMMON, SURREY

This industry was discovered by Mr. J.G. Marsden at a site on Ham Common in north Surrey (Marsden, 1934). The flints were found on a gravelly and sandy ridge on the lower slope of which rested a layer of alluvium thickening out to a maximum depth of 7'. The alluvium was mainly loam but towards the base were two slight layers of peaty material and at the junction of the gravel with the flood plain occurred a thin deposit of shelly marl.

The industry includes thirty cores, waste flakes, scrapers, 'a small pick', five points retouched down one edge, one hollow-based point, two obliquely blunted points and one sub-triangular point. The flints are patinated, and although Neolithic forms have been obtained from the site they are in the main unpatinated.

Marsden found some flakes encrusted with the shelly marl and

therefore, the industry may be of pre-alluvium age.

#### THATCHAM, BERKSHIRE

Attention has already been drawn to the Mesolithic settlement at Thatcham, Berkshire, where excavation is proceeding under the direction of J. Wymer (see above). Site 111 of this settlement has produced a 'Horsham' point, several triangles and other geometric forms. The industry also includes an axe element together with scrapers and burins and the writer is indebted to Mr. Wymer for permission to examine the unpublished material in the Reading Museum.

#### FARNHAM, SURREY (Fig. 71-83)

Unlike the majority of the Surrey Mesolithic sites, the Farnham site lies off the Lower Greensand and was established on the gravels of the old Blackwater River. The focal point of the settlement is a spring, referred to as the Bourne Mill Spring, to the north east of the town of Farnham.

In the years following 1929 Mr. W.F. Rankine collected flints systematically from off the surface of this area, and after mapping the density of the finds, the flints and pot boilers resolved themselves into groups which coincided with reddish brown patches in the ploughed soil. In the spring of 1930, trial trenches were excavated near the spring which revealed the existence of pits dug into the gravel (Rankine, 1936). The pits contained a reddish brown earthy matrix in which hearths, flint cores and flakes were intermingled with pebbles, flint nodules and much fired flint. The later excavations by Rankine in cooperation with J.G.D. Clark, showed that many of these pits were in fact ditches of Roman and Belgic date (Clark and Rankine, 1939).

The following description concerns the total number of finds from Rankine's earlier excavations. The classification of the microlithic types follows that of Clark (1934 A, 1939).

The microlithic component:- (fig. 71, 1-34)

Obliquely blunted points (fig. 71, 28-32)	64	36%
Points blunted down one edge (No. 25)	46	26%
Points blunted down one edge and across the base (Nos. 22, 26)	2	1%
Triangles (Predominantly scalene)	16	9%
Other geometric forms	48	26%
Hollow-based points (Nos. 1-2)	2	1%
Shouldered or tanged points (Nos. 3-4)	2	1%
Micro-burins (Nos. 33-34)	60	

'Other geometric forms' includes crescents, sub-triangular points, one rhomboid (No. 27) and trapezes.

The assemblage also includes truncated blades (fig. 71, 37-40), scrapers and serrated blades, together with four sandstone pebbles, one of which had been utilised as an anvil (fig. 71, 44). One bone object was found (fig. 71, 43) which was identified as part of a metacarpal bone of a very small sheep. It had been sharpened at one end.

A selected series of finds from Pit 18 is shown in fig. 72, 35-67. Out of a total of twenty five microliths, ten are scalene triangles (Nos. 44-50, 52-53). Other microlithic types include obliquely blunted points, micro-blades retouched down one edge, needle-shaped points retouched down both edges (Nos. 55-58) and a point retouched down one edge and obliquely at the tip (No. 61).

As a result of Mr. Rankine's research a joint excavation under Professor Clark and Mr. Rankine took place from 1937-1938, in the immediate vicinity of the Bourne Mill Spring (Clark and Rankine, 1939). The material obtained during these excavations was derived from four

dwelling pits (fig. 73) and a Swallow Hole of considerable size and natural origin. There was a general absence of post-holes in the vicinity of the dwelling pits which argues against any rigid frame construction.

#### DESCRIPTION OF THE FARNHAM INDUSTRY

##### General Composition

	PIT I	PIT II	PIT III	PIT IV	SAND	TOTALS
By-Products:-						
Primary flakes	3,165	8,212	3,893	9,715	11,110	36,095
Cores	120	283	117	389	228	1,137
Core trimmings	51	217	26	119	198	611
Micro-burins	32	122	21	152	119	446
Axe-sharpening flakes	-	-	1	1	17	19
Totals	3,368	8,835	4,058	10,376	11,672	32,028

##### Finished Implements:-

Microliths	31	164	66	264	165	690
Truncated flakes	4	22	3	12	10	51
Convex scrapers	16	45	11	40	69	181
Core scrapers	7	25	12	-	65	109
Hollow scrapers	3	16	5	6	5	35
Awls	2	2	1	1	2	8
Burins	1	11	6	-	8	26
Core tools	1	1	-	4	9	15
Axes, adzes, picks	-	-	-	1	5	6
Total	65	286	104	328	338	1,121

	PIT 1	PIT 11	PIT 111	PIT 1V	SAND	TOTALS
<b>Utilised Flakes:-</b>						
Scrapers	9	21	9	29	10	78
Others	22	35	20	76	114	267
Total	31	56	29	105	204	345
 Total Assemblage	 3,464	 9,176	 4,191	 10,709	 12,135	 39,675
 By-Products	 97.2%	 96.4%	 96.8%	 96%	 96.2%	 96.4%
Finished Implements	1.9%	3.0%	2.5%	3%	2.8%	2.8%
Utilised Flakes	.9%	.6%	.7%	1%	1.0%	.8%

The high proportion of by-products and correspondingly low proportion of finished implements is a normal feature. The percentage for each location agrees with the average which suggests that one is dealing with a homogenous industry.

#### MORPHOLOGICAL DESCRIPTION

##### **Microoliths:**

VARIETIES	PIT 1	PIT 11	PIT 111	PIT 1V	SAND	%
A. Obliquely blunted points Fig. 74, 1-32; Fig. 75, 1-5, 17-20, 49; Fig. 76, 1, 13, 24-27, 39	9	37	11	102	49	41%
B. Blunted down the whole of one edge. Fig. 74, 33-39; Fig. 75, 5, 21-2, 50; Fig. 76, 2, 14, 28, 40	1	7	5	8	12	} 9.6%
Blunted down the whole of two edges. Fig. 74, 40-5; Fig. 75, 6, 23, 51; Fig. 76, 41	1	6	1	5	2	

VARIETIES	PIT 1	PIT 11	PIT 111	PIT 1V	SAND	%
C. Blunted down one edge and across the base.						
1. Obliquely. Fig. 74, 46-56; Fig. 75, 7, 8, 24, 52	1	13	2	15	13	} 8.8%
2. Transversely. Fig. 76, 4.	-	-	-	-	1	
D. Various Geometric Forms:-						
1. Triangles						
a. Isocetes. Fig. 75, 26-53; Fig. 76, 5, 17, 20, 31-3, 43	-	-	1	8	11	} 25%
b. Scalene. Fig. 74, 62-88; Fig. 75, 8-14, 27-40, 54-5	7	27	23	32	19	
2. Crescents						
a. Arc blunted. Fig. 74, 95; Fig. 75, 41-2, 56; Fig. 76, 35.	-	1	2	4	3	} 5.7%
b. Chord blunted. Fig. 76, 7	-	-	-	2	1	
3. Sub-triangular. Fig. 74, 89-94, 96-7; Fig. 75, 43	-	8	2	3	3	
6. Quadrangular forms with three edges blunted. Fig. 75, 15	1	-	-	-	-	} 1.6%
E. Points with inverse retouch at base:						
1. Blunt base. Fig. 74, 60; Fig. 76, 8.	-	1	-	-	1	} 1.6%
2. Pointed base. Fig. 74, 57-59, 61; Fig. 75, 62	-	4	1	1	-	
F. Hollow Based Points:						
1. Hollow flaked from below						
a. Symmetrical	-	-	-	3	-	} 1.6%
.						



VARIETIES	PIT 1	PIT 11	PIT 111	PIT 1V	SAND	%
b. Assymetrical. Fig.74, 101; Fig.75,64; Fig.76, 9,10,22,23,36,37,47	-	1	-	5	10	} 5.9%
2. Hollow flaked from below						
a. Symetrical. Fig.74,102-3; Fig. 75,47.	0	2	1	-	-	
b. Assymetrical. Fig.74,104; Fig.75,45	1	1	1	4	-	
G. Shouldered or tanged Points flaked from below. Fig. 74, 105; Fig.75,48,65; Fig.76,11, 12,38	-	1	-	1	3	1.1%
H. Chisel-ended (Transverse) arrowheads.						
1. Broad-based (trapezes)						
a. Straight edged.Fig.75,60	-	-	-	1?	-	
b. Oblique edge	-	-	-	-	-	
2. Pointed based.						
a. Straight edge.Fig.74,98	-	1	-	-	-	
b. Oblique edge.Fig.74, 99-100; Fig.75,44,59,61	-	2	1	2	-	

The statistical analysis of the microlithic types as given above is self explanatory. They include a variety of geometric forms (particularly the scalene triangle), together with a significant percentage of Horsham points and the usual non-geometric assemblage. The industry also includes axes and adzes (fig. 81; 82), burins, scrapers, truncated blades and a few pebble 'rubbers'. A discussion of the affiliations of the Farnham industry will be given below.

TILFORD, CHAPEL FIELD, SURREY (Fig. 84, 27-29)

This is a site on the lower Greensand on a river bluff plateau about 40' above the river Wey at Tilford. The site covers many acres and the significant types have been published by W.F. Rankine. (Clark and Rankine, 1939, p.113; Rankine, 1939, pp.107-109).

The material has been collected from the surface and after the field has been ploughed it is noticeable that the flints are distributed in clusters, presumably indicating the presence of working floors. The collection includes much Neolithic and Bronze Age material and a Mesolithic assemblage which includes forty seven microliths, twenty fragmentary microliths, twenty micro-burins, angle-burins, (fig.84, 27-29), eleven transversely sharpened axes and axe sharpening flakes. The microlithic component consist of the following types:-

Obliquely blunted points	31
Needle shaped points	6
Lanceolate points	3
Triangles	6
Hollow based points	1
Total	47

The industry also includes quantities of primary flakes, prismatic cores, truncated blades and small scrapers. It is probably significant that Rankine has recorded a concentration of tranche axes around Tilford (Rankine, 1938, p.113).

KETTLEBURY, SURREY (Fig. 84, 5-19)

The Mesolithic material from Kettlebury is derived from a series of sites spread over a steep hillside on the north slope of the valley which runs westwards from Kettlebury Hill to the Farnham-Hindhead road. Rankine excavated part of the area in 1936, and established that the

material was derived from blown sand deposits which vary considerably in depth (Rankine, 1938; Clark and Rankine, 1939; Rankine, 1951).

One tranche axe has been recorded from Kettlebury associated with a wealth of microlithic material (Rankine, 1938, p.107). However, two main sites can be identified in the area:

#### Site 1

This site lies above the 300' contour on a steep hillside facing south and was excavated by Rankine in 1936. The flints were found thinly dispersed throughout a blown sand deposit which varied from 1' - 3' in depth and rested on the lower Greensand. The assemblage comprised three hundred and eighty one flints which include eighteen convex scrapers, four blades, eight cores, four microliths, primary flakes, core trimmings and irregular workshop waste. Thirty of the flints are calcined, and the microlithic types include three obliquely blunted points and one obliquely blunted point with oblique retouch at the base. Blocks of carstone were associated with the flints which appear to have been placed there for some purpose.

#### Site 11

Rankine excavated about fifty square feet of this site which lies two hundred yards to the east of Site 1. The assemblage comprises one thousand six hundred flints of which forty one are microliths, thirteen cores, three convex scrapers, one obliquely truncated blade, two blunted points and primary flakes, core trimmings and irregular workshop waste. The microlithic types include obliquely blunted points, triangles and Horsham points (fig. 84,5-19).

Of particular interest is a remarkable artifact which is trimmed along both edges into a curved 'beak' (fig. 85). They appear to be restricted in their distribution to three sites in west Surrey - Spreakley (Frensham), Bron-y-De and Kettlebury where four were excavated

(fig. 17,5,10,18,22) (Rankine, 1948). These types are referred to as Frensham Points and it will be remembered that two possible examples were recorded from Abinger (see above).

JUMPS MOOR, CHURT, SURREY (Fig. 84,20-21)

This industry was recorded from shallow blown sand by Mr. Bottrell and includes one transversely sharpened axe, sharpening flakes and Horsham points. No later admixtures were present (Clark and Rankine, 1939, p.114; Rankine, 1948, fig. 2).

BLACKDOWN, HASLEMERE, SURREY (Fig. 86,87)

The site at Blackdown, Haslemere, is on the lower Greensand at an elevation of over 900' O.D. overlooking the Vale of Sussex. The industry was recovered by the late A. Chandler in 1903-4 and published by Professor Clark (1932 A, pp.73-75). The flints occurred over a small area from almost immediately below the turf down to a depth of 1'. The collection is now in the Haslemere Educational Museum.

The industry includes one hundred and fifty microliths (fig. 86) of which the vast majority are blunted obliquely ~~on~~ down the whole of one edge. There are a few isocles triangles (13-14), and crescents either with the arc (No 21) or the chord (No.20) blunted. There are also a few examples approaching the trapezoid type (Nos. 18,19). Numbers of truncated blades are found (Nos. 15,16,28) and the hollow-based point is also present (Nos. 23,24). The micro-burin was recorded (No.25), quantities of scrapers on the ends of blades, thumb-scrapers and serrated flakes (No.30). Of material other than flint are a number of quartzite pebbles showing abrasion at the ends and one quartzite pebble with an hour-glass perforation. A series of four transversely sharpened axes (fig.87) were recorded from the same general area as the industry.

The problem of the maceheads with hour-glass perforation will be dealt with below, and it is sufficient to note at this point that eight other hour-glass perforated quartzite pebbles have been recovered from the immediate vicinity of Blackdown (Rankine, 1949 A; 1951 B).

#### ABINGER HAMMER, SURREY

The industry was discovered in 1950 on lower Greensand at a height of about 475' O.D. The assemblage includes one hundred and fifty six flints of which the Mesolithic types are patinated whilst the unpatinated specimens have a later appearance (Wood, 1950; 1953). A few of the flints show two-period patination.

The Mesolithic component includes cores, one scraper, microliths, notched blades, five micro-burins and one serrated blade. The identifiable microlithic types include one obliquely blunted point, two triangles, one lanceolate point and two Horsham points. Rankine, (1938, p.109) records a tranche axe from Abinger Hammer. Later admixtures have been found on the site including polished Neolithic axes.

#### BRON-Y-DE, CHURT, SURREY

This is an extensive surface site on arable land from whence has been collected a tranche axe and a series of microliths including Horsham points (Rankine, 1948; 1951, p.44).

A feature of the industry is the occurrence of Frensham Points (see above), which appear to be restricted in their distribution to Spreakley (Frensham), Kettlebury and Bron-y-De (fig. 85,3,4,6,7,11,13, 17,21,26,27,29,31-33).

#### BLACKHEATH, SURREY

The area from which this industry has been recorded lies on the

sandy Folkestone Beds and represents an extensive centre of the Mesolithic culture. Unfortunately, the great majority of the material has been dispersed into many private collections. The two chief collections from the site are those of General Pitt-Rivers in the Pitt-Rivers Museum at Oxford, and the Godwin Austen collection in the Museum of Archaeology and Ethnology at Cambridge. Descriptions of material from the site have been published by Professor Clark (1932 A, pp.72-73). W. Hooper (1933) and Rankine (1938; 1956).

The industry includes microliths, numerous micro-burins, gravers and one tranchet axe. The predominant microlithic type is the obliquely blunted point with one fragmentary Horsham point.

#### OAKHANGER, HAMPSHIRE (Fig. 88-92)

A survey of Oakhanger Warren by Mr. W.F. Rankine has led to the discovery of seven concentrations of Mesolithic flints, which he named Sites W I - W VII. The concentration is sited on the Hampshire Greensand between Burdon Camp and the village of Oakhanger, and is dissected by a stream which emerges from Oakhanger Ponds to enter the Oakhanger Stream about one mile to the north (fig. 88). The concentrations have been described by Rankine in a series of papers (Rankine, 1952; 1953; 1958; 1960 A; Rankine and Dimbleby, 1960 B).

#### Site W V

This site is located in the north west corner of the Warren and was revealed where tanks had churned up wide furrows to some depth. An area of some one thousand two hundred and forty eight square feet was excavated by the transect method, and more than eighty five thousand flints were recovered. The flints occurred horizontally in the blown sand deposit, and were dispersed throughout a zone some 6" thick (Rankine, 1952).

## General composition of the Industry:-

## Implements:

Microoliths	1,281
Scrapers (fig. 90)	1,052
Saws (fig. 90, 13-19)	444
Flake graver	1
Nucleiform gravers (fig. 91)	179
Adze (fig. 92)	1
Punches (fig. 92, 8-9)	7
Total	2,965

Utilised flakes and blades	700
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## By-Products:

Micro-burins	308
Intermediate Forms	30
Axe or Adze sharpening flakes	2
Cores	705
Core trimmings	793
Flakes	79,500
Total	81,338

Total Number of Worked Flints	c.85,000
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## The Microlithic Component:-

Obliquely blunted points	791
Fig. 89,1,9,10	
Lanceolate points	65
Fig. 89,2,3,5-7	
Symmetrical points	22
Fig. 89,18-19	
Elongated Trapezes	31
Fig. 89,23-34	

Hollow based point	1
Unclassifiable	347

#### Pebble Rubbers:

Fragments of five pebble rubbers were found (fig. 92,4-7), of which two were submitted to Dr. K.C. Dunham, late Chief Petrographer of the Geological Survey and Museum, for identification. They were found to be siltstones of possible south western origin, but the attribution was only tentative. Similar rubbers were found at the Farnham Pit Dwellings, together with an angle graver and two microliths of Portland Chert, (Rankine, 1951 C), and Blackdown (Rankine, 1951). The problem of the origin of these rubbers will be discussed below.

#### Site W Vll

This site was discovered in 1957 a few yards to the north west of W V and was excavated later that year and in 1958 (Rankine, 1958; 1960 A; 1960 B). Early in the excavation it became apparent that artifacts were occurring at three levels (Rankine, 1960 B, fig. 3). The earliest level (Phase I) occurred at a depth of c.24"; Phase II which corresponded with the lined surface noted by Dr. Dimbleby in his pollen enquiry (p. 256) at c.8" - 10", and Phase III in the top 3" of humus. The excavation of W Vll by the transect method made it clear that the site must finally merge with W V.

#### The flint industry:-

	Site Vll (Phase II)
Microliths	1,458
Scrapers	1,927
Saws	512
Core graters	331
Tranchets	2
Axe sharpening flakes	13
Flaking tools	15



## IMPLEMENT TYPES

### Microoliths:

The great majority of these are obliquely blunted points or lanceolate points (Rankine, 1960 B, fig. 4,1-3,5-7,10,11). The significant forms include five a-symmetric Horsham points and nine oblique arrowheads or rhomboidal points. Three of the Horsham points come from the Phase III level.

### Saws

Over three quarters of these were made on micro-blades, mainly between  $1\frac{1}{2}$ " -  $2\frac{1}{2}$ " in length (Rankine, 1960 B, fig. 5).

### Scrapers

These include six hundred and eighty five scrapers on the ends of blades, over one thousand convex scrapers ( of which two hundred and forty three are under 1" in diameter), and two hundred and fifty five atypical specimens (Rankine, 1960 B, fig. 5).

### Core Gravers

No blade or flake gravers were present, but a large number of what appear to be core gravers were noted (Rankine, 1960 B. fig.5,6).

### Tranchet Axes

These are very rare and represented by two complete specimens a butt end and sixteen sharpening flakes (Rankine, 1960 B, fig. 6, 2-3).

### Punches or Fabricators

These include four well made examples (Rankine, 1960 B, fig.5,16).

### Miscellaneous

A notable find is a narrow wedge shaped tool made from tabular flint by means of steep edge flaking (Rankine, 1960 B, fig. 6,6).

## OBJECTS OF STONE

### Macehead:

Half of a thick heavy macehead with hour-glass perforation made of sarsen and showing heavy wear on the perimeter, was found in two parts some 6' apart embedded in a tank track some hundred yards south of W Vll.

### Hammerstone

One hammerstone of bunter quartzite weighing  $8\frac{1}{2}$  ounces.

### Anvil stone

A piece of tabular quartzite shaped by flaking with much pitting on the flat surface.

### Utilised Pieces

These include three small naturally formed carstone cups from the middle (Phase 11) level, one of which was found side by side with a long pebble rubber, smoothed by use on both broad surfaces and bevelled at one end.

### Dating evidence

A full report on the plant remains, (wood charcoals, carbonised nut shells and fossil pollen), is given by Dr. G.W. Dimbleby (1960, pp.255-262). Dr. Dimbleby concludes that the main occupation (Phase 11) can be assigned to an early part of the Atlantic period (Zone Vll A of the Post-Glacial sequence). Moreover, the  $cl_4$  age determination of carbonised hazel nutshells from the same level came out at  $6,300 \pm 120$  years B.P.

### Discussion

In the main, the Oakhanger implement types, consisting of microliths (particularly the Horsham points), scrapers, core graters and tranche axes, agree with assemblages recorded from other Wealden sites. However, Rankine draws attention to certain differences:

1. The microlithic component at Oakhanger is dominated by obliquely blunted points and lanceolate points. However at Farnham they formed only 41% of the microlith total and at Horsham (see below), where they were collected from the surface, they constitute 36% of some two thousand microliths.

2. The complete absence of triangles from Oakhanger makes a major contrast with the situation at Farnham, where they comprise some 25% of the microlithic component.

3. Horsham points are exceedingly rare at Oakhanger by comparison with Horsham (26%) or even Farnham (6%).

It is difficult to determine how these differences should be interpreted and whether or not they represent cultural distinctions. Oakhanger is certainly not typical of the Horsham culture. However, by reason of the few Horsham points and the axes, the group of sites can be said to have affinities with the Horsham culture.

#### THE HORSHAM GROUP, SUSSEX (Fig. 93-97)

The group of sites from which the Horsham culture takes its name are situated on Upper Tunbridge Wells sand at the western end of the central forest bidge of the Sussex Weald. The majority of the microliths which provide the type collection for the Horsham culture, were collected by C.J. Attree and E.J.G. Piffard from a group of seven sites to the east of Horsham (fig. 93). The material is in the Barbican House Museum, Lewes.

The seven sites are as follows (fig. 93):-

1. Old Faygate - two distinct chipping sites covering  $\frac{1}{8}$  and  $\frac{1}{4}$  of an acre respectively.
2. Halt - a large site of  $1\frac{1}{4}$  acres
3. Colgate - one third of an acre.
4. Beeding Wood - an area of an acre and a third.

5. Roffey Small - an area of two thirds of an acre.
6. Warnham - three distinct sites covering  $\frac{1}{8}$ ,  $\frac{1}{2}$  and  $\frac{1}{8}$  of an acre respectively.
7. Newstead - an area of  $\frac{3}{4}$  of an acre.

The sites are invariably found on the sand between the 200' and 400' contours. In every case except Beeding Wood the flints were turned up by the plough and the industries contain later admixtures. However, at Beeding Wood the industry appears to be homogenous (Clark, 1934 A).

#### ANALYSIS OF THE MICROLITHIC TYPES

The analysis of the microlithic types which follows is based on that of Professor Clark (1934 A, p.61). However, the types are also identifiable in the classificatory system given in Chapter 11 and it is for the sake of preserving the percentages that Clark's system has been employed.

VARIETY	CLASS	OLD FAYGATE	HALT	COLGATE	WARNHAM	BEEDING WOOD	NEW FAYGATE	ROFFEY SMALL	NEWSTEAD	TOTALS
Obliquely blunted points	A	36	241	36	17	34	19	9	12	404
Rods blunted down: one edge	B	-	24	-	-	2	-	-	1	27
two edges		-	2	-	9	1	-	-	-	12
Points blunted down one edge and across the base	C	4	59	15	9	14	3	-	-	104
Isoceles triangles	D1a	8	47	8	4	5	-	1	-	73
Scalene triangles	D1b	4	27	10	9	9	1	1	-	61
Total triangles		12	74	18	13	14	1	2	-	134

VARIETY	CLASS	OLD FAYGATE	HALT	COLGATE	WARNHAM	BEEDING WOOD	NEW FAYGATE	ROFFEY SMALL	NEWSTEAD	TOTALS
Crescents:										
Arc blunted	D2a	2	12	1	5	-	-	0	-	20
Chord blunted	D2b	-	-	-	-	-	-	0	-	-
Lozenge, Lanceolate and sub- triangular forms	D3-5	1	25	-	4	-	-	-	-	30
Trapezoids	D6	-	2	-	3	1	-	-	-	6
Rhomboids	D7	1	1	-	-	-	-	-	-	2
Total of Class D 2-8		3	41	1	12	1	-	-	-	58
Points with inverse retouch at the base	E	2	37	34	2	16	-	-	-	91
Hollow based points	F	55	147	10	12	20	2	8	5	259
Tanged points	G	7	21	2	4	1	3	-	1	39
Total classified		119	646	116	78	103	28	19	19	1128
Total unclassified		86	1152	81	82	43	16	8	12	1480

One should note that the term 'lanceolate' is used in a different context in the classificatory scheme outlined in Chapter 11. There is a substantial uniformity between the different sites and there are only two chief variations.

1. At Colgate, points with inverse retouch at the base comprise 29% of all microlithic forms, whereas the average for the other sites is only 5.6%.

2. At Warnham Class D2-8 microliths comprise 15.4% of the total, whereas the average is no more than 4.4% for the other sites.

## Percentages of Microlithic types from the richest sites:-

	A	B	C	D1	D2-8	E	F	G
Old Faygate	30.25	-	3.36	10.1	2.50	1.7	46.2	5.9
Halt	37.3	4	9.1	11.1	6.3	5.7	22.75	3.25
Colgate	31	-	12.9	15.5	0.9	29.0	8.6	1.8
Warnham	22.8	11.5	11.5	16.7	15.4	2.56	15.4	5.1
Beeding Wood	33	2.9	13.6	13.6	1.0	15.5	19.4	1.0
Average	35.8	3.5	9.2	11.9	5.1	8.4	23.0	3.5

## Percentage of Microlithic types from the whole group:-

Class A	Obliquely blunted points	35.8%	Fig. 95, 93-124
Class B	Points blunted down one or two edges	3.5%	Fig. 95, 125-127
Class C	Points blunted down one edge and across base	9.2%	Fig. 95, 128; Fig. 96, 129-141
Class D1	Triangles	11.9%	Fig. 96, 142-154; Fig. 94, 1-4
Class D2-8	Other Geometric forms	5.1%	Fig. 94, 5-37
Class E	Points with inverse retouch at the base	8.4%	Fig. 96, 177-191
Class F	Hollow based points	23.0%	Fig. 96, 156-173; Fig. 97, 38-40
Class G	Shouldered or tanged points	3.5%	Fig. 97, 41-59

In general it may be said that 48.5% of the microliths belong to the simplest forms, and of the geometric forms triangles are the most numerous. The micro-burin was not collected systematically but there are about one hundred and twenty one examples from the Halt site.

### Beeding Wood

This site has an area of about an acre and a third and is unique among the group in that there are no later admixtures. Piffard carried out a certain amount of trenching and found that the flints occur quite near the present surface of the ground.

The microlithic element has already been dealt with and the majority of the types from this site are illustrated in figs. 95 and 96. Other significant types include scrapers (fig. 95, 70-3, 75-7), truncated blades (Nos. 78-84), a single blow burin (No. 85), the buttend of a chipped axe and an axe sharpening flake (fig. 97, 68-69).

Three transept axes have been recorded from Warnham (No. 194), two from New Faygate, one from 'near' the Colgate site, one from 'near' the Halt site and one from 'Horsham'.

### Conclusion

The Horsham Group of sites are characterised by an axe element, and a large number of microliths which include a high percentage of hollow-based points and geometric forms as well as the normal non-geometric assemblage.

### PEACEHAVEN, SUSSEX (Fig. 98; 99)

This extensive surface site on patches of Woolwich Sands overlying the chalk some two miles west of Newhaven was discovered and published by J.B. Calkin (1924; Clark, 1932, pp. 82-83). The material is now in the Brighton Museum.

Two main occupation sites were discovered about ten and twenty acres in area respectively. On the smaller site the flints were found on the surface of the plough soil in a very abraded condition and patinated white. However, on the larger site the flints have a black lustre and their normal position is from 6" - 18" below a surface of

sandy soil. At this site, within a circular area about two yards in diameter some eight thousand to ten thousand flints were recovered, which, however, contained no microliths. Moreover, on this site there is an area about 50' x 25' where the sand is full of cooking stones which vary irregularly from 1' - 2' in depth. However, nothing recognisably microlithic occurred either among the stones or in the soil above.

The most typical microlithic type is <sup>where from?</sup> the obliquely blunted point (fig. 98,1,5), lanceolate points (fig. 98,4) and needle shaped points (No. 6). Also present are triangles (No.3), trapeze type points (No.7) and two examples of the Horsham point (nos. 8-9). The micro-burin occurs fairly commonly (Nos. 14,15) as do serrated (No. 16) and notched flakes (No. 19). Scrapers are abundant (Nos. 17-18) and three petit-tranchet arrowheads were recorded (10-12), but the latter may be later admixtures as polished stone axes have also been recorded from the site. The industry also includes core and flake axes (fig. 99).

#### Analysis of the Implement Types:-

Obliquely blunted points	40	59%
Lanceolate points	4	6%
Needle shaped points	5	7.5%
Points retouched down one edge and obliquely at the base	7	10.5%
Triangles	3	4.8%
Sub triangular points	3	4.8%
Points with inverse retouch at the base	1	1.6%
Hollow based points	2	3.0%
Unclassifiable	2	3.0%
Total	69	



**Macrolithic Element:-**

Scrapers	88	30.9%
Core scrapers	27	9.5%
Blade and flake burins	0	0
Awls	4	1.4%
Truncated flakes	17	5.9%
Truncated blades	5	1.8%
Saws	8	2.8%
Hollow scrapers	76	26.9%
Core axes	6	2.2%
Flake axes	4	1.4%
Miscellaneous	49	17.2%
Total	284	

About five or six hammerstones were found, together with one typical fabricator about 2" long.

Conclusion

The industry is of typical Horsham type with geometric and non-geometric microliths, Horsham points and an axe element.

SELMESTON, SUSSEX (Fig. 100-109)

Flint implements were first discovered during the working of the sand pit immediately to the east of Selmeston Church, almost midway between Lewes and Polegate by Mr. W. J. Parsons. A dwelling pit (Pit 1) was observed in section in the sand pit, and in 1933 further pits were discovered and excavated by Professor J.G.D. Clark (1934 B). The material is now in the Barbican House Museum, Lewes.

The position of the pits in relation to Selmeston Church is shown in fig. 100. The site lies on the Lower Greensand belt, which together with the Gault and the Upper Greensand runs along the northern

edge of the South Downs. It is situated above the 100' contour within easy reach of water. The industry described below is derived from three pit dwellings and the sandpit (fig. 101; 102).

The Microlithic Component:-

CLASS	PIT 1	PIT 11	PIT 111	TOTAL <del>PIT 111</del>	LOOSE	TOTAL	%
Obliquely blunted points	24	2	6	32	40	72	53
Lanceolate points	8	-	1	9	4	13	9.5
Blunted down one edge and across base	2	-	-	2	11	15	9
Triangles	1	-	2	3	8	11	8
Other geometric forms	8	-	1	9	6	15	11
Points with inverse retouch at base	1	-	-	1	1	2	1.5
Points with hollow base	4	-	1	5	3	8	6
Tanged	2	-	-	2	-	2	1.5
Total	50	-	11	63	73	136	100

The statistical analysis of the microlithic types shows that 53% of the microliths are obliquely blunted points and 19% are geometric forms. The hollow based points (fig. 104, 50-53; fig. 106, 108; fig. 107, 170-172) are of importance in so far as they provide cultural correlations with the Horsham culture, although they are much less common than in the Horsham group proper. The illustrations of the microlithic types and of the other artifacts are arranged according to localities (fig. 103-105, Pit 1; fig. 106, Pit 111; fig. 107-109, sandpit).

### Truncated blades

Fifty six obliquely truncated blades retaining the bulb of percussion were recorded. Thirty five specimens were found loose; twelve from the top soil over pit 1 (Nos. 76, 77, 79-82, 86-87); six from the infilling of pit 1 (Nos. 75-78) and three from pit 111 (Nos. 129).

### Blunted back blades

These consist of blades exceeding  $2\frac{1}{2}$ " in length with microlithic backing (Nos. 173-177).

### Micro-burins

Nineteen micro-burins were recovered from Pit 1 (Nos. 56-74) and five from Pit 111 (Nos. 117, 118, 120).

### Assymetrically notched flakes

These appear to represent an intermediate stage in the manufacture of microliths e.g. No. 180 appears to be an uncompleted obliquely blunted point.

### Burins

Three typical burins were found (Nos. 97, 122, 181).

### Saws

Thirty one finely serrated flakes were found of which twenty one, including No. 179, were found loose. A thin bank of lustre was noticed on three of the specimens.

### Scrapers

Convex scrapers were not particularly numerous (Nos. 89, 92, 127), neither were scrapers on the ends of blades. One end-scraper (No. 130) appears to have a carefully worked tang.

### Axes

No axes were found in the pit dwellings but a typical axe-sharpening flake in the base of pit 111, shows that they formed an integral part of the Selmeston industry. Three complete examples and fragments of four

others were recovered loose. Two examples are illustrated (Nos. 182-183), both of which show the typical tranchet blow.

#### Axe sharpening flakes

Four examples were found loose, one came from the top soil over Pit 1 (No. 96) and a sixth (No. 121) came from the basal spit of Pit 111.

In recent years Mr. E.D. Arundell has collected some hundred and fifty microliths from the sand pit (Arundell, 1953). The microlithic types include obliquely blunted points, lanceolate points, 'single-points', needle shaped points, triangles and truncated blades. As far as can be seen no hollow based points were recorded. The macrolithic element has also been expanded to include eleven tranchet axes, twenty three axe sharpening flakes and sixteen burins.

#### Conclusion

At Selmeston one has a typical Horsham type industry, associated with dwelling pits and characterised by axes, burins, geometric and non-geometric microliths and hollow based points. The percentage of hollow based points is in agreement rather with the industry from Farnham than from the type sites of the Horsham culture.

#### HASSOCKS, SUSSEX (Fig. 110, 12-22)

This site was investigated by Mr. H.S. Toms in the 'Stone Pound' sand pit at Hassocks, Sussex. A description of the site was published by Mr. Toms (1907) and represents the first published account of a Mesolithic pit dwelling. The industry was later described in greater detail by J.G.D. Clark (1932 A, pp. 77-78).

Mr. Toms found a mass of flints at the bottom of what was once a small pit some 6' wide and  $2\frac{1}{2}$ ' deep. In his own words: "Handful after handful of the flakes were pulled out, and it was observed that they were lying on the bottom of a small basin shaped pit scooped out of the

mould down into the sand beneath" (Toms, 1907, p.7). Mr. Toms recognised the pit for what it was, for he wrote as follows: "over this hole, which he dug down through the stiff mould into the sand, the Ancient Briton probably erected some sort of tent, in order to supply shelter from inclement weather or from the rays of the sun". (Toms, 1907, p.8).

The industry includes some two thousand untrimmed flakes, thirty cores, three end scrapers, two serrated flakes, notched flakes, an axe with a transverse cutting edge (fig. 110, 20) and a series of some seventy microliths. The predominant microlithic type is the obliquely blunted point (fig. 110, 12-15, 17), and the assemblage also includes an angle-backed blade (No. 16) and a hollow based point (No. 18). Isolated specimens occurred on the surface of the surrounding sand including two micro-burins (No. 19).

#### OLD WINCHESTER HILL, SALT HILL AND BUTSER, HAMPSHIRE

These sites were located by Mr. J.C. Draper on the chalk downs between Petersfield and Warminster, the group also including Chidden Down, Windmill Hill and New Barn. Up to 1955 Mr. Draper has traced twenty eight nucleations from which he has collected transept axes, axe sharpening flakes, graters, micro-burins and microliths, including the Horsham point (Draper, 1952; 1953). These sites on the chalk land are very rich in transept axes of which over fifty have been found.

##### Salt Hill

Seven sites have been defined the industries from which include transept axes and the Horsham point.

##### Butser

Draper has discovered a group of twelve Mesolithic sites scattered over a ploughed area of about ten acres. The most important finds from these sites are four microliths, five micro-burins, one transept axe, three

axe sharpening flakes and eight gravers.

#### Winchester Hill

This industry was discovered in plough soil and includes cores, scrapers and blades. Up to the time of writing (Draper, 1953) no microliths had been found.

#### BAPTON, WILTSHIRE (Fig. 111)

Mr. R.S. Newall has recently recorded Mesolithic material from Bapton on the bank of the River Wylye. The artifacts were collected from an area fifty yards by thirty yards and are now in the Salisbury Museum (Rankine, 1955; 1956). The industry lay either in or on an alluvial deposit and was sealed by 6" - 12" of peaty soil, the alluvium resting on gravel and chalk rubble.

The material includes an unfinished axe or adze similar to one found at Oakhanger (Rankine, 1952, fig. 7) an axe sharpening flake, three microliths (fig. 111, 4, 6, 7), a hollow based point (fig. 11, 2), two serrated blades (Nos. 3, 5), a scraper, cores and blades. The microlithic element consists of an obliquely blunted point, a fragmentary scalene triangle, and a fragmentary microlith of indeterminate type.

#### DOWNTON, WILTSHIRE (Fig. 112-118)

This site is in the Castle Meadow, Moot Lane, Downton near Salisbury on a terrace of the River Avon, 140' O.D. and 25' above the present river. It was discovered by Mr. P.A. Rahtz in 1956 when in two trial trenches he discovered c. 1500 Mesolithic flints which were evenly distributed in depth down to the undisturbed river gravels. There was some evidence for a hollow in the gravels, which suggested the possibility of a Mesolithic pit dwelling, and elsewhere there was a post-hole possibly associated with the flints. Therefore, in 1957 the site was

excavated by the Department of Archaeology and Anthropology at Cambridge. (Higgs, 1959).

The industry rested partly on the river gravels and partly on an uneven red silt. The latter was stoneless and continued to be deposited after the Mesolithic occupation, Neolithic and Bronze Age flints being found near its top. The total area of the chipping floor was probably less than 868 square feet and it had three main centres. One in and adjacent to the hollow with a maximum density of 172 flints per square foot, one five feet to the west of this, and one five feet to the north. Fine crackled flints were evenly distributed over the site, averaging two per square foot, except for the clearly established Hearth 11 to the east of the chipping floor (Higgs, 1959, fig. 2).

#### The Mesolithic Industry

The flints are in sharp condition, unrolled and without patina.

##### By-Products:

Primary flakes and spalls	36, 529
Cores	416
Core trimmings	126
Micro-burins etc. (fig. 113, 25, 26, 28-30)	73
Axe sharpening flakes	9
Total By-Products	37,153

##### Implements:

Microliths	125
Truncated flakes (fig. 113, 5-15)	48
Truncated blades	3
Scrapers	95
Core scrapers	206
Hollow scrapers	81
Awls	13

Burins (fig. 113, 16)	3
Core Axes (fig. 114)	6
Flake axes (fig. 114, 7, 14, 16)	4
Saws (fig. 113, 17-19)	43
Utilised flakes	141
Trimmed flakes	162
Fabricators (fig. 116)	3
Total Assemblage	38,086

Percentage of waste to implements and utilised flakes:-

Implements and utilised flakes	2.4%
Waste	97.6%

Microlithic Component: (c.f. Chapter 11)

Obliquely blunted points (fig. 112, 1-38)	65	52%
Lanceolate points (fig. 112, 39-43)	27	21.6%
Needle shaped points (fig. 11, 44)	7	5.6%
Single points (fig. 112, 45-46)	2	1.6%
Points blunted down one edge and across base (fig. 112, 47-48)	3	2.4%
Scalene triangles (fig. 112, 49-54)	4	3.2%
Crescents, arc blunted (fig. 112, 55)	2	1.6%
Sub-triangular forms (fig. 112, 56-59)	4	3.2%



Quadrangular with three edges blunted (fig. 112, 60)	3	2.4%
Points with inverse retouch (fig. 112, 61)	2	1.6%
Hollow based points (fig. 112, 62)	1	0.8%
Chisel ended arrowheads (fig. 113, 1-4)	5	4.0%

### The Settlement

The Mesolithic industry was associated with a small hollow (fig. 115), a hearth (Higgs, 1959, fig. 2) and a 'stake hole area'. A typical section through a stake hole is shown in fig. 117 and their distribution in fig. 118. The flint densities appear to coincide with the stake hole areas which fall into two groups. They presumably represent temporary structures similar to those recorded from the Early Boreal Pinnberg site (Rust, 1958 B), the ring of stones at the Hamburgian site of Borneck (Rust, 1958 A), or those on the edge of a chipping floor at Rissen (Schwabedissen, 1954).

### Conclusion

The excavations at Downton established the existence of a well defined and largely undisturbed chipping floor of typologically late Mesolithic character. The broad transverse arrowheads which appear to be associated with the industry suggest a late date. The core and flake axes, the geometric microliths and the hollow based point suggest connections with the Horsham culture. Its position within this culture will be dealt with in the discussion of the culture as a whole.

IWERNE MINSTER, DORSET (Fig. 119-122)

This site was discovered by Mr. P.G. Summers who found a considerable quantity of Mesolithic material on ploughed land above Iwerne Minster, Dorset (Summers, 1941). Trial excavations were carried out in the hope of finding hut floors but no signs of such were forthcoming. The vast majority of flints were found in the topsoil and the collection is now in the County Museum, Dorchester where it has been examined and illustrated by the writer. (fig. 119-122). Moreover, Mr. J.J. Stonborough has recently made a collection of material from the site which includes one transept axe (fig. 122, 4), and the writer is grateful to him for permission to illustrate this specimen which is in private hands.

## Microlithic component:

Obliquely blunted points		
(fig. 119,1-20; fig.120,45-55)	94	72.8%
Lanceolate points		
(fig. 120, 23-44)	20	15.5%
Blunted down one edge and across		
base (fig. 120,1-2)	2	1.5%
'Single points' blunted down one		
edge and at tip (fig. 120,3-7)	5	3.9%
Elongated trapezes		
(fig.120,9,10,16)	3	2.4%
Scalene triangles		
(fig. 120,11,12,20,21)	5	3.9%
Sub-triangular forms	3	3.9%
(fig. 120,13-15)		
Crescents, arc blunted	3	3.9%
Crescents, chord blunted	1	0.8%
Hollow based points	3	3.9%
(fig. 120,18-19)		

Fragmentary	25
Total	164

Micro-burins	
(fig. 120, 21-27)	15

A chisel ended or transverse arrowhead has also been recorded from the site. However, as it was collected from the surface it may well be a later admixture. The microlithic component shows the typical combination of geometric and non-geometric forms with hollow based points.

#### Truncated flakes and blades

Fourteen examples were found (fig. 119, 28, 29, 33), in some cases retaining the cortex on the upper surface.

#### Serrated flakes

Twelve in all (fig. 119, 31-32).

#### Burins

Three burins were found (fig. 121, 1-2), including one example of the oblique angle type.

#### Scrapers

Out of a total of four hundred and twenty three scrapers a large number may be Neolithic or Early Bronze Age in date. However, a number of end scrapers on their flakes are demonstrably Mesolithic (fig. 121, 3-12).

#### Core Axes

Out of twenty nine specimens many examples have the tranchet edge, and they range in size from small chisel forms to heavy picks (fig. 122, 3-4). One axe is made of chert from the Broom area of Somerset and another from a grey chert, whilst one small axe is transversely shapened at both ends.

Axe sharpening flakes

Four examples were recorded (fig. 122, 1)

Flake Axes

Four examples were recorded (fig. 122, 2)

Flints of later date

Several fragmentary, polished Neolithic axes have been found as well as a barbed and tanged arrowhead and a number of petit-tranchet derivative arrowheads. It is possible therefore, owing to the unstratified nature of the industry, that the flakes and core of Portland chert that have been found on the site belong to a Neolithic or Early Bronze Age phase.

Conclusion

This Horsham type industry from Iwerne Minster is of importance as it represents the most westerly industry of the axe and Horsham point tradition of any size. The presence of Broom chert in the industry is of interest as it suggests contacts with that part of Somerset, and the use of Portland chert is well within the bounds of possibility.

The ratio of axes to microliths in the industry is rather high (33:164) but the industry is of typical Horsham type.

BISHOP'S WOOD, WARRINGLID, SUSSEX

This site was discovered and excavated by Mr. W. Newnham, and lies on Tunbridge Wells sand, between two small streams which eventually unite to feed a tributary of the Adur (Newnham, 1958). The Horsham group of Mesolithic sites lies some five miles to the north west.

Excavation showed 6" of humus covering about 12" of yellow blown sand which rested on the bed rock. The flints were disposed at all depths. The industry was deeply patinated and consists of microliths,

scrapers, utilised flakes and a tranchet axe sharpening flake, together with blades and numerous cores. The twenty microliths consist of obliquely blunted points, isoceles and scalene triangles and hollow based points. Micro-burins occurred as well as intermediate forms.

B. INDUSTRIES WITH HORSHAM POINTS AND NO  
HEAVY EQUIPMENT

FRENSHAM, WOOD HILL, SURREY

A surface site which has yielded mixed industries including much Mesolithic material and the hollow based point. (Clark and Rankine, 1939, p.115). It is situated on the northern bank of the Frensham Wey.

ELSTEAD, LION'S MOUTH, SURREY

A network of small sites on the eastern flank of Hankley Common, lying in a combe through which runs a stream. The excavation of the area was commenced by Mr. L.S.V. Venables and completed by Rankine (Clark and Rankine, 1939, pp. 115-116; Rankine, 1951, pp.33-34).

Site 1. - Situated one mile north east of Kettlebury 1, just above the 200' contour. An area of ninety square feet was excavated the flints being disposed in the upper part of a sand deposit which was about 18" deep. About seven hundred flints were recovered including twelve microliths, six cores, one saw and one notched blade. The microlithic types include two obliquely blunted points, one point blunted down one edge and across the base, four scalene triangles, one hollow based point and four broken specimens.

Site 2. - Situated two hundred yards north of site 1. A limited excavation produced five hundred flints of which about one hundred were calcined. The microlithic types include four obliquely blunted

points, one scalene triangle, one crescent and two hollow based points.

#### CHIDDINGFOLD, SURREY

A widespread site, situated on a small patch of sand on the Wealden clay. The most productive area is Goldhorde Field which has produced numerous micro-burins and microliths including the hollow based point (Clark, 1932 A, p.86; Hooper, 1933, p.67; Halahan, 1925). Hooper claims that worked chert of a brown or greenish tinge is fairly prevalent among the raw material.

#### BALCOMBE ROCK SHELTER, SUSSEX

The site of the shelter is on Lower Tunbridge Wells Sand to the west of Ardingly Brook, a small tributary of the Sussex Ouse. The rock face is situated in Tilgate Wood where it stands to a height of 20' and faces almost due east (Clark, 1934 C).

The shelter was excavated by Mr. M. Holland and the flints were found to occur from surface level to a depth of 3' in the area in front of the shelter. Indications of charcoal were met with throughout the top 3' and below this depth the sand was sterile and passed into solid rock. About eight hundred flints were recovered including cores, scrapers, serrated flakes, a transverse concave angle burin and twelve microliths of which three are fragmentary.

The microlithic types include two obliquely blunted points, one micro-blade retouched down one edge, one point blunted down one edge and across the base, one hollow based point and one shouldered point.

#### STOPHAM, SUSSEX (Fig. 123, 11-17)

This industry was collected in a restricted area on the Greensand

at Stopham, near Pullborough, by E.W. Martin. The material has been published by J.G.D. Clark and is now in the Lewes Museum (Clark, 1932 A, p.77). The industry includes microliths, waste products and scrapers, and the microlithic component consists of obliquely blunted points and a hollow based point (fig. 123, 15-17). The flints are only slightly patinated (Keef, 1940).

#### HASTINGS, SUSSEX (Fig. 124-125)

This site was discovered by W.J. Lewis Abbott and described by him in a series of papers (Abbott, 1895; 1897; 1898; 1909; 1910). The material is now in the Wellcome Historical Medical Museum. Apparently, the flints were found in the fissures of the Ashdown Beds which form Castle Hill, Hastings. On the same site Abbott found the debris of a midden with numbers of shells, animal bones and potsherds. In the words of Professor Clark who republished the materials, "in an entirely uncritical fashion the shells and bones were simply identified and put in lists as the refuse of the makers of microlithic points." (Clark, 1932 A. pp.84-85). It is true that there is a midden at Hastings but it is of a date later than the Mesolithic.

Furthermore, the flints from this site have been mixed with those from a site at Sevenoaks, nearby (see below). Abbott claims that there is little difference between the two industries and therefore they are illustrated together (fig. 124; 125).

The predominant microlithic type is the obliquely blunted point (fig. 124) whilst truncated blades (fig. 125, 49-51) and lanceolate points (No. 35) are moderately common. Angle-backed blades (Nos. 15, 30, 31), roughly crescentic points (No. 36) and needle shaped points are also present (No. 38). No geometric forms were found except the sub-triangular point (NO. 10). A significant feature of the industry is ~~is~~ is



the hollow based points (Nos. 39, 42, 43). The micro-burin also occurs (Nos. 52,53), as well as a good example of an aggle burin (No. 40) and a chisel ended arrowhead (No. 41).

WILDERNESS, SEAL, KENT (fig. 124, 125)

At Wilderness, Seal, near Sevenoaks, Mr. W.J. Lewis Abbott found a number of microliths similar in character to those from the Hastings industry (above). His account of the circumstances of the finding of the microliths is very confused, but he claimed to have discovered a cremation burial under a round barrow of the period of the pigmy flints (Abbott, 1896).

The deposits of the barrow are described as first a layer of dark sand, then solidified sand, then white sand containing the flints, then a layer of carstone, then the cremation and finally another layer of carstone on the undisturbed Folkestone sand. The true explanation is probably that the flints were contained in the sand cast over the cremation in the ordinary course of building the barrow. Furthermore, Abbott obtained microliths from an area adjoining the barrow.

Owing to its close similarity with that from Hastings, Abbott mixed the two industries both in his illustrations and in his collection. Therefore, the Hastings and Sevenoaks industries have been dealt with together after Clark (1932 A, pp.84-85).

CLAPPER'S LANE, PERCHING AND TOTTINGTON SANDS, SUSSEX (Fig. 110, 1-11)

Dr. E. Curwen has recorded a Mesolithic industry on the Lower Greensand at the three above localities, which are situated very close together. The microlithic types include three obliquely blunted points (fig. 110, 1-3), sub-triangular points (Nos. 4-5), scalene

triangles (Nos.6-7), a needle shaped point (No.9) and a hollow based point (No.11) (Clark, 1932 A, p.77).

FOX HILL, LEONARDSLEA, SUSSEX (Fig. 123, 1-6)

The material was collected by Mr. H.S. Toms from rabbit scratchings and other exposures. The material is now in the Brighton Museum. The artifacts include an obliquely blunted point (fig. 123, 3) a scalene triangle (No.4), hollow based points (Nos. 5,6), micro-burins (Nos. 1,2) and serrated flakes (Clark, 1932 A, p.81).

HALLAND AND EAST HOATHLEY, SUSSEX (Fig. 126, 8-16)

A number of microliths flakes and cores were found by Mr. E.W. Martin on the borders of Halland and East Hoathley and presented by him to Lewes Museum. The types include a truncated blade (fig. 126, 7), obliquely blunted points (fig. 126, Nos. 5,6), an angle-backed blade (No. 16) and a hollow Based point (No. 15). All the flints are unpatinated (Clark, 1932 A, p.82)

HIGH ROCKS, TUNBRIDGE WELLS, SUSSEX (Fig. 128)

The High Rocks escarpment lies about one mile south west of Tunbridge Wells where overhangs have been formed in the soft rock. Recent excavations by J.H. Money has shown a Mesolithic occupation in four of these shelters (Money, 1960).

Site C. - This shelter (Money, 1960, fig. 4, Plate 11) faces north and is protected by ample overhead cover and a deep recess to the rear. The prehistoric occupation was found in a deposit of sand averaging 3' in depth and could be divided into two periods which were separated by a layer of iron pan inside the shelter.

Period 1. - the occupation material consists of about fifty pieces of flint including two microliths and two cores.

Period 11. - the occupation material consists of about six hundred flints including twenty five microliths, fragments of Neolithic pottery and also a rim of Iron Age pottery. There were also two hearths but no evidence by which they can be dated, and there were no flints of recognisably Neolithic type to accompany the few fragments of pottery. The microlithic types (fig. 128, 1-10) include five 'single points' retouched down one edge and obliquely at the tip, thirteen scalene triangles, three crescents and two micro-blades retouched down one edge, as well as two hollow based points.

It appears to be uncertain as to whether the Neolithic pottery can be associated with the flint industry. However, in view of the disturbed nature of the deposits in the upper levels the pottery may be a later intrusion.

Site D. - In this rock-shelter only one period of occupation was discernible, which varied in depth from 12" - 18". It contained fragments of charcoal and about seventy flints with no recorded pottery. The lithic industry includes seven microliths, some blades with secondary retouch and one end scraper. There was very little waste debris and no cores or micro-blades. The microlithic types (fig. 128, 11-13) include two obliquely blunted points, one point with edge retouch and inverse retouch at the base, one crescent and three fragmentary rods.

Site E. - This site is of considerable importance as the upper levels of the stratification were preserved. Two periods of occupation were distinguished, separated in part of the shelter by a layer of clay devoid of artifacts, which represents a significant break in the occupation of the site. Both periods of occupation are exclusively Mesolithic in character.

The Period 1 deposit under the protection of the overhang, is composed chiefly of yellow and brown sand and a quantity of charcoal amongst which ash, beech, birch, oak and pine were recognised, but no

flints. Outside the overhang this same deposit consisted of leached white sand containing a number of flints with one microlith. Following this, there was a considerable break in occupation before Period 11 which is represented by two hearths, charcoal (including beech, hazel, oak, pine and yew) and about four hundred flints.

The flint industries from Periods 1 and 11 are homogenous and include cores, blades with edge retouch and microliths, (fig. 128, 14-19). The microlithic types include triangles, obliquely blunted points and a 'single Point' retouched down one edge and obliquely at the tip.

Site F. - This site proved to be the most productive of all, producing seven hearths, Mesolithic flint implements and Neolithic pottery. Stratigraphically the site may be divided into four periods; culturally only two, Mesolithic and Neolithic are detectable. However, the stratigraphy appears to be disturbed as Neolithic sherds were found throughout the deposit.

The Mesolithic flints were found in Periods 1 and 11 and include cores, blades and twelve microliths. The microlithic types (fig. 128, 20-22) include points retouched down one edge, needle shaped points and scalene triangles. Among the blades is one with a ground or abraded edge (c.f. Thatcham above). Seven distinct hearths were identified, all, but one of which were in the upper part of Period 11. The charcoal from hearth 5 gave a C 14 reading of 3,700 B.C.  $\pm$  150 years, and appears therefore to be of late Mesolithic date. The charcoals found in Period 11 include ash, hazel, oak, pine, willow and yew. The analysis of the pollen (Dimbleby in Money, 1960, pp.212-217) indicates the presence of hazel, oak, yew and considerable quantities of beech.

The apparent association of microliths with secondary Neolithic pottery in Period 11 is almost certainly due to the disturbance of the

deposits. The C 14 date for hearth 5 is considerably earlier than one is prepared to date the British Secondary Neolithic cultures, even on the revised datings for the British primary Neolithic infiltration. The date is more comparable with that obtained for the Horsham industry at Oakhanger, Hants., (above), which was in the region of 4,000 B.C.

Conclusion. - The flint industry from High Rocks, Tunbridge Wells is of Mesolithic character, which on the basis of the hollow based points and geometric microliths can be assigned to the Horsham culture. The C 14 date for the Mesolithic occupation of Period 11 at Site E is in the region of 3,700  $\pm$  150 B.C., which is in general agreement with the radio-carbon date obtained for a comparable industry at Oakhanger, Hampshire.

#### BUCKLAND CORNER, REIGATE, SURREY (Fig. 129, 22-25)

A rich chipping floor in the topsoil of a sand pit at Buckland Corner was investigated by Mr. T.H.O. Phillips of Reigate in 1937. Worked flints can also be collected all over Reigate Heath and the microliths from this area include obliquely blunted points, a hollow based point and micro-burins. (Rankine, 1950; Hooper, 1933, p.69).

The microlithic types from the sand pit at Buckland Corner include an oblique arrowhead retouched along three edges, a crescent and a fragmentary isocles triangle (fig. 129, 22-24) (Hooper, 1927).

#### OUTWOOD, REDHILL, SURREY

This site was discovered by Colonel E.R. Meade-Waldo on the southern slope of a ridge at a height of over 300' O.D. The site is on clay and there is no stream in the vicinity (Hooper, 1933, pp.66-67). The industry includes cores, microliths, burins, blade and button

scrapers, borers and fabricators. The microlithic types include a hollow based point.

NAILSWORTH, GLOUCESTERSHIRE (Fig. 154, 1-12, 26-31)

The industry from Nailsworth comes from a site in the Cotswolds at a height of about 600' O.D. The greater proportion of the material is in the private collection of Captain H.S. Gracie to whom the writer is indebted for permission to examine and illustrate the material (fig. 154, 1-12). Some of the material from the site is housed in the Stroud Museum where it was examined and illustrated by the writer (fig. 154, 26-31).

The Microlithic component:

Obliquely blunted points (Nos. 1, 2, 28)	3
Lanceolate points (Nos. 27, 31)	2
Micro-blades retouched down one edge (Nos. 4, 6, 29)	3
'Single points' (Nos. 3, 5)	2
Points retouched down one edge and at the base (Nos. 9, 10)	2
Crescents (No. 26)	1
Scalene triangles (No. 30)	1
Sub-triangular points (No. 12)	1
Trapezoids (No. 11)	1
Hollow based points (Nos. 7, 8)	2
Total	18

Out of a total of eighteen microliths it is possible to distinguish ten varieties. These types are similar to those in the industries discussed above, which are characterised by geometric and non-geometric microliths and the hollow based point.

YELLAND, DEVON (Fig. 130; 131)

The Mesolithic industry from Yelland, on the south bank of the Taw in north Devon, is associated with the post-glacial encroachment of the sea over the land. The site was investigated by Mr. E.H. Rogers and the material is housed in the Torquay Natural History Museum and Bideford Museum where it has been examined by the writer. (Rogers, 1946).

The most noticeable feature on the foreshore at Yelland today is a double row of standing stones which was probably erected in Neolithic or Bronze Age times. It was certainly built when the sea was at a lower level than it is at present. The sequence of deposits in the vicinity of this stone row is as follows (fig. 130):

1. One inch of tidal sand and silt
2. Three inches of tough blue clay. This peels off and exposes a smooth, well defined old land surface.
3. A mixture of red earth and decayed stone in which the Mesolithic flints are found.

The flints were obtained from two localities:-

1. From the surface where the beach deposits are eroded away and the bed rock is exposed.
2. From the old land surface sealed by the blue clay (fig. 130)

The Industry

The material from below the clay and from the surface is treated here as a homogenous industry. In the illustration (fig. 131) they are separated into the two localities.

Obliquely blunted points (fig. 131, 7, 10

33, 34-38, 40) 9

Lanceolate points (Nos. 11, 12, 39, 41) 4

Needle shaped points (Nos. 5, 26) 3

Micro-blades retouched down one edge (Nos. 4,9,29-32)	7
Blunted down one edge and transversely across the base (No.45)	1
'Single points' (Nos. 6,14)	2
Angle backed blade (No. 44)	1
Triangles (Nos. 27,28,43)	3
Sub-triangular points (Nos. 1-3)	3
Hollow based points (Nos. 13,42)	2
Total	35

The industry also includes micro-burins, cores, truncated blades and scrapers. It will be noted from fig. 131 that one hollow based point was obtained from below the clay and one from the surface.

The microlithic component of the industry is similar to those in east and southern England dealt with above.

#### EAST WEEK, DARTMOOR, DEVON (Fig. 132-133)

The site of East Week on the northern edge of Dartmoor has produced some 26,000 surface derived artifacts, comprising a mixture of Mesolithic and Neolithic types. The material has been collected by Mr. O. Grieg and published by him in conjunction with W.F. Rankine (Grieg and Rankine, 1953). Owing to the fact that the material was collected from the surface, the Mesolithic industry described below has been identified on grounds of typology.

#### General Composition:

Microliths	56
Micro-intermediates	8
Micro-burins	8
Core Scrapers	154



Small round scrapers	132
Gravers	8
Graver spall	1
Saws	3
Backed blades	2
Chisel ended arrowheads	8
Blade Segments	94

#### The Microlithic component:

The microlithic types are not very varied and include obliquely blunted points, triangles and a hollow based point. The obliquely blunted point is predominant (fig. 132, 10-14) and triangles are few in number and include <sup>scalene</sup> (fig. 132, 3, 9) and isocles forms (fig. 132, 5). The hollow based point (fig. 132, 1) is of importance as it provides a link with the industries described above. The microlithic types also include a few lanceolate points (Nos. 16, 17) and a point retouched down one edge and at the base (No. 2).

Other artifacts include a good series of burins (fig. 133, 1, 2, 8), backed blades (fig. 133, 9), a typical Mesolithic saw (fig. 133, 7) and a number of water worn pebbles one polished by use and the others with abraded ends. Rankine also introduces a 'blade segment implement' of which about sixty were found. These consist of segments of blades (fig. 133, 10-14) with very rare retouch along the broken edge. It is possible that these blade segments were utilised, possibly as composite tools in the same fashion as microliths. However, it is extremely difficult to prove this, and it seems unwise to the writer to include them as a separate type of artifact.

Eight chisel ended arrowheads were found which may belong in a Mesolithic context. On the other hand it is equally possible that they are to be associated with the Neolithic occupation. The same

argument applies to the fragmentary macehead with hour-glass perforation which was found on the site.

Of particular interest is the fact that 4% of the raw material used at East Week is a Greensand chert which outcrops in Somerset. It will be remembered that a similar material was employed at Iwerne Minster in Dorset. In both cases the evidence suggests that the material was transported from Somerset to Dorset and Dartmoor. As we shall see below, in the west Somerset industries the percentage of chert varies from 25% to 80%.

#### MERTHYR MAWR WARREN, GLAMORGAN (Fig. 134)

In the National Museum of Wales, Cardiff there are extensive collections of flints from many parts of Wales including one from Merthyr Mawr Warren in Glamorganshire. This collection, which was examined by kind permission of Dr. H.N. Savory, consists of the results of no less than eleven separate flint collectors. The results of their work have been analysed and presented by the writer as a composite industry, but it must be remembered that the flints were derived from different areas on Merthyr Mawr Warren.

Merthyr Mawr Warren is a sand dune area on the Glamorgan seaboard, and the flints were collected from wind eroded hollows between the sand dunes. The collection includes flints of all periods including leaf-shaped arrowheads, plano-convex knives, barbed and tanged arrowheads, and large quantities of round scrapers of indeterminate date. However, on typological grounds the writer found it possible to isolate a series of microliths (fig. 134).

The most significant type in this series is a hollow based point (fig. 123,4) of typical form. Other microlithic types include obliquely blunted points (Nos. 1, 20, 21), a lanceolate point (No. 17), micro-blades

retouched down one edge (Nos. 2,3,9,12,15,18), needle shaped points (Nos. 5-7,14), an oblique arrowhead (No.13), a single point (No.19), a scalene triangle (No.16) and a sub triangular form (No. 22). The collection also includes a small series of pebble tools.

Unfortunately, none of these types are recorded as having been in association with the hollow based point. However, the very presence of the latter is of significance and suggests contacts with southern England. The collections from which the Mesolithic types were obtained are given below, together with their accession numbers.

D.J. Ward 93.273/1-17; J. and E.P. Brooker 98.272/21; W. Riley 01.134/1-2, 04.142/2; Morton Nance 01.366/43; T.B. Pole Evans 01.367; E.T. Lingwood 20.235; G.E.Blundell 26.238, 50.466; A.E. Harris 27.295; R.G. Williams 32.425, 33.450/6-23; W.T. Evans 28.458/14-66; B. Blundell 54.413

#### FRESHWATER WEST, PEMBROKESHIRE (Fig. 135-138)

Freshwater West is a broad expanse of sandy beach situated two miles south east of Angle village in south west Pembrokeshire. The late A.L. Leach in his examination of the chipping floors of south Pembrokeshire (Leach, 1913, pp.399-400), identified a soil drift (see below) north of Little Furzenip (Wainwright, 1959, fig. 1), underlying peat of the age of the submerged forest in that area.

About 100 yards south east of this point a quarry revealed the existence of a chipping floor, which at the time appeared to be resting on, and possibly a little way into a fine red drift probably correlatable with that which Leach suggested underlies the submerged forest. The basal rock is Old Red Sandstone, the industry is covered with humus and, as excavation revealed, 2' - 3' of sand in places. As the industry promised to be, free of the rainwashing and later admixtures characteristic of the transitory chipping floors along the south

Pembrokeshire coast, it was decided to excavate. The work was carried out by the writer under the auspices of the Department of Archaeology of the University College of South Wales and Monmouthshire.

The excavation revealed that the quarry had destroyed a large part of the most densely occupied area (Wainwright, 1959, fig. 2). Many flints were stratified in the red loam, the remainder were distributed on the surface of that layer and the majority of the anvil stones were embedded in it (layer 3, fig. 136). In places the artifacts were covered by as much as 3' of sand which had accumulated since the occupation; elsewhere they were sealed by 7" - 9" of humus (fig. 136).

#### General Composition of the Industry:

By-Products	7,357	95.55%
Implements	343	4.45%
Total Assemblage	7,700	100.00%

#### By-Products:

Primary flakes	3,156	40.90%
Côres	704	9.14%
Core trimmings	2,479	32.17%
Irregular workshop waste	691	8.97%
Calcined flints	323	4.22%
Micro-burins	4	.05%
Total	7,357	95.55%

#### Implements:

Scrapers	247	72.01%
Blades	47	13.70%
Awls	15	4.37%
Burins	24	6.99%
Arrowheads	2	.58%

Microliths	1	.29%
Utilised flakes	7	2.04%
Total	343	100.00%

The most striking feature about the statistical analysis of the implements is the very high proportion of scrapers.

#### Scrapers:

Pigmy thumb scrapers with cortex on upper surface	97	39.26%
Pigmy thumb scrapers without cortex on upper surface	20	8.09%
Convex scrapers (fig. 135, 9-12)	16	6.47%
Scrapers on flakes	78	31.57%
Concave scrapers (No. 13)	18	7.28%
Straight scrapers (Nos. 14,16)	7	2.83%
Straight oblique scrapers. (Nos. 15,17)	5	2.02%
Core scrapers	5	2.02%
Double ended scrapers	1	.40%
Total	247	100.00%

Apart from the high percentage of scrapers among the total number of implements, an interesting feature is the high proportion of thumb-scrapers (fig. 135,1-8).

#### Burins

The most characteristic feature of the burins as a whole is their small size (fig. 135, 18-21, 26-28), this can be attributed to the poor quality of the flint. They are of simple type and include single-blow (Nos. 18,21) angle (Nos. 19,20,27) and medial (No. 28) varieties.

#### Awls

Two awls are made of quartzite. The remainder are of flint and are typical of the Welsh littoral Mesolithic industries.

Utilised flakes

A heavy core trimming with one utilised edge has a definite lustre which is presumably due to scraping a resilient material (fig. 137,2).

Micro-burins

Four examples were recorded from diverse transects (fig. 135,24,25,29). However, no true microliths were present in the industry save for one example of a hollow based point.

Hollow based point

The base is delicately flaked from below and the tip is trimmed on all three surfaces, being trimmed to a sharp edge on one side and re-touched down the remainder of that same side. (fig. 135, 30).

To the writer's knowledge, a similar situation of the presence of micro-burins but no microliths occurs in only one other industry, namely the Obanian site of Caisteal-nan-Gilleann, where there is one micro-burin but no microliths (Lacaille, 1954, p. 218, fig. 89). However, the presence at Freshwater West of the micro-burins and the hollow based point suggest some connection with the Horsham culture.

Barbed and Tanged arrowhead

One example of this type occurred very high in the humus. (fig. 135, 31).

Stone Artifacts

Scattered over the whole area but more especially in the north east sector were a number of stone artifacts.

Varieties:

Anvils	14	46.66%
'Limpet Scoops'	11	36.66%
Pounders	5	16.66%
Total	30	100.00%

The majority of the hammerstones (fig. 138, 6-8) and anvils (fig. 138, 3-5) are found in those transects which produced the most flints. The 'limpet scoops' (fig. 137, 1,3-5,7), which have a similar distribution, are important cultural diagnostic features. Their distribution in Britain appears to be mainly littoral and western, and they can be attributed to a Mesolithic context.

#### Stone Balls

Three stone balls with battered surfaces were recorded (fig. 137, 6). Similar examples have been recorded from 'open air' flint factories in Pembrokeshire and elsewhere, and they were presumably used as pounders (Laws, 1889).

#### Miscellaneous

Attention should be drawn to two unusually large scrapers (fig. 138, 1,2) of flint and green chert respectively.

#### Shell

Scattered in the north east sector of the site were fragments of edible shellfish.

#### Varieties:

Mussel	274	61.99%
Limpet	142	32.12%
Whelk	26	5.87%
Others	3	
. Total edible	442	100.00%

#### Report on the soil samples

Samples of soil from the site were submitted to Dr. I.W. Cornwall of the London Institute of Archaeology for analysis. Samples were taken from the red loam, the overlying sand and the humus and the report is given in full below. The red loam (in which the industry was stratified) appears to represent a buried surface with an ancient soil

which is typical of a moist, cool temperate climate. It differs completely in character from the red loam of Nanna's Cave owing to the difference in parent material. Climatic conditions for the formation of both would be similar, but there is no evidence in the soils themselves to show even approximate contemporaneity.

#### Conclusion

The presence of the Horsham point in the Mesolithic industry at Freshwater West appears to suggest connections with the Weald similar to those at Merthyr Mawr Warren in Glamorgan and Yelland and East Week in Devon.



C. INDUSTRIES WITH AXES AND GEOMETRIC MICROLITHS

CAESAR'S CAMP, SURREY (Fig. 72, 6, 10-14, 21, 22)

This site, located by Canon F. O'Farrell in 1912, is situated on the 600' contour on the edge of a scarp where gravels overlies Eocene beds. The material was collected from the surface with no sign of later admixtures. The microlithic component comprises fourteen microliths which include twelve obliquely blunted points, one scalene triangle, one sub triangular form and one tanged point (Rankine, 1939, pp. 119-121). Two transversely sharpened axes were also found together with a quantity of microlithic debris.

SEALE DISTRICT, SURREY

There is a considerable amount of microlithic material in the Guildford Museum which is marked as being from the Seale District (Clark and Rankine, 1939, p. 113). However, its exact provenance is unknown apart from a few sites which lie on the Greensand close to the chalk outcrop. Eight transect axes are recorded as having come from this district, together with a few microliths which include a triangle and some obliquely blunted points.

FRENSHAM, GREAT POND, SURREY (Fig. 84, 22-25)

This site is located on the west bank of the Great Pond, Frensham and was excavated in 1937 by W.F. Rankine (Rankine, 1949 B; 1951, pp. 34-35).

Great Pond, North

About one thousand four hundred flints were recovered of which

12.5% were calcined. The industry includes sixteen obliquely blunted points, one serrated flake, seven scrapers, one axe-sharpening flake and thirty five cores.

#### Great Pond, South

This site was excavated by Rankine in 1948 and produced about one thousand flints of which two hundred are calcined. The industry includes ten obliquely blunted points, eight cores, five serrated flakes eleven scrapers, two core gravers, one truncated blade and a fragment of a blade of Portland chert.

Other microlithic types have been found on the surface and include lanceolate points and scalene and isocles triangles (fig. 84, 22-25) Of particular interest are the series of 'Frensham points' from the site (fig. 85, 1-2, 8-9, 12, 14-16, 19-20, 23-25, 28, 30). These are points which are trimmed along both edges to form a curved 'beak' and appear to be confined to three sites - Frensham, Kettlebury and Brøn-y-De (see above).

#### TROTTSFORD, HEADLEY (Fig. 84, 1-4)

This industry has been recorded from a group of sites located on a slightly undulating plateau near the 300' contour by W.F. Rankine (Rankine, 1953, pp.166-169). Excavation revealed an industry in a deep deposit of blown sand varying in depth from about 1' - 2' in thickness. A layer of 'pan' was found at a depth of 1' and the flints were disposed horizontally in a zone about 6" thick. About two hundred flints were recovered with a high percentage of calcined flint including seven cores, two obliquely blunted points, two scrapers and two micro-burins.

In 1948 the whole area of five acres was ploughed for the first time and revealed three large chipping floors. The industry includes non-geometric and geometric microliths, saws, gravers, scrapers,

numerous cores and one flint punch (fig. 84, 1-4). A small tranchet axe was found and also an axe-sharpening flake.

#### SHEDFIELD, HAMPSHIRE

This extensive site was located in 1951 by W. Corney in a blown sand deposit overlying Eocene sands in a sand pit. Unfortunately, the quarrying of the sand prevented systematic investigation of the site. However, numbers of artifacts were recovered which are now in the Cumberland House Museum, Portsmouth. The most important find was a double ended pick 12" long - a very uncommon type (Rankine, 1956, p. 35). Another, 13½" long, has been recorded from Bromley, Kent and a third at Hurcott near Salisbury, which is now in the Salisbury Museum.

Mr. Corney later dug several trenches on the south side of the pit and found scattered flints and one tranchet axe (Draper, 1953). Corney and Draper then transected an area on the north side of the pit and found a scatter of flints including microliths. Altogether a total of nineteen microliths have been found, they are mainly obliquely blunted points with a few triangles and one point retouched down one edge and across the base.

#### BIRDCOMBE, WAXALL, SOMERSET (Fig. 139)

The Birdcombe Mesolithic site lies at the foot of a slope facing south across the valley of the river ~~land~~ Yeo, Somerset, at a height of 30' - 50' above sea level. Worked flints were first found in 1952 after ploughing and the remainder came from a small excavation (Sykes and Whittle, 1960).

Two springs rise at the foot of the slope, the water rising through a mixture of sand and gravel. This mixture was examined from

the smaller of the two springs and many hundred of flints were recovered of which only six were calcined. The following types were recognised among the assemblage:

Cores	3
Scrapers	1
Utilised blades	2
Serrated blades	1
Microoliths	21

In 1955 a series of small trial trenches were dug in the area which promised to provide the greatest concentration of flints. The majority of the flints were found at a depth of 26" - 28" and none were found below 33" where the reddish brown soil gave way to a purplish clay. In the area of the main excavation the implementiferous level rose abruptly to 20 inches, where the flints rested on a layer of 'hard pan' one inch thick. This layer appears to be approximately 8' wide and 40' long and disappears abruptly outside these limits. Dr. Cornwall points out that this level is probably due to the re-deposition of mineral salts. A small fragment of wood-tar was found on the 'floor' and was identified by Dr. I.W. Cornwall. Wood-tar was prepared by heating rolls of birch bark and one of its uses was to fix microlithic barbs on their shafts (c.f. Star Carr, above).

The following is an analysis of the microliths found on all parts of the site.

Obliquely blunted points. (fig. 139,1-9)	12
Lanceolate points (fig. 139,21-25)	5
Microblades retouched down one edge (fig. 139, 26-32)	8
'Single Points' (Nos. 11-20)	8
Needle shaped points (Nos. 33-41)	10
Scalene triangles (Nos. 49-53)	15

Isocèles triangles (Nos. 46,48)	2
Crescents (No. 44)	1
Elongated Symmetrical trapezoids (Nos.42-43)	4
Oblique arrowheads of Rhombic type (No.47)	1
Fragmentary	28
Not Classifiable	13
Micro-burins (Nos. 54,55)	16

Other artifacts include two large graters (fig. 139, 56-57) and several smaller graters (fig. 139, No.58). Very few scrapers were recovered and only two serrated blades were found. Two items of interest are the small fabricator (fig. 139, 59) and the sharpening flake from a tranche axe (fig. 139,62). Of stone other than flint is a knife-like implement of shale with traces of abrasion at one end (fig. 139, 61) a quartz pebble utilised as a hammerstone (No. 63) and a fragment of Old Red Sandstone which appears to have been used as a rubber (fig. 139, 60). The bulk of the raw material is a poor quality gravel flint but there is also a very small percentage of cretaceous chert.

#### Conclusion

The microlithic types suggest an industry of Sauveterrian affinities with a very high proportion of triangles (predominantly scalene), and needle shaped points (pointes de Sauveterre). However, the axe-sharpening flake is not consistent with this conclusion and the possibility of a 'mixed' industry arises. This will be dealt with below.

#### PLAINFIELD FARM, BROADSTONE, DORSET (Fig. 140)

A Mr. J.J. Stoneborough has collected about two thousand flints from the surface of a ploughed field at Plainfield Farm, Broadstone, Dorset. The collection includes a mixture of Mesolithic, Neolithic

and Bronze Age types including a few flakes and a wrapper of Portland chert which could belong to any period. The writer is indebted to Mr. Stonborough for permission to examine his collection and to illustrate certain types.

The Mesolithic component of the collection includes microliths, a micro-burin and micro-intermediates (fig. 140,14-16), serrated flakes and blades (Nos. 19-23), truncated blades (fig. 140,21-22), a burin (fig. 140,18) and a fragmentary axe (fig. 140,17). The microlithic types include five obliquely blunted points (fig. 140,2-5,10-11), three lanceolate points (Nos. 1, 6-7), one point retouched down one edge and obliquely at the base (No. 8), and one elongated scalene triangle (No. 9).

The number of microliths is unfortunately rather small but there are sufficient to establish the presence of a geometric element in association with heavy equipment. The industry may well be related to the site at Iwerne Minster which it is near.

D. INDETERMINATE INDUSTRIES WITH TRANCHET AXES

This section deals with those industries in which the micro-lithic component is not sufficiently distinctive to be attributed to the Horsham culture. However, as these industries are associated with tranchet axes and their distribution conforms with that of the Horsham culture, they are included in the latter. However, the recording of new material may change this interpretation. Owing to their nondescript character the industries are described in a catalogue form.

- The Ranges, Surrey (fig. 141,7) (Rankine, 1939, pp.117-119)  
 Heath Brow, Surrey (fig. 72; 141,8) (Rankine, 1939, pp.115-116)  
 Farnham, Six Bells (fig. 142,1-6) (Rankine, 1939, pp.81-84)  
 Farnham, Alma Nursery (fig. 142,7-11) (Rankine, 1939, pp.84-89)  
 Moor Park A, Farnham (Rankine, 1939, p.98-99)  
 Puttenham, Surrey (Rankine, 1939, p.96)  
 Thursley Common, Surrey (Clark and Rankine, 1939, p.114; Clark, 1932 A, fig. 39, 1)  
 Kingsley Common, Surrey (Rankine, 1953, p.169)  
 Red Hill, Dyke Road, Sussex (Rankine, 1956, p.30; Curwen, 1928, pp.80-81)  
 Westham, Pevensey, Sussex (Burton, 1940)  
 West Heath, Sussex (fig. 143) (Clark, 1932 A, pp.75-77; 1932 B)  
 Streat, Sussex (fig. 144) (Clark, 1932 A, p.78)  
 Angmering, West Sussex (Lewis, 1960, pp.12-13)  
 Alderholt Warren, Hampshire (Calkin, 1951, p.64)  
 Orpington, Kent (Jones, 1952)  
 Portland, Dorset (Rankine, 1956, p.42)

E.                    STRAY FINDS OF TRANCHET AXES

There is little doubt that the highest number of stray tranchet axes occurs in southern and eastern England. In addition to those mentioned in connection with the Maglemosean culture well over one hundred have been recorded from west Surrey alone (Rankine, 1938). Of these, about eighty are from the Farnham region and about forty of these are from the neighbourhood of the Farnham Pit Dwellings. Moreover, fragmentary axes and axe sharpening flakes are not included in Rankine's survey.

Further west in Wiltshire and Hampshire stray finds of tranchet axes are fairly common and it is not until one arrives in the western regions of Dorset that the numbers suddenly decrease. We have already noted the occurrence of tranchet axes at Iwerne Minster, Plainfield's Farm and Portland Bill. In the private collection of J.J. Stonborough referred to above, there is also one Mesolithic type axe from Wimbourne in Dorset (fig. 145, 1). The writer is grateful for permission to illustrate the specimen.

In the areas west of Dorset, Mesolithic type axes are conspicuous by their absence. Apart from the axe sharpening flake from Birdcombe and the Maglemosean elements already referred to, there are only two Mesolithic axes in Devon, Cornwall and Somerset. Both have been recorded from Cornwall, one from south west Penwith (Marsden, 1919, p.492, Plates E,F) and the other from Dinas Head, not far from Trevose Head on the north Cornish coast (1). The Mesolithic axes from Wales will be dealt with in the chapter on the Welsh industries.

The distribution of these axes conforms to that of the sites of the

(1) Information received in a letter from Dr. I.F. Smith.



Hor-sham culture. That is, a concentration in the south and south east with a very sparse distribution in the West Country.

F. THE HORSHAM CULTURE - SUMMARY AND CONCLUSIONS

(i) TYPOLGY

This analysis of the range of microlithic types in the Horsham culture is based on the percentages from those sites which have produced a large and representative selection of material. The classification is based substantially on that of Professor Clark (1939) with certain exceptions.

CATEGORIES	FARNHAM	HORSHAM	SELMESTON	DOWNTON	PEACEHAVEN	IWERNE MINSTER
Obliquely blunted points	41%	35.8%	53.0%	52.0%	59.0%	72.8%
Lanceolate points	6.5%	2.5%	9.5%	21.6%	6.0%	15.5%
Needle shaped points	2.9%	1.0%	-	5.6%	7.5%	-
Down one edge and across base	8.8%	9.2%	9.0%	2.4%	10.5%	1.5%
Triangles	25.0%	11.9%	8.0%	3.2%	4.8%	3.9%
Other geometric forms	5.7%	5.1%	11.0%	7.2%	4.8%	8.0%
Points with inverse re- touch at the base	1.6%	8.4%	1.5%	1.6%	1.6%	-
Hollow based points	5.9%	23.0%	6.0%	.8%	3.0%	3.9%
Shouldered or tanged points	1.1%	3.5%	1.5%	-	-	-
Chisel ended arrowheads	1.3%	-	-	5.0%	-	-
Axes	x	x	x	x	x	x
Burins	x	x	x	x	-	x

The general impression which one receives from this analysis is that of a group of industries differing in detail but having in common features not found in combination elsewhere. As we shall see below these industries occupy a well defined geographical area and tend to occur on analogous geological formations.

However, there are obviously certain differences as well as an underlying similarity. Horsham diverges from the other industries in that hollow based points are more numerous, and obliquely blunted points and lanceolate points correspondingly less common. Farnham is characterised by a very high proportion of triangles. As Professor Clark (1939, pp.95 ff.) has pointed out, if one examines the ratios of scalene and isocoles triangles it will be found that Horsham diverges from Farnham and Selmeston in that respect:-

	Horsham	Farnham	Selmeston
Isocoles	73	20	3
Scalene	61	108	8

There are several possible causes for such divergencies including differences in age of the sites and regional variation.

Mr. Higgs (1959, p.228) has pointed out that Farnham has twenty one classes or sub-classes of microliths (after Clark, 1939), the microlithic index is high and so is the micro-burin index. Downton, Iwerne Minster and Peasehaven have only thirteen, ten and nine microlithic categories respectively. Moreover, at these three sites burins are rare and flake axes occur, whereas at Farnham burins are not uncommon and flake axes are absent. Chisel ended arrowheads occur at Downton and from the surface at Peacehaven and Iwerne Minster. Therefore, it would appear that Downton, Iwerne Minster and Peacehaven have features in common which are not shared with the Farnham - Selmeston - Horsham complex, and the presence of the chisel ended arrowheads suggests a late date for the former.

The Oakhanger complex of sites are certainly not typical of the Horsham culture as defined by the key sites. Rankine has drawn attention to the following differences:-

1. The microlithic component at Oakhanger is dominated by obliquely blunted points and lanceolate points. However at Farnham these types formed only 41% of the 690 microliths and at Horsham, where they were collected from the surface, they constitute 36% of some 2,000 microliths.

2. The complete absence of triangle-s from Oakhanger makes a major contrast with the situation at Farnham, where they comprise some 25% of the microlithic component.

3. Horsham points are exceedingly rare at Oakhanger (5:c.3,000) by comparison with Horsham (26%) or even Farnham (6%).

However, by reason of the few Horsham points and the axes, the group of sites can be said to have affinities with the Horsham culture.

It is difficult to determine how these variations between the industries should be interpreted and whether or not they represent cultural distinctions. Nevertheless, despite the variations between the percentages of the microlithic types there is an underlying similarity between the industries described above. They are characterised by tranchet axes, burins, scrapers, a variety of geometric and non-geometric microliths and by the presence of the specialised hollow-based point. It is the combination of these elements which make up the Horsham culture.

The vexed question of the Horsham point will be dealt with in the concluding chapter. For the present it is sufficient to say that irrespective of whether it is confined to the Horsham culture, it is overwhelmingly concentrated in south and south east England. The possible reasons for this are discussed below, but it is reasonable to assume that its very limited appearances outside this area in west Britain

are due to cultural contacts between the two areas.

#### (11) DISTRIBUTION

The distribution (fig. 146) of sites of the Horsham culture shows a marked concentration in south east England and the Weald. In this area the Mesolithic occupation appears to avoid the forest-bearing clay lands and occurs in areas with well drained sub soils. This is not surprising as it is extremely unlikely that the Mesolithic peoples would undertake forest clearance when more desirable settlement areas were close at hand (Clark, 1932 A, p.88). Presumably the sandy regions favoured the mode of life pursued by the Mesolithic peoples and the clay lands did not.

It is of interest to note that there appears to have been very little penetration by the Horsham culture beyond the western boundary of Dorset. Research in recent years by Messrs. Sykes and Rankine have established the presence of industries with affinities to the Horsham culture at Birdcombe, Somerset and East Week on Dartmoor. These two industries, together with a Horsham point at Yelland and two stray finds of transept axes from Cornwall, make up the total of evidence for penetration by the Horsham culture into Somerset, Devon and Cornwall.

The same picture has emerged on the other side of the Bristol Channel as a result of research by the writer. Here the evidence for the Horsham culture is even more slender and confined to hollow-based points from Nailsworth in the Cotswolds, Merthyr Mawr Warren in south Wales and Freshwater West in south west Pembrokeshire. However, it may be that the Post-Glacial submergence of the Bristol Channel area has destroyed much of the evidence.

Nevertheless, the evidence as it stands suggests that the Horsham

culture is narrowly distributed in south east and southern England, with little extension outside of that area. The site localities are in the main away from the coasts on well drained sandy sub-soils which suggests an economy based on hunting and not on the collection of the natural produce of the sea shore.

### (iii) CHRONOLOGY

In recent years, absolute dates have been obtained for two sites of the Horsham culture by means of C 14. At Oakhanger (see above), Dr. Dimbleby concluded that the main occupation can be assigned to an early part of the Atlantic period (Zone VII A of the Post-Glacial sequence). Moreover, the C 14 age determination of carbonised hazel nutshells from the same level gave a date of 6,300  $\pm$  120 years B.P.

The second site at High Rocks, Tunbridge Wells, Sussex, produced a date of 3,700  $\pm$  150 B.C. for the Mesolithic occupation of Site E (see above). This date is in general agreement with that obtained for a comparable industry at Oakhanger, Hampshire.

These dates show that industries with Horsham affinities lasted at least until the Atlantic period. It may be significant that the Downton Mesolithic industry, which it is suggested above may be typologically late, is associated with the remains of 'Rhamnus Cathartica' which flourished under the influence of cultivation.

### (iv) ORIGINS

The key to the origin of the Horsham culture is to be found in the combination of microlithic and core axe elements, which immediately suggests a derivation from a Maglemosean stem. The chronology of the two cultures allows for such a derivation, as the Maglemosean is substantially earlier in date than the Horsham culture.

The widespread nature of the Maglemosean colonisation was stressed in Chapter IV, where it was emphasized that far from being a peripheral occupation of the east coast and the Thames, the Maglemosean immigrants penetrated as far west as Bodmin Moor in Cornwall (Wainwright, 1960). This implies a degree of settlement sufficiently substantial to allow the derivation of a purely indigenous culture such as the Horsham.

There are two basic differences between the equipment of the Horsham and Maglemosean cultures. As Clark (1939, p.95) has pointed out, the proportion of core axes and adzes in relation to microliths is substantially lower in the younger culture, as exemplified by these four sites:-

	Axes etc.	Microliths	Ratio
Farnham	15	690	1:46
Selhurst	7	280	1:40
Broxbourne	2	25	1:12.5
Colne Valley	12	81	1:6.75

Secondly, the microlithic forms of the Horsham culture are more varied, including small triangles and other geometric forms, together with specialised forms such as the hollow-based point. The microlithic types of the Maglemosean culture, on the other hand, are very simple and include no geometric forms. Indeed, the Maglemosean microlithic equipment in south Britain does not include more than nine types and sub-types, as opposed to twenty one from Farnham.

In this respect it is of interest to turn to the industry from Abinger, Surrey, which was described (above) as being more primitive than the true Horsham industries. The Abinger industry is composed of an axe element together with burins, scrapers, truncated blades and a simple non-geometric microlithic component. It lacks the true

geometric forms and also the specialised Horsham point. The non-geometric character of the microlithic industry at Abinger may possibly be a reflection of its immediate derivation from a Maglemosean source.

In any case the core axe element suggests derivation in part from a Maglemosean stem, and the maceheads with hour-glass perforation which have been found on certain sites of the Horsham culture, are almost certainly derived from the same source.

However, it has been indicated that the microlithic component of the Horsham culture contains geometric and other specialised forms which are not to be found in the Maglemosean. The problem resolves itself into whether these types are indigenous developments or whether they were introduced from elsewhere. The first suggestion is feasible if one considers the change in environment from the river valleys, which were the chief hunting grounds of the Maglemosean peoples, to the well drained sub soils of the Weald. Owing to the very nature of hunting in lightly wooded territory more emphasis would be placed on the microlithic component. This is supported by the increase in the proportion of microliths to axes already noted above, and the large numbers of microliths found on certain Wealden sites. With this emphasis on the microlithic component the development of specialised types is to be expected.

On the other hand, attention has already been drawn in an earlier chapter to the Sauveterrian culture in western Europe. This culture is characterised by the smallness of the microlithic component, the abundance of triangular forms (particularly the scalene variety) and the absence of trapezes and axes or adzes. The date of this culture on the continent is uncertain, apart from the fact that it is an epipalaeolithic survival and precedes the Tardenoisian.



At Peacock's Farm in Cambridgeshire an industry with suggested Sauveterrian affinities has been identified and assigned to the late Boreal climatic phase (Clark, 1955). If there is a Sauveterrian facies in this country there is little evidence of it in the area of the main distribution of the Horsham culture. Nevertheless, the evidence from Peacock's Farm suggests the presence of such a facies, and if this is the case then it is chronologically feasible to derive some of the geometric forms in the Horsham culture from this source.

In this connection the scalene triangles of the Horsham culture are of particular interest as representing possible cultural borrowings. The proportion of these types is particularly high at Farnham. Moreover, the Sauveterrian does include a very few symmetrical hollow-based points which are present at Peacock's Farm. The borrowing and development of this artifact may have given rise to the so called Horsham point. Clark has pointed out that Farnham and Selveston have both produced micro-trapezoids and ultra-narrow transverse arrowheads, two features which occur at Peacock's Farm (Clark, 1955, p.14).

The absence of true Sauveterrian industries in southern England south of the Thames, has precluded a discussion of the British aspects of that culture. These are in the main confined to the Highland Zone and constitute a special problem.

The Horsham culture is in part derived from a Maglemosean source, and in part a result of either indigenous development in response to a changed environment, or cultural borrowings from a Sauveterrian source. The truth may lie in a fusion of all three influences. Whatever its various origins may be, the Horsham culture is peculiarly insular and has no parallel outside southern Britain. Its relationships with the continental Tardenoisian are of a purely superficial nature and there is no affinity between the two cultures.

## CHAPTER VI

### THE DESCENDANTS OF THE MAGLEMOSEAN IMMIGRANTS

#### 2. THE LOWER HALSTOW CULTURE

##### INTRODUCTION

This culture is represented by a very few industries, all of which are confined to south east England in the vicinity of the Thames. Indeed, only two industries of any size have been discovered which can be assigned with certainty to the Lower Halstow culture. They are both described below and the relevant conclusions will be given after the description of the industries.

##### LOWER HALSTOW, KENT (Fig. 147-148)

The type site of the Lower Halstow culture was discovered by J.P.T. Burchell under deposits of peat in north Kent (Burchell, 1924; 1925). Mr. Burchell identified two distinct flint-working floors, both on the edge of the ancient sunken channel of the Medway.

The more northerly occupied an area of some 100' by 60', resting on London clay and sealed by peat. The industry contains no later admixture and was characterised by a series of small hearth-pits dug into the clay. About 1,100 artifacts were found including one hammerstone and fifteen axe-sharpening flakes.

The more southerly industry was again sealed by a layer of peat, outside which were found leaf-shaped arrowheads and fragments of polished stone axes. This suggests that the Lower Halstow culture is pre-Neolithic. Analysis of the marsh clay on which the industries rest shows that pine had already been superseded by lime. This suggests that the site must have been occupied in Post-Boreal times at some advanced stage in the Atlantic climatic phase.

The most important artifact type is the axe or pick with the tranchet cutting edge, the majority of which are included in the term 'Thames Pick' (fig. 147, 2-4). Axe sharpening flakes are also found fairly commonly (fig. 147, 1). Flake axes (fig. 148, 1-3) are less common than the core variety. Microliths are not very numerous and the most common type is the obliquely blunted point and blades re-touched down one edge (fig. 148, 10-11). Scrapers are common (fig. 148, 7) and burins are occasionally found (fig. 148, 4). Of stone other than flint is a sarsen pebble with opposed hollows (fig. 148, 5), presumably a partially completed macehead with hour-glass perforation, similar to those found on the sites of the Maglemosean and Horsham cultures.

#### CLACTON AND WALTON, ESSEX (Fig. 149)

Two large areas of Mesolithic, Neolithic and Bronze Age occupation sites have been recorded at Clacton-on-Sea and Walton-on-the-Naze, Essex, by S. Hazzledine Warren (1936, et.al.). The occupation debris was recorded from a brown weathering horizon of the underlying London clay and is sealed by 'Scrobicularia' clay. The deposits are exposed on the foreshore at low tide and provide evidence for Post-Glacial fluctuations of the sea level along the Essex coast (Zeuner, 1958, pp. 97-99).

The Mesolithic industry includes eight 'Thames Picks' (fig. 149, 3) with the typical tranchet scar, one core axe (fig. 149, 1) and one flake axe or 'spalter' (fig. 149, 2). About two hundred and sixty more or less complete microliths were recorded (fig. 149, 5-13). The types include obliquely blunted points (Nos. 5-7), lanceolate points (No. 10), numerous scalene triangles (Nos. 11-12) and one ultra-narrow chisel ended arrowhead (No. 13), similar to those found at Peacock's Farm and in the Horsham culture.

The industry as a whole bears a close resemblance to that from Lower Halstow.

#### CONCLUSION

The evidence of the two sites described above suggests that the Lower Halstow culture is confined to south east England and is of late Mesolithic date.

The scarcity of the evidence makes this an ill-defined culture with regard to both the material <sup>its</sup> culture and chronology. The most characteristic implement type is the so called 'Thames Pick' which is associated with both core and flake axes, geometric and non-geometric microliths, scrapers, burins and maceheads with hour-glass perforation. The evidence from Lower Halstow suggests that the culture is to be assigned to the Atlantic climatic phase.

It is likely that the Lower Halstow culture is derived from a Maglemosean source, (e.g. axes and hour-glass perforated macehead), and that, as Clark suggests (in Hazzledine Warren, 1936, pp.202-204), it has a cousinly relationship to the Ertebølle culture.

## CHAPTER VII

### MICROLITHIC INDUSTRIES OF INDETERMINATE TYPE IN SOUTHERN ENGLAND

#### 1. INTRODUCTION

This chapter deals with those industries in eastern and mid-southern England which are not sufficiently distinctive to be assigned to any one culture. They possess no diagnostic types such as tranchet axes or Horsham points, and their only claim to inclusion in this thesis is the presence of microliths and/or Mesolithic type debris. A detailed description of the finds from each locality is not given, and the sites are described as in a catalogue, together with the references to the source of the information and to the accompanying illustrations.

The industries are divided into three groups according to the typology of the material. However, in no case is the material sufficiently distinctive to allow the placing of it in any cultural group. Therefore, the only description of the material will consist of the group in which the site is placed and the accompanying illustrations, which have been provided wherever possible. Owing to the character of the industries, a detailed description of each one would be superfluous.

Despite the nondescript nature of these industries, the writer feels that their inclusion is necessary to complete the survey of Mesolithic industries in southern England. Their lack of distinction does not justify their omission, as they form a part of the evidence for the Mesolithic settlement of that area.

## 2. INDUSTRIES OF NON-GEOMETRIC TYPE

1. Moor Park B (fig. 72, 30-34) (Rankine, 1939, p.100)
2. Tilford, The Bluff, Surrey (Rankine, 1939, pp.109-110)
3. Balcombe Forest, Sussex (fig. 123, 7-10) (Clark, 1932, p.81)
4. West Heath, Sussex, Site 11 (fig. 129, 1-15) (Brailsford, 1937, pp.224-229)
5. Wiston, Sussex (Clark, 1957)
6. East Malling, Kent (Clark, 1932, pp. 70-71)
7. Dummer Group, Hants. (Rankine, 1956, p. 37)
8. Fovant and Dinton, Wiltshire (fig. 150, 11-20) (Engleheart, 1909; Rankine, 1955 A, pp. 157-159; 1955 B)

## 3. INDUSTRIES OF GEOMETRIC TYPE

1. Barnes Common, Surrey (Rankine, 1956, p. 22)
2. Snailslynch, Surrey (Rankine, 1939, pp.102-104)
3. Crooksbury Summit (Rankine, 1939, pp.104-105)
4. Tilford: Sheep Hatch, Surrey (Rankine, 1939, p.115)
5. Seaford Head, Sussex (fig. 151; 152) (Clark, 1932, p.83)
6. Isfield, Sussex (fig. 126, 1-7) (Hooper, 1929; Clark, 1932, pp.81-82)
7. Henfield, Sussex (fig. 123, 18-21) (Clark, 1932, p. 77)

8. Playden, Rye, Kent (Clark, 1932, p.85)
9. Bournemouth, Hants. (Calkin, 1951; Rankine, 1956, p.37)
10. The Nadder Valley, Wilts (Clay, 1925)
11. Broadstone, Dorset (fig. 145, 2-5) Unpublished and described by permission of the owner, J.J. Stonborough.

#### 4. INDUSTRIES OF INDETERMINATE TYPE

1. Wimbledon Common, Surrey (Rankine, 1956, p. 22; Carpenter, 1958)
2. Farnham Cemetery Allotment, Surrey (Rankine, 1939, pp.89-90)
3. Seale Lane, Surrey (Clark and Rankine, 1939, p.115)
4. Cutt Mill and Fullbrook Lane, Surrey (Rankine, 1939, p. 97)
5. Tilford, Handley Common, Surrey (Clark and Rankine, 1939, p.115)
6. Cockshott Hollow, Leith Hill, Surrey (Malden, 1926)
7. Collickmoor, Leith Hill, Surrey (Clark, 1932, pp.71-73; Hooper, 1933, pp.71-74)
8. Pitch Hill, Ewhurst, Surrey (Hooper, 1933, p.74)
9. Woolpit, Ewhurst, Surrey (Rankine, 1956, p.30)
10. St. Catherine's Hill, Surrey (Rankine, 1956, p.30)
11. Trotton Heath, Sussex (Clark, 1932, p.77)
12. Tilgate Forest, Sussex (Willett, 1912)
13. Horsell, Surrey (Hooper, 1933, p.77)
14. Ightham, Kent. (Clark 1932, pp.85-86; Cook, 1934)
15. Stable Meadows Allotments, North Cray, Kent (Parsons, 1956)
16. Beaulieu, Hants. (Fig. 153, 1-10) (Tronbridge, 1936; Rankine, 1940)
17. Wooton, New Forest, Hants. (Seaby, 1950)
18. Armsley, Fordingbridge, Hants. (Rankine, 1956. p.37)
19. Ameysford, Hants. (Calkin, 1951, p.64)
20. Credndell, Hants. (Calkin, 1951, p.65)
21. Chippenham, Wilts. (fig. 150, 1-10) (Tucker, 1954)
22. Cocklebury, Wilts. (Annable. 1959)

23. Farleigh Down, Wilts (fig. 150, 23,25-27) Unpublished and housed in the Kingswood School Museum, Bath.
24. 'The glade', Wilts. (fig. 150,24) Unpublished and housed in the Kingswood School Museum, Bath.
25. Kingsdown, Wilts. (fig. 150, 28) Unpublished and housed in the Kingswood School Museum, Bath.
26. Seapleaze, Wilts. (fig. 150, 21-22) Unpublished and housed in the Kingswood School Museum, Bath.
27. Blashenwell, Dorset. (Clark, 1938; Bond, 1940)
28. Puddletown, Dorset (Rankine, 1956, p.40)
29. Ulwell, Swanage, Dorset (Calkin, 1952, pp.48-49)

## 5. CONCLUSION

The circumstances of the recording of the industry from Ulwell, Swanage, Dorset is of particular interest (Calkin, 1952, pp.48-49). The industry which includes two microliths, a micro-burin, a scraper a serrated blade and cores, appears to have been associated with three artificial pits dug into the natural chalk. Unfortunately the section was exposed in a road cutting and most of the pits were removed. The pits appear to have been filled with some dark material and the majority of the flints, (including several calcined specimens), were recorded from that deposit. This site is of interest as the pits may be analogous with those found at Farnham, Selmeston and Abinger (see above).



CHAPTER VITHE MESOLITHIC OCCUPATION OF THE HIGH GROUNDS  
IN WEST ENGLAND1. INTRODUCTION

A feature of Mesolithic studies in the West Country is not so much the lack of research but dearth of publications. To counter this, the writer has visited every significant collection of material in Cornwall, Devon, Somerset, Gloucestershire and Dorset, both in museums and private hands. As a result a large quantity of material has come to light, which appears to divide itself naturally into industries on the high grounds such as the Cotswolds, the Mendips, Exmoor and Dartmoor, and into sites with coastal economies.

The Mesolithic industries which are described in this chapter are those which have been recorded from the uplands in Gloucestershire, Somerset and Devon. The great proportion of the material is unpublished and has therefore been described and illustrated at first hand. Acknowledgements to museums and individuals are given where they are appropriate. Several industries which are relevant on account of their location have already been dealt with in connection with the Maglemosean or Horsham cultures, (e.g. Nailsworth, Glos.; East Week, Dartmoor and Dozmare Pool, Bodmin Moor). These industries must be borne in mind when discussing the respective groups of sites.

It is clear from the research carried out by the writer in the museums and collections of private individuals that the apparent lack of Mesolithic material west of Dorset is due solely to the lack of publications. The emphasis of study on the more prolific industries of southern and eastern England has led to the neglect of the West Country which the author has attempted to rectify.

## 2. THE COTSWOLDS

Despite the lack of published evidence, flint artifacts are by no means scarce on the Cotswolds for J.H. Cardew describes "many thousands of flint" which he gathered (Cardew, 1890). The majority are of Neolithic and Bronze Age type and Cardew describes nothing which can with certainty be assigned to the Mesolithic period.

However, during the last thirty years, Captain H.S. Gracie of Amberly near Stroud has collected a large quantity of Mesolithic material from the Cotswolds. It is this collection which forms the basis for the Mesolithic occupation of this area, and the writer is grateful to Captain Gracie for permission to examine and illustrate specimens from it. The remainder of the material has been recorded from the museums at Gloucester and Stroud.

### TETBURY UPTON, CHAVENAGE ROAD (Fig. 154, 22-23)

This industry is situated at a height of 400' O.D. and the material is in the private collection of Captain H.S. Gracie. Apart from the usual microlithic debris the industry includes two triangles of scalene and isocetes type respectively (fig. 154, 22-23).

TETBURY UPTON, LEIGHTERTON LANE (Fig. 154, 24-25)

The material from this site is in the collection of Captain H.S. Gracie and includes a fragmentary broad blade retouched along both edges and a fragmentary point retouched along one edge (Nos. 24-25).

LONG NEWNTON, GLOS. (Fig. 155, 1-38)

This industry is situated at a height of about 400' O.D. and was collected by Captain H.S. Gracie from an area of about fifty four acres. The site is one of the most prolific so far recorded on the Cotswolds and has produced a large quantity of debris and thirty six microliths:-

Obliquely blunted points (Nos. 4-8)	6
Points retouched down one edge (Nos. 1, 11-15)	7
Single points (Nos. 2, 10)	2
Angle backed blades (No. 27)	2
Needle shaped points (Nos 24-26)	3
Scalene triangles (Nos. 20, 29-33)	6
Rhomboids (Nos. 34)	1
Crescents (Nos. 28, 35)	2
Unclassifiable	7
Total	36

No true micro-burins were found but two micro-intermediates were recorded (Nos. 36-37).

LEONARD STANLEY, GLOS. (Fig. 155, 39-51)

This industry is situated at a height of 150' O.D. and was collected by H.S. Gracie over an area of about forty acres. A quantity of microlithic debris was found together with thirteen microlithic types:-

Obliquely blunted points (Nos. 39-44)	8
Scalene triangles (Nos. 45-46)	2
Isosceles triangles (No. 47)	1
Truncated blades (Nos. 50-51)	2
Total	13

LEDGEMORE, NAILSWORTH (Fig. 155, 55-57)

This industry was collected from a locality 600' O.D. by H.S. Gracie, and includes two obliquely blunted points (Nos. 55, 57, and a rhomboid (No. 56).

BARTON END, NAILSWORTH (Fig. 155, 58-60)

This industry was collected from a locality 600' O.D. by H.S. Gracie, and includes three fragmentary points retouched down one edge (fig. 155, 58-60).

KINGSCOTE, HAZLECOTE HILL FARM (Fig. 154, 32-39)

This industry was collected from a locality 630' O.D. by H.S. Gracie, with the exception of a lanceolate point (No. 39) which is in the Stroud Museum. The industry includes three obliquely blunted points (Nos. 32-34), a lanceolate point (No. 39), a fragmentary needle shaped point (Nos. 36), a micro-trapezoid (Nos. 38) and two fragmentary points retouched down one edge (Nos. 35, 37).

KINGSCOTE, FRYING PAN FIELD (Fig. 155, 52-54)

This industry was collected by H.S. Gracie from a locality 790' O.D. The industry includes one obliquely truncated blade (fig. 155, 52), a blade with edge retouch (No. 53) and cores (No. 54).

FROCESTER, AGGSBARROW FIELD (Fig. 154, 40-45)

This crude industry was recorded by H.S. Gracie from a height of 350' O.D. The microlithic component consists of one large obliquely blunted point (No. 40) and micro-blades with edge retouch (Nos. 41-45).

BEAVERSTONE, GLOS (Fig. 154, 53)

H.S. Gracie has recorded one fragmentary obliquely blunted point from Beaverstone at a height of 500' O.D.

EASTINGTON PIT (Fig. 154, 49-50)

In the Stroud Museum are two lanceolate points (fig. 154, 49-50) which have been recorded from Eastington Pit in the Cotswolds, at a height of 150' O.D.

CHERINGTON, GLOS (Fig. 154, 51)

In the Stroud Museum is one single point (fig. 154, 51), which has been recorded from Cherington at a height of 600' O.D.

ATHERTON, GLOS (Fig. 154, 52)

In the Stroud Museum is one obliquely blunted point (fig. 154, 52), which has been recorded from Atherton in the Cotswolds.

THRUPP, GLOS (Fig. 154, 54)

In the Stroud Museum is one obliquely blunted point (fig. 154, 54), which has been recorded from Thrupp in the Cotswolds at a height of 600' O.D.

CLIMPERWELL, GLOS (Fig. 154, 56-57)

In the Stroud Museum are one lanceolate point (No. 57) and one single point (No. 56), which have been recorded from Climperwell at a height of 600' O.D.

RODMARTIN, GLOS (Fig. 154, 55)

In the Stroud Museum is a single point (fig. 154, 55), which has been recorded from Rodmartin at a height of 400' O.D.

UNPROVENANCED FINDS (Fig. 154, 46-48)

In the Gloucester Museum are one obliquely blunted point and one lanceolate point (fig. 154, 46-48), which are on record as having come from the Cotswolds.

3. THE MENDIPS

Very little data has been published concerning the Mesolithic occupation of the Mendips. The bulk of the material described in this section is housed in the City Museum, Bristol and the County Museum in Taunton Castle, where it has been examined and illustrated by the writer.

WALTON, SOMERSET (Fig. 156, 1)

The Selley Collection in the City Museum, Bristol, includes one needle shaped point (fig. 156, 1) from Walton in the Mendips.

COMPTON MARTIN, SOMERSET (Fig. 156, 2)

The Selley Collection in the City Museum, Bristol, includes one

single point (fig. 156, 2) from Compton Martin.

SARSDEN, SOMERSET (Fig. 156, 3-5)

Three obliquely blunted points (fig. 156, 3-5) are included in the Selley Collection in the City Museum, Bristol, from Sarsden.

PORTBURY LAND, SOMERSET (Fig. 156, 6)

One obliquely blunted point (fig. 156, 6) has been recorded from Portbury Lane and is included in the Selley Collection in the City Museum, Bristol.

BARROW FIELD, FERNHILL, SOMERSET (Fig. 156, 7)

One blade retouched down one edge and obliquely at the base (fig. 156, 7) has been recorded from Barrow Field, Fernhill, and is included in the Selley Collection in the City Museum, Bristol.

WEST HARPTREE, SOMERSET (Fig. 156, 8)

One blade retouched down one edge and obliquely at the base (fig. 156, 8) identical with the specimen from Barrow Field, Fernhill has been recorded from West Harptree. It is now in the Selley Collection in the City Museum, Bristol.

UBLEY, SOMERSET (Fig. 156, 9-10)

The Selley Collection in the City Museum, Bristol, includes one obliquely blunted point and one rod (fig. 156, 9-10) from Ubley.

FAILAND, SOMERSET (Fig. 156, 11-12)

The Selley Collection in the City Museum, Bristol, includes a

needle shaped point from Failand (fig. 156, 11). Furthermore, the collection of H.S.L. Dewar in the County Museum, Taunton, includes one micro-blade retouched down one edge from the same site (fig. 156, 12).

CLAPTON-IN-GORDANO, SOMERSET (Fig. 156, 13-14)

The Selley Collection in the City Museum, Bristol includes one obliquely blunted point and one point retouched down one edge and obliquely at the base (fig. 156, 13-14), from Clapton-in-Gordano.

SHIREHAMPTON, SOMERSET (Fig. 156, 15-19)

The Selley Collection in the City Museum, Bristol, includes a small industry from Shirehampton. Besides some microlithic debris the industry includes three obliquely blunted points (fig. 156, 15, 17, 18), an obliquely blunted point with opposed oblique retouch at the base (No. 16) and an oblique arrowhead, retouched along all four edges (No. 19).

CHEDDAR ROAD, SOMERSET (Fig. 156, 20)

One obliquely blunted point (fig. 156, 20) from Cheddar Road, is included in the Selley Collection in the City Museum, Bristol.

ABBOTS LEIGH, SOMERSET (Fig. 156, 21-25)

The Selley Collection in the City Museum, Bristol includes a small Mesolithic industry from Abbots Leigh. The microlithic types include three obliquely blunted points (fig. 156, 21-23), one scalene triangle (No. 24) and one isocetes triangle (No. 25).



PRIDDY, SOMERSET (Fig. 156, 26-28)

A Mesolithic industry from Priddy is included in the Selley Collection in the City Museum, Bristol. The microlithic types include one obliquely blunted point, a micro-blade retouched down one edge and a broad point with an incipient tang (fig. 156, 26-28).

CHARTERHOUSE, SOMERSET (Fig. 156, 29-34)

The Selley Collection in the City Museum, Bristol, includes a Mesolithic industry from Charterhouse in the Mendips. The industry includes a quantity of microlithic debris and a series of microliths:-

Obliquely blunted points (fig. 156, 31-32)	2
Lanceolate points (Nos. 29-30)	2
Obliquely blunted points with convex retouch at the base (No. 34)	1

WRAXALL HILL, SOMERSET (fig. 157, 11-23)

A fairly prolific industry has been recorded from Wraxall Hill in the Mendips, the material from which is divided between the Selley Collection in the City Museum, Bristol and the Dewar Collection in the Somerset County Museum at Taunton. The industry includes a quantity of microlithic debris and a series of microliths:-

Obliquely blunted points (fig. 157, 12-14)	3
Lanceolate points (Nos. 11,15)	2
Angle backed blades (No. 20)	1
Single points (No. 16)	1
Scalene triangles (Nos. 17-18)	2
Isocetes triangles (No. 19)	1
Truncated blades (Nos. 21-22)	2
Total	12

he lanceolate point (No. 15) is of chert from the Blackdown Hills, and the industry includes one serrated blade (No. 23).

HYDON FARM, SOMERSET (Fig. 158, 1-5)

The industry from Hydon Farm has been published by Professor Clark (1932, fig. 19) who records three obliquely blunted points (fig. 158, 1-3), one micro-blade retouched down one edge (No. 4) and a single point (No. 5).

WARREN FARM, SOMERSET (Fig. 158, 6)

Professor Clark has recorded one trapezoid (fig. 158, 6) from Warren Farm in the Mendips (Clark, 1932, fig. 19)

KINGSTON PARK, SOMERSET (Fig. 158, 7)

Professor Clark has recorded one scalene triangle (fig. 158, 7) from Kingston Park in the Mendips (Clark, 1932, fig. 19).

TYNINGS FARM NORTH BARROW, SOMERSET (Fig. 158, 8-27)

The excavation of Barrow No. T. 10 of the Tynings Farm Barrow Group by Mr. H. Taylor, produced a quantity of flints and potsherds from the material composing the body of the mound (Taylor, 1933, pp. 105-106). The flints include a mixture of Mesolithic and Neolithic types, and it was suggested by the excavator that they represent an instance of the survival of Mesolithic types into the Neolithic period.

However, a possible explanation of the association of these types, is that they were lying on the ground prior to the construction of the barrow, in which they were incorporated when the raising of the mound took place. This suggestion is supported by the fact that flints

were recorded from below the turf-line underneath the barrow, thus proving the existence of a chipping floor on the site prior to the construction of the mound.

The significant implement types are illustrated in fig. 158, 8-27 and on typological grounds a series of microliths can be isolated:-

Micro-blade retouched down one edge (No. 9)	1
Scalene triangles (Nos. 10-12)	3
Crescents (No. 8)	1

It is possible that the serrated blades and flakes (Nos. 13-16) are also to be associated with the Mesolithic industry, but they may also form part of the Neolithic component (Nos. 19-27)

#### GORSEY BIGBURY, SOMERSET

Microliths have been found associated with chipping debris, a core and beaker pottery in a ditch at the Iron Age site of Gorsey Bigbury (Taylore, 1933, p.114). It is probably that here, as at Tynings Farm, one has a mixture of periods.

#### SEA MILLS, SOMERSET (Fig. 158, 28-29)

Professor Clark has recorded a lanceolate point and on obliquely blunted point with opposed oblique retouch at the base (fig. 158, 28-29), from Sea Mills in the Mendips (Clark, 1932, p.40).

#### OLD SNEYD PARK, SOMERSET (Fig. 158, 30-31)

Professor Clark has recorded a lanceolate point and a scalene triangle (fig. 158, 30-31) from Old Sneyd Park (Clark, 1932, p.40).

#### TOG HILL, BRISTOL (Fig. 157, 24-28)

In the collection of Captain H.S. Gracie is an industry, from

Tog Hill near Bristol, which includes three obliquely blunted points (fig. 157, 24-26), a fragmentary point retouched down one edge (No. 27) and a truncated blade (No. 28).

CHILCOMPTON, SOMERSET (Fig. 156, 35)

One obliquely point from Chilcompton is included in the Dewar collection in the County Museum, Taunton.

CADBURY CAMP, TICKENHAM (Fig. 156, 36)

The Dewar collection in the County Museum, Taunton, includes one lanceolate point from Cadbury Camp, Tickenham.

GUP HILL, SOMERSET (Fig. 156, 37-38)

The Dewar collection in the County Museum, Taunton includes two fragmentary points retouched down one edge from Gup Hill in the Mendips.

UNPROVENANCED (Fig. 156, 39-41; fig. 158, 32-35)

Professor Clark has published a series of microliths from unknown localities on the Mendips (fig. 158, 32-35). The types include a single point (No. 34) a lanceolate point (No. 33) a blade retouched down one edge and obliquely at the base (No. 35) and a trapezoid (NO. 32).

In the Jones collection in the County Museum, Taunton, are a small series of microliths from "the Mendips". They include two obliquely blunted points (fig. 156, 39-40) and a micro-blade retouched down one edge (No. 41).

#### 4. EXMOOR AND THE QUANTOCKS

##### HAWKECOMBE HEAD, EXMOOR (Fig. 157,1-6; fig. 159)

Mr. A.L. Wedlake of Watchet, Somerset, has identified several prolific chipping floors in north Somerset. The material from these sites is in his private collection and the writer is indebted to him for permission to examine and illustrate the specimens.

One of the most extensive sites is that on Hawkecombe Head on the north edge of Exmoor. The site was identified by Mr. Wedlake, and the bulk of the material is in his possession, but a selection of the finds from the site are housed in the County Museum Taunton where they were examined by the writer.

The industry rests directly on the bed rock (Devonian Shale) and is sealed by 9" - 10" of peat. The site covers about 100 square yards and there are no later admixtures. The vast majority of the raw material is a poor quality flint with occasional fragments of chert derived from the Blackdown Hills to the east. In this the industry differs from the others in north Somerset where the proportion of Blackdown chert can be as high as 60%.

The waste material from the flint working runs into several thousands and the microlithic types are as follows:-

Microlithic rods retouched down one edge (fig. 159, 1-29)	30
Lanceolate points (fig. 159, 35-40)	8
Obliquely blunted points (fig. 159, 44-52)	8
Needle shaped points (fig. 159, 30-34)	5
Single points (fig. 159, 41-43)	3
Scalene triangles (fig. 159, 53-60, 63)	9
Crescents (fig. 159, 61)	1
Total	64

Micro-burins (fig. 157, 4-6)	20
Krukowski burins (fig. 159, 64)	1

A feature of the microlithic component is the unusually high number of microlithic rods retouched down one edge, and the correspondingly low proportion of obliquely blunted points. The former constitute nearly 50% of the microlithic component. The poor quality of the raw material may have contributed to the exceptionally microlithic character of the specimens. The ratio of micro-burins to microliths is very high (1:3) and the significance of the Krukowski burin will be discussed in an appendix. The geometric element consists of nine scalene triangles and a single crescent with no sign of an axe or adze element. This suggests that the industry may have affinities with the British facies of the Sauveterrian. However, the preponderance of the microlithic rods gives the industry an individual aspect which cannot be paralleled in any one culture.

It is very rare that objects are found on a Mesolithic site which have any value apart from a utilitarian one. Therefore, the shale pebble with an hour-glass perforation (fig. 159, 62) is of interest as it was probably a pendant.

#### RYDON HILL, QUANTOCKS

Mr. A.L. Wedlake has recorded a Mesolithic site at Rydon Hill on the foothills of the Quantocks. The predominant raw material is chert from the Blackdown Hills.

#### THE BRENDON HILLS (Fig. 157, 7-10)

Mr. A.L. Wedlake has recorded three obliquely blunted points and one lanceolate point from the Brendon Hills (fig. 157, 7-10).

In each case the raw material is chert from the Blackdown Hills.

## 5. DARTMOOR

As in the case of the other areas described in this chapter, very little evidence for the Mesolithic occupation of Dartmoor has been published. The majority of the material described below has been recorded by the writer from unpublished collections in Devon.

### PORTBRIDGE, DARTMOOR (Fig. 160, 1-5)

Mr. J.W. Brailsford has drawn attention to a microlithic site at Ringhill near Postbridge on Dartmoor (Brailsford, 1938) p.460). The site is about 1130' above O.D. and consists of an occupation layer containing charcoal, a hearth, micro-burins, microliths and cores, sealed by a deposit of peat. Implements of later date have also been found on the site.

No description of the material from the site is give by Mr. Brailsford, but a selection of it is housed in the Exeter Museum and the Torquay Natural History Museum. The collections are those of W.J. Wallace at Exeter and Bell Cox and Isaac Carr at Torquay.

Apart from a quantity of waste flakes and spalls the collections include one obliquely blunted point (fig. 160, 4), a microlithic rod (No. 2) a needle shaped point (No. 5) a scalene triangle (No. 1) and a micro-burin (No. 3). The raw material is flint which was presumably brought from the coast.

### TAW MARSH, DARTMOOR (Fig. 160, 6-9)

The M. Pease collection in the Exeter Museum includes a small collection of material from Taw Marsh on Dartmoor. The microlithic

types include a needle shaped point (No. 9) a single point (No. 6) and two points retouched down one edge (Nos. 7-8).

BATWORTHY, DARTMOOR (Fig. 160, 10-13)

In the Plymouth Museum are a large collection of flints from Batworthy on Dartmoor. The majority consists of unpatinated waste debris but there are also a few microliths which are patinated white. These include an obliquely blunted point (fig. 160, 11) a point blunted down one edge and obliquely at the base (No. 10) and two blades with edge retouch (Nos. 12-13).

GIDLEIGH COMMON, DARTMOOR (Fig. 161)

Mr. T.H. Russel has collected a large quantity of microlithic material from Gidleigh Common on Dartmoor. His collection is now in the Torquay Natural History Museum where it has been examined and illustrated by the writer.

Together with thousands of waste flakes and spalls are a number of scrapers on the ends of blades (fig. 161, 39-42), numerous cores (including one of Broom chert) and a series of microliths. Apart from the core of chert from the Blackdown Hills in Somerset, the raw material is a poor quality flint. An analysis of the microlithic types provides the following results:-

Obliquely blunted points (fig. 161, 7, 19, 21, 22, 26, 28, 29)	7
Lanceolate points (Nos. 20)	1
Microlithic rods retouched down one edge (Nos. 3-6, 8, 31)	7
Needle shaped points (Nos. 1, 2, 17, 18)	6
Oblique arrowheads (No. 23)	1
Scalene triangles (Nos. 9-14)	6



Crescents (No. 16)	2
Total	30
Micro-burins (Nos. 32-38)	12

The exceptionally microlithic character of the industry and the seven microlithic rods, are reminiscent of the industry from Hawkecombe Head, Exmoor. However, the former may be due to the poor quality of the raw material and latter are not nearly so numerous on the Dartmoor site. Indeed, the latter with the scalene triangles, needle shaped points and the microlithic character of the industry, may well be described as having Sauveterrian affinities. This conclusion is substantiated by the absence of axes or adzes. The significance of these affinities will be discussed below when the whole question of the Sauveterrian in southern Britain will be dealt with.

#### PRINCETOWN, DARTMOOR

Mr. S. Bate (1870) and C. Barham (1866) have drawn attention to a large number of flint flakes found near Princetown on Dartmoor. The industry was found on the surface of the gravelly subsoil, over which had accumulated about 6' of peat.

#### 6. CONCLUSION

With certain exceptions, the industries described above as coming from the high grounds in the West Country, are not sufficiently prolific to allow any conclusions to be drawn concerning them. In general, they appear to be of geometric type with no evidence of an axe or adze component. It has already been indicated that stray finds of tranchet axes are very rare in west England and confined to two examples from

Cornwall. This suggests the possibility that the industries from the uplands <sup>in</sup>west England are of geometric type with no heavy equipment.

This view is substantiated by the evidence from the three most prolific industries - Long Newnton, Hawkecombe, Head and Gidsleigh Common, all of which are unpublished.

VARIETY	LONG NEWNTON	HAWKECOMBE HEAD	BIDSLEIGH COMMON
Obliquely blunted points	6	8	7
Lanceolate points	-	8	1
Microlithic rods	7	30	7
Single points	2	3	-
Needle shaped points	3	5	6
Oblique arrowheads	-	-	1
Angle backed blades	2	-	-
Scalene triangles	6	9	6
Rhomboids	1	-	-
Crescents	2	1	2
Unclassifiable	7	-	-
Total	36	64	30

There are certain typological similarities between these three industries:-

(i) The emphasis on the production of micro-blades and the exceptionally microlithic character of the industries.

(ii) The significant proportions of needle shaped points and scalene triangles.

(iii) The absence of axes and adzes.

These features also represent the chief characteristics of the con-

tinental Sauveterrian (see Chapter 1), and without prejudice to their origin it is suggested that these industries represent one aspect of the British facies of that culture. The problem of origin will be dealt with in a later chapter, when the question of a Sauveterrian facies in southern and western Britain will be discussed.

## CHAPTER 1X

### SITES WITH COASTAL ECONOMIES IN WEST ENGLAND

#### 1. INTRODUCTION

The group of sites described in this chapter comprise the great bulk of the Mesolithic material from west England, and pose the most difficult chronological and cultural problems. The majority of the material described below is unpublished and has been described and illustrated by the writer in museums and private collections in Somerset, Devon and Cornwall. Where the material has previously been published it has also been examined at first hand.

The industries are distributed along the coasts of Somerset, Devon and Cornwall, a fact which in itself involves a complete change of environment and economy from the Horsham culture of the Weald. This environmental change from the well drained sub soils of southern and eastern England to the cāosts of the West Country, is so marked as to imply a corresponding economical and cultural change. This has been foreshadowed when dealing with the Horsham culture, whose distribution is confined mainly to southern and eastern England, with very little penetration into the West Country and south Wales.

For this reason the littoral communities of Somerset, Devon and Cornwall have been dealt with in this chapter as a single economic and cultural unit, although the industries show slight regional variations

The division of the material by counties is a purely arbitrary one, and has been employed to facilitate its presentation.

## 2. SOMERSET

### DONIFORD CLIFF, SOMERSET (Fig. 162, 1-13)

Mr. A.L. Wedlake of Watchet, Somerset, has identified a number of Mesolithic sites in north Somerset, the material from which is in his private collection. The writer is grateful to Mr. Wedlake for permission to examine and illustrate this material.

Amongst the collection is a microlithic industry from Doniford Cliff in north Somerset. The raw material is predominantly chert from the Blackdown Hills to the south, and amongst a quantity of waste flakes and cores are a series of microliths and one burin. The microlithic types are in the main fragmentary (fig. 162, 1-12) but they include six obliquely blunted points (Nos. 1,3,5-7,9) and one angle backed blade (No. 2). The burin (Nos. 13) is of a common prismatic type.

### DONIFORD HEIGHTS, SOMERSET (Fig. 162, 14-25)

In the collection of Mr. A.L. Wedlake is an industry from high ground to the south of the Doniford Cliff site. The great proportion of the raw material is chert from the Blackdown Hills, and the industry includes a series of microliths:-

Obliquely blunted points (fig. 162,14,15,18)	3
Single points (No. 24)	1
Micro-blades retouched down one edge (Nos. 23, 25)	2

Isocelles triangles (No.20)	1
Crescents (Nos. 16-17)	2
Trapezoids (No. 19)	1
Total	11

The industry also includes micro-burins (Nos.21-22) and may best be described as being of indeterminate geometric type.

#### WATCHET, SOMERSET (Fig. 162, 26-36)

In the County Museum in Taunton Castle is a Mesolithic industry from Watchet in north Somerset, which includes a series of microliths, waste flakes, cores and scrapers. As before, the raw material is predominantly chert from the Blackdown Hills to the south.

The microlithic types include one point retouched down one edge (No. 27) a single point (fig. 162, 26) and a blade with inverse re-touch along part of one edge (No. 29). Other types include a truncated blade (No.31), two micro-burins (Nos. 32-33) a hollow scraper (No.30) and a discoidal scraper (No. 34).

#### BLUE ANCHOR, SOMERSET (Fig. 163)

Mr. A.L. Wedlake has collected a fairly prolific industry from the surface of a ploughed field at Blue Anchor in north Somerset. The material is now in his private collection. A strong Neolithic admixture was found on the site and about 30% of the raw material is chert from the Blackdown Hills. The remainder is a poor quality flint obtained from the shore. The industry includes a series of microliths and three burins. The coarse texture of the chert is reflected in the rather crude character of certain of the microliths (fig. 163, 1-18).

Obliquely blunted points (fig. 163, 1,8,9,11-15 18,21,22,28,34,35,37)	17
Lanceolate points (Nos. 6,16,17)	3
Microlithic rods (Nos. 23,25)	3
Needle shaped points (No. 31)	1
Trapezoids (Nos. 2,3,26)	3
Crescents (No. 27)	1
Tanged points (No. 30)	1
Unclassifiable	6
Total	35
Micro-burins (Nos. 38-39)	23
Krukowski burins (No. 19)	1

The three burins (fig. 163, Nos. 40-42) are of simple type, No. 40 having had burin blows struck from both ends.

In general the industry is characterised by a combination of geometric and non-geometric forms, a very high ratio of micro-burins to microliths (23:35) and the presence of burins. The tanged point (No. 30) is an unusual form for a Mesolithic industry and the question of the Krukowski burins will be dealt with in an appendix.

#### CHARLECOMBE BAY, SOMERSET

Mr. C.M. Sykes has recorded an industry based on a spring 50' - 100' above sea level (Sykes and Whittle, 1960, p.115). The majority of the flints are of Neolithic or Bronze Age date, but Mesolithic types include one obliquely blunted point, one fragmentary microlith, several small cores and a multi-faceted graver.

#### PORLOCK AND MINEHEAD, SOMERSET

In 1869 W. Boyd Dawkins and H.H. Winwood excavated part of the

submerged forest between Porlock and Minehead and found flint and chert flakes "embedded in the upper ferruginous portion" of a deposit of angular detritus (Boyd Dawkins, 1872). The industry was overlain by a blue estuarine mud followed by a deposit of plant growth. The chert was derived from the Blackdown Hills in Somerset.

No artefacts were recorded, but the industry represents a Mesolithic occupation of the Severn Valley, prior to the Late Boreal/Atlantic submergence which formed the Bristol Channel.

#### NORTH HILL, MINEHEAD

Mr. W.F. Rankine has recorded a microlithic industry from North Hill, Minehead (Rankine, 1956, p.44).

#### STAR ROMAN VILLA, SOMERSET

Excavations at Star Roman Villa, Somerset, have revealed a stratified deposit of Mesolithic material in the form of a core and several flint flakes (1).

### 3. DEVON

#### NORTHAM BURROWS, DEVON (Fig. 164, 12-15)

The H.H. Winwood collection in the City Museum, Bristol, includes eleven micro-burins, two cores, a few blades and waste fragments from Northam Burrows, Devon (fig. 164, 12-15).

(1) Information in a letter from J. Barton, City Museum, Bristol.



BAGGY POINT, CROYDE (Fig. 165)

Flint flakes and implements have been recorded in large quantities from Baggy Point near Croyde in north Devon. Many authorities, including Sir John Evans (1897, p.279), have remarked upon the frequency with which they occur. Mr. S. Bate has recorded their association with pebble tools together with numbers of calcined flints (Bate, 1870), and in 1863 T.M. Hall undertook an excavation at the site (Hall, 1864). Mr. Hall provided this record of his excavation:- "The exact locality where the flints are found is at Baggy Point, a wild and desolate promontory, bounding Barnstaple Bay on the north side. I have found them scattered, though sparingly, over a piece of ground about eighty yards square, but the chief deposit of flakes is situated at a depth of from two to four feet, in a hard and compact soil".

Owing to the site being a favourite one for the collectors of flints, the material is scattered through at least seven museums in Devon and Somerset, where it has been examined by the writer. The collections and the respective museums are as follows:- H.H. Winwood Collection, City Museum, Bristol; I. Rogers Collection, Bideford Museum; T.Young Collection, Exeter Museum; I. Rogers Collection, Torquay Natural History Museum; Ilfracombe Museum; the Athenaeum, Barnstaple and Plymouth Museum.

Apart from a large quantity of waste flakes, blades, scrapers and cores, the following microlithic types have been identified.

Obliquely blunted points (fig. 165, 11-13, 15, 20-22, 24, 28-29 31, 34)	12
Lanceolate points (Nos. 26, 27, 30, 32)	4
Microlithic rods (Nos. 2-6, 8, 10, 14, 17, 18, 25, 39)	13
Single points (Nos. 7, 19, 35, 40)	4
Symmetrical point with concave retouch at the base (No. 33)	1

Scalene triangles (Nos. 1,9)	2
Crescents (No. 16)	1
Unclassifiable	2
Total	39

Only two micro-burins have been found (Nos. 41,42) which seems an abnormally low number. The microlithic industry as a whole is characterised by the small size of the artifacts and by the predominance of non-geometric types over the geometric variety. The small size of the microliths is a feature which is very frequent in the littoral industries of the West Country, and may be due to the poor quality of the beach flint, which was virtually the sole source of raw material for the majority of the sites. The predominant microlithic types at Baggy Point are the microlithic rod blunted down one edge and the obliquely blunted point. These features call to mind the Sauveterrian type industries from Hawkecombe Head and Gidsleigh Common, but only two scalene triangles were recorded and the needle shaped point is absent.

Therefore, the industry from Baggy Point is predominantly non-geometric with a very few geometric forms. Amongst the non-geometric types the microlithic rod is most common.

#### WESTWARD HO, DEVON (Fig. 166-168)

In 1863-1864 the erosion of the beach at Westward Ho in north Devon exposed a submerged forest and a 'kitchen midden'. In later years E.H. Rogers collected Mesolithic industries from these deposits which he then published (Rogers, 1946). The bulk of the material from the site is housed in the Torquay Natural History Museum, but small collections of flints from the site are in the Bideford Museum,

the Ilfracombe Museum and the Athenaeum, Barnstaple, where they have been examined by the writer. The majority of the fauna from the site is in the Athenaeum, Barnstaple.

The sequence of deposits in the vicinity of the kitchen midden is given in fig. 166. They are as follows:-

1. Outer peat which seals the blue clay
2. Upper blue clay - seals the kitchen midden
3. The kitchen midden - rests directly on the lower blue clay.

#### The industry from the kitchen midden

The flints from the midden are patinated white whilst those from the peat are unpatinated. The former include cores, flakes, blades and scrapers, together with a series of microliths (fig. 157).

Obliquely blunted points (Nos. 17-19)	4
Lanceolate points (Nos. 12,14,15)	3
Microlithic rods (Nos. 3,4,9-11)	5
Needle shaped points (No. 13)	1
Scalene triangles (Nos. 1,2)	2
Single points (No. 21)	1
Sub triangular forms (Nos. 5-7,16)	4
Total	20

Micro-burins and micro-intermediates	15
--------------------------------------	----

The industry is therefore of rather indeterminate type, rather microlithic with an association of geometric and non-geometric forms.

On account of the two scalene triangles and one needle shaped point the industry may be of Sauveterrian type, but it is not sufficiently distinctive to be able to say so with certainty. As at Baggy Point, microlithic rods are the most common form, if that is significant when so few microliths were found.

The industry from between the peat and the clay

A Mesolithic industry has been recorded from between the blue clay and the peat, which has produced flakes, cores and a few microliths (fig. 168, 5-10). The microlithic types include an obliquely blunted point, a microlithic rod, and an obliquely blunted point with opposed oblique retouch at the base (Nos. 5-7).

The industry from the outer peat

A Mesolithic industry has been recorded from the outer peat (fig. 166), which overlies the kitchen midden. The industry includes one scalene triangle, flakes and cores (fig. 168, 11-19), and is certainly stratigraphically later than those from the kitchen midden and from between the peat and the clay.

EAST ALLINGTON, DEVON (Fig. 160, 14-15)

In the J.F.S. Stone collection in the Exeter Museum are a small collection of flakes and spalls including one large obliquely blunted point and one blade with edge retouch (fig. 160, 14-15)

BEER HEAD, DEVON (Fig. 169)

Beer Head in south Devon represents the most westerly outcrop of chalk with flints and there is a break of twenty miles between it and the Dorchester downs. It is productive of an extremely beautiful and flawless jet black flint of a very fine fracturing quality and gunflints were made on the site early in the last century. The site has been published in a series of papers by J.A. Powell and G.A. Woods (Powell, 1920; Woods, 1925; 1929; Woods, G.A. and R.M., 1937).

Flints of all periods have been found on the site, mainly by surface collection. G.A. Woods undertook a small excavation and at one point found a loose heap of one thousand five hundred chippings, resting

on the subsoil and sealed by one foot of humus. However, from the researches of G.A. Woods it is possible to isolate on typological grounds a small Mesolithic component. Large quantities of material from the site are housed in the British Museum and in the Stone collection in the Exeter Museum.

The Mesolithic component consists of micro-burins, micro-blades with edge retouch, a few obliquely blunted points, flakes with irregular retouch, cores and scrapers (fig. 169). The majority of the material from the site consists of Neolithic and Bronze Age types.

#### WOOLACOMBE, DEVON (Fig. 170, 19-30 )

In the Plymouth Museum are a collection of flints from Woolacombe in south Devon. Mr. T. Young records a few flints from this site, some of which were fine crackled, and "they were found embedded in a thin layer of brown earthy clay which contained many particles of charcoal" (Young, 1906). The deposit was sealed by wind blown sand.

The collection in the Plymouth Museum includes cores, scrapers and a series of microliths:-

Microblades retouched down one edge (fig. 170, 19, 22-24)	4
Single points (No. 20)	1
Points retouched down one edge and at the base (Nos. 25-26)	2
Needle shaped points (No. 20)	1
Crescents (No.21)	1
Total	9

#### STADDON, DEVON

In the Plymouth Museum is a quantity of typical microlithic debris including blades and cores but no distinctive microlithic types.

SPREACOMBE, DEVON (Fig. 170, 31-37)

In the Plymouth Museum is a Mesolithic industry from Spreacombe in south Devon. The industry includes a quantity of microlithic debris, one flint 'punch' (fig. 170, 35) and a series of microliths. The microlithic types include one obliquely blunted point (No. 36) and one needle shaped point (No. 31)

TEIGNCOMBE, DEVON (Fig. 164, 20)

In the Plymouth Museum is a small Mesolithic type industry from Teigncombe which includes one micro-burin (fig. 164, 20).

NETHERDOWNS, DEVON (Fig. 170, 38)

The Mesolithic site at Netherdowns is on a 50' terrace on the right bank of the Torridge below Weare Gifford. The material is in the Rogers Collection in the Torquay Natural History Museum and includes cores, blades, waste fragments and one lanceolate point (fig. 170, 38)

ORLEIGH BIDEFORD, DEVON (Fig. 164, 1-6; fig. 171)

Four miles south west of Bideford an area of about  $\frac{3}{4}$  of a square mile is covered by a gravel deposit containing an abundance of flint nodules. The Mesolithic industry is situated on this deposit a little above the 200' contour (fig. 171). The site has been described by Simpson and Rogers (1937) and the material is now housed in the Torquay Natural History Museum. The industry includes two points retouched down one edge (fig. 164, 1-2), a notched blade (No. 3), cores (No. 6), blades and waste fragments.

HARTLAND, DEVON (Fig. 170, 39)

The Egerton-Godwin Collection in the Torquay Natural History Museum includes one lanceolate point from Hartland in north Devon (fig. 170, 39).

TORRINGTON, DEVON (Fig. 164, 7-11)

A collection of microlithic material from Torrington in the Torquay Natural History Museum, includes two obliquely blunted points (fig. 164, 7-8), a microlithic rod (No. 10), a scalene triangle (No. 9) and a micro-intermediate (No. 11).

EAST BUDLEIGH COMMON, DEVON (Fig. 170, 13-16)

The L.S. Palmer collection in Sidmouth Museum includes a quantity of blades, flakes and cores from East Budleigh Common in south Devon. The industry includes three obliquely blunted points (fig. 170, 13-15) and one point retouched down one edge (No. 16).

MUTTERS MOOR, DEVON (Fig. 170, 17-18)

Mrs. E. Smith has collected a large quantity of flints from the surface of Mutter's Moor near Sidmouth in south Devon (Smith, 1952, pp.133-140). The material is housed in the Sidmouth Museum and in the private collection of Mrs. E. Smith, to whom the writer is indebted for permission to examine the material.

The collection represents a variety of cultural types ranging from Mesolithic to Bronze Age with a particularly strong Secondary Neolithic component. The majority of the material including small tranchet axes, picks and fabricators can be assigned to this last phase. However, two obliquely blunted points in the Sidmouth Museum (fig. 170, 17-18) may represent a Mesolithic element.

WOODBURY COMMON, DEVON (Fig. 170, 1-12)

A flint industry has been recorded by Mr. L.S Palmer "from under a layer of peat" (1), on Woodbury Common in south Devon. The material from the site is housed in the Sidmouth Museum and includes eight obliquely blunted points (fig. 170, 1-7, 9), one needle shaped point (No. 12) and three fragmentary points retouched down one edge (Nos. 8, 10, 11).

LUNDY ISLAND (Fig. 172)

A collection of flints from Lundy Island off the north Devon coast is housed in the Plymouth Museum. The majority of the material is indeterminate and includes quantities of cores, flakes, blades and scrapers. A possible Mesolithic element is represented by two blades retouched down one edge (Nos. 1-2) a flake retouched down one edge and at the tip (No. 3) and a doubtful angle-burin (No. 4).

PORTSMOUTH ARMS STATION, DEVON

A Mesolithic industry has been recorded from Portsmouth Arms Station in north Devon (Clark, 1932, p. 46).

SALCOMBE, DEVON

A series of microliths and a micro-burin have been recorded from Salcombe in south Devon (Clark, 1932, p. 46).

SAUSTON DOWN, DEVON

Microliths, cores, scrapers and flakes have been recorded from Sauston Down in north Devon (Young, 1906).

(1) Information from Mr. L.S. Palmer



ELMSCOTT, DEVON

South of Hartland Point at Manley Cliff, Mr. K. Gardner has carried out an exploratory excavation at a spot where Mesolithic flints occur on the surface (Rankine, 1956, p.45). The industry includes microliths, micro-burins, cores and pebble-tools.

4. CORNWALLINTRODUCTION

In common with the remainder of west England, very little evidence has been published concerning the Mesolithic period in Cornwall. The bulk of the research was done in the first twenty years of this century by J.G. Marsden, and in recent years Mr. A.C. Thomas has systematically excavated a series of Mesolithic industries at Gwithian. The distribution of the sites under discussion is predominantly coastal and the majority are at the heads of small valleys near springs or exposed in cliff sections (Thomas, 1958 A, pp.9-12). About forty sites have been located by the writer in museums and private collections, the material from which helps to fill the lacuna in our knowledge of this area. As when discussing Dorset, Gloucestershire, Somerset and Devon, the material described below has been examined at first hand in museums and private collections and has been supplemented by the few publications on the subject.

BUDE, CORNWALL (Fig. 173, 24-28)

In the F. Brent collection in the Plymouth Museum are a number of cores and one lanceolate point (fig. 173, 24-27) from Bude in Cornwall. Moreover, the Winwood collection in the City Museum, Bristol, includes

one micro-burin from the same site (fig. 173, 28).

CARN BREA, CORNWALL (Fig. 174, 18)

One single point is included in a small collection of material, from Carn Brea in the Plymouth Museum.

KYNANCE MOOR, CORNWALL (Fig. 175, 15-19)

Thousands of waste flakes and cores from Kynance Moor are housed in Plymouth Museum. There are no recognisable microlithic types but the collection includes numerous cores of Mesolithic character (fig. 175, 15,16,19) and two 'limpet scoops' (Nos. 17,18), one of which (No. 18) was broken in antiquity.

PALMER'S BRIDGE, BOLVENTOR, ALTURNUN, CORNWALL (Fig. 175, 11-14)

A collection of flints from Palmer's Bridge, Alturnun, housed in the Plymouth Museum, includes two lanceolate points (fig. 175, 11-12) a notched blade (No. 13) and a blade with inverse retouch at the base (No. 14)

LELANT TOWNAS, CORNWALL (Fig. 182, 41-43)

The F. Brent collection in the Plymouth Museum includes a quantity of waste flakes, cores and scrapers from Lelant Townas in north Cornwall.

POLURRIAN, CORNWALL (Fig. 174, 9-16)

A large collection of waste flakes and spalls is housed in the Plymouth Museum from Polurrian in Cornwall. A small percentage of them are calcined and the collection includes truncated blades, scrapers, and cores (fig. 174, 9-16)

CONSTANTINE BAY, CORNWALL (Fig. 176)

A microlithic industry from Constantine Bay in north Cornwall was published by Professor Clark in 1932 (pp. 42-44, fig. 22) and the material is now in the University Museum of Archaeology and Ethnology at Cambridge. A general description of the site has also been published by H.G.O. Kendall (1913). Material from the site is also housed in the Plymouth and Truro Museums.

The various collections from the site include quantities of cores, blades and flakes, together with a series of microliths:-

Obliquely blunted points (fig. 176, 1-4,8,9,11 13,19,20)	13
Points retouched down one edge (Nos. 5-7,10)	4
Single points (	1
Total	18

The industry also includes micro-burins (No. 15), saws (Nos. 17,18) and scrapers (No. 16)

LAND'S END, CORNWALL (Fig. 174, 1-8)

Thousands of waste flakes, spalls and cores are included in the Brent collection in the Plymouth Museum from Land's End. The collection includes blades with edge retouch (Nos. 3-4), scrapers (No. 5) and cores (Nos. 1,2,6-8).

PADSTOW, CORNWALL (Fig. 173, 29-30)

A collection of blades, flakes and cores from Padstow are housed in the Plymouth Museum. The collection includes one obliquely blunted point with opposed retouch (No. 29).

MAKER, CORNWALL (Fig. 173, 19-23)

The Lewis collection in the Plymouth Museum includes thousands of

waste flakes, spalls and cores from Maker in Cornwall. The collection includes blades with edge retouch (fig. 173, 22-23), a micro-burin (No. 21) and cores (Nos. 19,20).

#### GWITHIAN, CORNWALL (Fig. 177-180)

During the last ten years Mr. C. Thomas has excavated a series of Mesolithic sites on the Gwithian peninsula in north Cornwall (fig. 27). A brief description of the material has been published (Thomas, 1958,B), and the writer is grateful to Mr. Thomas for permission to examine the material which is in his private collection, and to illustrate the artifacts.

#### Site G.B.

This site consists of a small chipping floor which was found below a ruined Middle Bronze Age barrow. The industry is of particular interest as it demonstrated the association of a microlithic industry with a series of pebble tools (fig. 177; 178). The flint industry is sparse but distinctively Mesolithic, consisting as it does of waste flakes, a microlithic rod (fig. 177,1) and a micro-burin (fig. 177,2). The pebble tools are particularly numerous and include pounders (fig. 177,3,5), anvils (fig. 177,7), a grooved pebble (fig. 177,4), a pebble with a large notch worked in a concave edge (fig. 177,6) and a series of 'limpet scoops' (fig. 178). The pebbles are virtually all of Old Red Sandstone and were obtained from the neighbouring beach. The grooved pebble (No. 4) was presumably used for grinding, the notched pebble as a hollow scraper or spokeshave and the 'limpet scoops' show the characteristic bevelling of the ends.

The common occurrence of pebble tools, particularly the 'limpet scoop', is a feature of the Cornish Mesolithic industries and, as we shall see below, they are even more common in Wales. This suggests

some community of culture between the two peninsulas of south west Britain.

Site G.V.

A surface scatter of cores and flakes.

Site G.I.

This industry includes one micro-burin and two scrapers (fig. 179, 9-11), together with waste flakes and spalls.

Site H.V.

This industry was collected from the surface and includes a quantity of cores and flakes, together with a series of microliths:-

Obliquely blunted points (fig. 179, 15,16,20)	3
Lanceolate points (No. 12)	1
Micro-blades retouched down one edge (fig. 179 13,14,21-23)	5
Needle shaped points	1
Total	10

The industry also includes blades and flakes with edge retouch (Nos. 27-28), one saw (No. 29) and twelve micro-burins (Nos. 17-19, 24-26)

- a very high number considering that there are only ten microliths.

There is also a pebble tool element which includes pounders and 'limpet scoops' (fig. 180,2,5). The 'limpet scoop' (No. 2) was broken in ancient times.

Site G.M.

This industry was also collected from the surface and includes cores, blades and flakes, one micro-blade retouched down one edge (fig. 179, 3), a point with retouch down both edges and at the base (No. 4) and one micro-burin (No. 6). One 'limpet scoop' was also recorded from the site (fig. 180, 3).

TRINK FARM (Fig. 179, 1-2)

This site is in the vicinity of Gwithian and the material is in the collection of Mr. C. Thomas. The industry includes one micro-blade retouched down one edge (fig. 179,1) and one scalene triangle (fig. 179,2).

WICCA FIELDS, ZENNOR (Fig. 179,7-8)

This industry was collected from the surface and the material is in the possession of Mr. C. Thomas. The collection includes cores, flakes, calcined flints and one fragmentary blade retouched down one edge (fig. 179,7).

CAMBOURNE AND VICINITY, CORNWALL (Fig. 175,1-10)

Collections of microliths, from the vicinity of Cambourne are to be found in the J. Thomas collection in Cambourne Museum, and the Gibbs collection in the County Museum, Truro. The microlithic types include six obliquely blunted points (fig. 175,1,2,5-7,9), two micro-blades retouched down one edge (Nos. 4,8), one scalene triangle (No. 3) and one trapezoid (No. 10).

CATACLEW, CORNWALL (fig. 174, 19-20)

The Gibbs collection in the Truro Museum includes flakes, blades and waste fragments, together with two scalene triangles, from Cataclew.

BOOBY BAY, CORNWALL (Fig. 174,17)

The collection of blades and waste fragments in the Gibbs collection in the Truro Museum includes one micro-intermediate (fig. 174,17).

POLZEATH, PENTIRE POINT, CORNWALL (Fig. 181, 1-29)

Professor Clark has published a microlithic industry from Polzeath which lies a few miles north along the coast from Constantine Bay (Clark, 1932, p.44). The material is housed in the British Museum from whence the accompanying illustrations were taken. There is also a small collection of flints from the site in the Gibbs collection in the Truro Museum, which include one micro-burin (fig. 181, 26). The microlithic types include the following forms:-

Obliquely blunted points (fig. 181, 1, 2, 4-9, 11 12, 14, 16)	13
Obliquely blunted point with transverse retouch at the base (No. 3)	1
Points retouched down one edge (Nos. 10, 13)	2
Needle shaped points (Nos. 20, 15)	2
Microlithic rods (Nos. 22, 23)	2
Single points (Nos. 18, 19, 21)	3
Oblique arrowheads (No. 17)	1
Crescents (No. 25)	1
Total	25

The microlithic assemblage is predominantly non-geometric and includes only one crescent.

ILLOGAN, CORNWALL (Fig. 181, 31-32)

The Gibbs collection in the Truro Museum includes one point retouched down one edge and one scalene triangle (fig. 181, 31-32) from Illogan.

STAMPS, CORNWALL (Fig. 182, 1-16)

This site is one of a number which the late J.G. Marsden recorded in south west Cornwall (Marsden, 1918; 1919). Stamps is one of the

major sites from which Marsden recorded fifty two cores, twenty six microliths, twenty scrapers and ten 'limpet scoops'. The material is now in the County Museum, Truro and includes the following microlithic types:-

Obliquely blunted points (fig. 182, 1-4)	4
Micro-blades retouched down one edge (Nos. 5,6,8,9,11-13)	7
Points retouched down one edge and obliquely at the base (No. 10)	1
Needle shaped points (No. 14)	1
Scalene triangles (No. 15)	1
Crescents (No. 16)	1
Total	15

ST. LEVAN, ST BURYAN AND SENNEN (Fig. 173, 1-18)

Microlithic material from various sites in the parishes of St. Levan, St. Buryan and Sennen is housed in the County Museum at Truro. There is a further collection of flakes, blades, cores and scrapers from St. Buryan in the Museum of the Royal Geological Society of Cornwall at Penzance. The collections include the following microlithic types:-

Obliquely blunted points (Fig. 173, 8, 18)	2
Lanceolate points (Nos. 2,3,10,11,12)	5
Needle shaped points (No. 6)	1
Single points (Nos. 4,5,15,17)	4
Oblique arrowheads (No. 16)	1
Scalene triangles (Nos. 7,14)	2
Isocetes triangles (No. 9)	1
Sub-triangular forms (No. 13)	1
Total	17

The collection also includes one micro-intermediate (No. 1).



SOUTH WEST PENWITH (Fig. 183; 184)

Large quantities of Mesolithic material have been collected from south west Penwith in the southern tip of Cornwall. Unfortunately, a great deal of it has been lost, but a selection survives in the form of a few publications and collections in Museums and private hands. The most extensive collection from the area which has been examined by the writer is that of the late S. Angove which is now in private hands. The collection includes seventy nine microliths together with a number of micro-burins and micro-intermediates (fig. 183; 184, 1-17). There is also a collection of material from the area in the Hurst Collection in the Penlee House Museum, Penzance (fig. 184, 18-31). J.G. Marsden published a quantity of Mesolithic material from the area (Marsden, 1918; 1919), as has Professor Clark (1932, pp.44-45, fig. 25).

To facilitate their description the various collections are dealt with as a whole and the proportions of the various microlithic types are as follows:-

Obliquely blunted points (fig. 183, 1,2,4-19,21 fig. 184, 18,19,32,44,46-48,50,51)	34
Lanceolate points (fig. 183,30,45,46, fig. 184, 52)	4
Needle shaped points (fig. 183,23-29, fig.184 23,40,41)	10
Microlithic rods (fig. 183,20,32-42; fig. 184 24-29,34)	19
Single points (fig. 184, 1-4,35,39)	6
Points retouched down one edge and at the base (fig. 183, 47-53)	7
Elongated trapezes (fig. 183, 3; 184,49)	2
Angle backed blades (fig. 183, 57-59; 184,21)	4
Scalene triangles (fig. 183, 56,60,63-65; 184 36-37)	7
Isocetes triangles (fig. 184, 8-9)	2

Crescents (fig. 183, 61,62; 184, 5-7)	5
Unclassifiable	7
Total	107

The proportions of the microlithic types are subject to the skill of the individual collectors. Nevertheless one feature of interest is the comparatively small number of triangles and the high proportion of microlithic rods - a feature which appears to be characteristic of the littoral industries in west England. The micro-intermediates and micro-burin (fig. 184, 10-17) are of interest in so far as they include one microlith which is complete save for the removal of the micro-burin (No. 10). Obliquely blunted points are fairly numerous, as are needle shaped points, but the proportions of the microlithic types from this area do not suggest an area of Sauveterrian settlement. This conclusion also applies to the other coastal industries which are under discussion.

One artifact of interest in the Hurst collection in the Penlee House Museum, Penzance is a flake with oblique retouch (fig. 184, 31) which is patinated white. This was later made into a barbed arrow-head, as evidenced by the unpatinated secondary retouch at the base. The Hurst collection also includes a few 'limpet scoops' from south west Penwith (fig. 184, 30) and J.G. Marsden illustrates scrapers and burins from the same area (fig. 160, 16-29).

#### GREEB, CORNWALL (fig. 182, 17-27)

Greeb is one of the most prolific sites recorded by J.G. Marsden (1918, p.65), who recorded three hundred and twenty nine cores, eighty seven microliths, eighty six scrapers and about twenty 'limpet scoops' from the locality. A small proportion of this material is housed in the Penlee House Museum, Penzance from whence the following microlithic

types have been recorded :-

Obliquely blunted points (fig. 182, 22)	1
Microlithic rods (Nos. 19,20,26,27)	4
Scalene triangles (Nos. 18,23-25)	4
Crescents (No. 17)	1
Total	10

#### ROSKESTAL, CORNWALL (Fig. 182, 28-36)

J.G. Marsden (1918, p.65) recorded a Mesolithic site at Roskestal in south west Cornwall, from which he claims to have recovered two hundred and two cores, forty microliths, sixty two scrapers and ten 'limpet scoops'. Parts of his collection are now housed in the Penlee House Museum, Penzance and in the Museum of the Royal Geological Society of Cornwall at Penzance.

The collections include quantities of flakes, blades, cores and scrapers and a series of microliths which include one obliquely blunted point (fig. 182, 30), a scalene triangle and an isocetes triangle (Nos. 28,29), a microlithic rod and three micro-burins (Nos. 31-34). Also in the Penlee House Museum are two bone points (Nos. 35,36), but their relationship with the Mesolithic industry is unknown.

#### PENHALE HEADLAND, CORNWALL (Fig. 185; 186)

J.R. Harding has recorded a Mesolithic industry from Penhale Headland on the north Cornish coast (Harding, 1950). The industry includes cores, scrapers and a series of microliths. The microlithic types include obliquely blunted points (fig. 186, 1,3,5,7,18,21, 22), lanceolate points (No. 16) and one symmetrical trapeze (No. 6). A trial trench revealed an ill defined layer of flints some 18" - 22" below the surface.

KELSEY HEAD (Fig. 185; 186)

J.R. Harding has recorded a surface microlithic industry from Kelsey Head on the coast of north Cornwall. The industry includes an obliquely blunted point (fig. 186, 25), a micro-blade retouched down one edge (No. 26) and scrapers (Nos. 27-29) (Harding, 1950, pp. 162-165).

TREVOSE HEAD, CORNWALL (Fig. 187)

A fairly extensive microlithic industry has been recorded from Trevoze Head in north Cornwall. The bulk of the material is in the British Museum and has been partially published by Professor Clark (1932, pp.42-44, fig. 23). A general description of the site is given by E.L. Arnold (1912). Smaller collections of flints from the site are housed in the Plymouth Museum, the Gibbs collection in the Truro Museum and the collection of Mr. C. Thomas at Cambourne. The industry as a whole includes cores, scrapers and waste debris, together with a series of microlithic types:-

Obliquely blunted points (fig. 187, 1-7, 38)	8
Microlithic rods (Nos. 9-11, 13-16, 18)	8
Symmetrical points (No. 43)	1
Needle shaped points (Nos. 26-33)	8
Scalene triangles (Nos. 17, 21-24, 34)	6
Sub-triangular forms (Nos. 20, 25)	2
Crescents (Nos. 35, 36)	2
Trapezoids (No. 19)	1
Unclassifiable	3
Total	39

Micro-burins have also been recorded from the site (No. 41) together with one Krukowski burin which is in the Relph collection in the

British Museum (No. 40). One 'limpet scoop' from the site is in the possession of Mr. C. Thomas (fig. 180,1).

The microlithic industry from Trevoze Head, with significant numbers of scalene triangles and needle shaped points, is more similar in type to the Sauveterrian than any other littoral industry discussed hitherto. There is still a significant percentage of microlithic rods, but they are not present at the expense of the Sauveterrian forms.

#### PORHCURNO BAY, CORNWALL

J.G. Marsden excavated a Mesolithic site near Porthcurno Bay, Cornwall and recorded a total number of two thousand seven hundred flints (Marsden, 1914, 1915). The industry includes eighty eight cores, two microliths, fifteen scrapers and ten 'limpet scoops'. The flints were scattered throughout the 15" of surface soil with no stratification.

### 5. CONCLUSION

#### A. DISTRIBUTION AND ECONOMY

The distribution of the industries described above is entirely coastal. A few industries have been recorded from the submerged land surface off the coast, but the majority are sited above the present day sea level. This distribution results in the implication that the economy of these peoples was based on the coast, and that a considerable quantity of their food was derived from the sea shore. The raw material was certainly derived from the beach shingle in the form of water-worn flint nodules of small size, and the sandstone and siltstone 'limpet scoops', which occur so frequently in south west Cornwall, were

presumably obtained from the same source.

This coast wise distribution and 'strand looping' economy contrasts sharply with that of the Horsham and Maglemosean cultures. The former is distributed chiefly inland on well drained subsoils, and the latter mainly along the valleys of rivers. The nature of a coastal economy is such that although one can visualise some movement along the west country littoral, there would be little cause for any migration into southern England. For this reason, the littoral communities of Devon, Cornwall and Somerset are represented as an economic, and to a lesser extent a cultural group, distinct from the hunting communities of the Horsham culture. It is probably significant that there was little penetration into the West Country by the latter, so that one has two virtually exclusive distributions.

## B. TYPOLGY

A general description of the material <sup>culture</sup> ~~culture~~ of the littoral communities of the West Country, is that it possesses a microlithic component which includes both geometric and non-geometric forms, occasional burins, large quantities of scrapers and virtually a complete absence of axes or adzes. When making this generalisation it is necessary to bear in mind that the industries are virtually all collected from the surface with very little excavated material. Therefore, to a certain extent the proportions of the implement types are subject to the skill of the collectors. With this caution there follows an analysis of the microlithic types from the most prolific localities. It must be remembered that south west Penwith is an area reference, not a locality; this may have affected the proportions of the various types.

VARIETIES	DONIFORD HEIGHTS	BAGGY POINT	W. WARD HO.	CONSTANTINE BAY	POLZEATH	S. W. PENWITH	TREVOSE HEAD
Obliquely blunted points	17	12	4	13	13	34	8
Lanceolate points	3	4	3	-	2	4	-
Microlithic rods	3	13	5	4	2	19	8
Needle shaped points	1	-	1	-	2	10	8
Single points	-	4	1	1	3	6	-
Oblique arrowheads	-	-	-	-	1	-	-
Symmetrical points	-	1	-	-	1	7	1
Elongated trapezes	1	-	-	-	-	2	-
Angle backed blades	-	-	-	-	-	4	-
Triangles	-	2	2	-	-	9	6
Crescents	1	1	-	-	1	5	2
Trapezoids	3	-	-	-	-	-	1
Tanged points	1	-	-	-	-	-	-
Sub-triangular forms	-	-	4	-	-	-	2
Unclassifiable	6	2	-	-	-	7	3
Total	35	39	20	18	25	107	39

The great proportion of the microlithic types consists of non-geometric forms. In particular one should note the importance of the microlithic rod, which is a characteristic feature of the littoral industries. Its sudden importance may be due to the poor quality of the raw material in the west, for in southern and eastern England where the microlithic rod is not so common, chalk flint was available. Geometric forms occur in all the industries, (except for Constantine Bay), but they are by no means frequent. Of particular interest is the low

frequency of the scalene triangle and needle shaped point, which are the diagnostic features of the Sauveterrian culture. The two exceptions are south west Penwith, which is an area reference and has nearly three times as many microliths as any other industry, and Trevoise Head. The latter does include significant numbers of needle shaped points and scalene triangles, and for this reason may be regarded as having Sauveterrian affinities.

Nevertheless, as a whole, the littoral industries of the West Country are characterised by a predominance of non-geometric forms, of which the microlithic rod is a distinctive feature, and few geometric types. The absence of an axe or adze element has already been indicated.

A characteristic feature of the material equipment of the littoral communities are the so-called 'limpet scoops', which occur in increasing numbers in the more westerly industries. They are characteristic of the microlithic industries of the western littoral, from Cornwall to Scotland.

### C. ORIGIN

It is impossible as yet to suggest an origin for the littoral communities of west England, but the answer probably lies in a combination of several cultural streams. It does not seem probable, from the analysis of the microlithic types given above, that the industries are of Sauveterrian type. With the possible exception of Trevoise Head, the differences are too great to apply the name Sauveterrian with any semblance of accuracy. As was indicated in Chapter VIII, the Sauveterrian industries of west England are distributed on the high grounds and do not have a predominantly coastal economy.



The littoral industries also lack the characteristic types of the Horsham culture - the axe and the Horsham point. Moreover, the economies of the two groups differ considerably - the one specialising in the hunting of small game in lightly wooded country, and the other concentrating on foodgathering along the coast.

It has been indicated that the coastal communities of west England have individual characteristics in their material equipment and it seems likely that these were developed in response to a way of life. Whatever the ultimate sources of the group, whether they be indigenous, Maglemosean, Horsham, or a combination of all four, the littoral communities of west England form a group apart from the cultures of the south and east, characterised by their material equipment and their way of life.

#### D. CHRONOLOGY

No objective evidence has been forthcoming to provide a date for the industries with coastal economies, and in the absence of definite data concerning their origin it is difficult to make any suggestions. Groups of peoples following a Mesolithic way of life and manufacturing the same equipment, may have existed in west England long after the arrival of the Neolithic colonists. In the absence of an objective chronology, it would therefore be premature to suggest a date for these communities.

## CHAPTER X

### THE MICROLITHIC INDUSTRIES OF WALES

#### 1. THE PHYSIOGRAPHICAL BACKGROUND

The distribution of Mesolithic sites in Wales is controlled to a great extent by the terrain, for physiographically, Wales is a high-land block defined on three sides by the sea and for the greater part of the fourth side by a sharp break of slope. Geologically the Principality is composed almost entirely of Palaeozoic rocks, of which the 600' contour encloses more than three quarters of the total area. There are extensive regions above 1500' and 2000' and in the north the peaks of Snowdonia and Cader Idris rise to 3,560' and 2,929' respectively. Indeed, north Wales consists of an inhospitable high-land massif, skirted by a lowland plateau and cut deeply by river valleys, providing only limited areas for settlement. The hills and mountains of Snowdonia with their extension at lower altitudes into the Lleyn Peninsula, and the ranges of Moelwyn, Manod Mawr, Arenig Fach and Cader Idris, are discouraging obstacles to penetration, save for a short distance along the river valleys. To the east of these peaks are extensive tracts of upland plateau dissected by rivers, bounded on the west by the vale of the river Conway and cleft by the Vale of Clwyd. To the east of this valley lies the Clwydian Range and further again to the east these uplands descend with milder contours to the Cheshire and Shropshire plains.

To the south the district merges into the uplands of Central

Wales, which are continuous until they are replaced by the lowland belt of south Wales. This central massif is fringed almost everywhere by a zone of foothills (400' - 800'), which varies in character according to local conditions. The intermediate area is well developed in the west and in the north east in Denbighshire and Flintshire.

Encompassing the whole is a coastal belt of undulating lowland, broken by streams, the larger of which penetrate the foothills and provide means of access to the interior. These coastal lowlands which surround the massif are of the greatest importance with regard to the Mesolithic settlement. In south Wales, the lowlands of Monmouthshire continue west until they broaden out in south Pembrokeshire which has no high ground. In the north and parts of west Wales the coastal strip is narrow, but it becomes more extensive in Anglesey.

There is some evidence that the sea board in early Post-Glacial times was considerably more extensive than it is today. Post-Glacial conditions appear to have been accompanied by a change in the relative levels of land and sea, which resulted in an average land submergence of some 60'. This led to the accumulation of deposits of peat and alluvium in some areas, the evidence for which will be discussed below. The submergence of the coastal lowland zone implies that much of the evidence for the Mesolithic settlement of Wales is now covered by the sea, and this is substantiated by the finding of Mesolithic industries in deposits of the 'submerged forests'.

Owing to the physiological characteristics of the Principality, the distribution of the Mesolithic industries is concentrated along the coastal belt of lowland (fig. 188). The sparse occupation of the central highland zone may be due to the lack of research, but in the absence of data one must accept the evidence at its face value. The implication of this distribution is that the Mesolithic peoples pursued an economy similar to that of the littoral communities of Somerset,

Devon and Cornwall, An economy based on the sea shore, from which was derived their raw materials and the bulk of their food.

## 2. THE MESOLITHIC OCCUPATION OF THE CENTRAL HIGHLANDS

Evidence for the occupation of the interior of Wales during Mesolithic times is very sparse and confined to three localities.

### TWO TUMPS BARROW, KERRY HILLS, MONTGOMERYSHIRE (Fig. 189,1,2,4,5)

The excavation of the western of the "Two Tumps" barrows in the Kerry Hills (fig. 188), at a height of 1,666' above sea level, revealed twenty six flints scattered haphazardly throughout the body of the mound (Daniel, 1927; Peate, 1931). The material is now in the National Museum of Wales and includes a fragmentary arrowhead of Neolithic or Bronze Age type (fig. 189,1), two scrapers (fig. 189, 4-5) and a microlithic crescent (fig. 189,2) (Savory, 1948; Grimes, 1951, p.195). Worked flints have been recorded in small quantities from the Kerry Hills (Peate, 1929, p.82; Jerman 1933), but this crescent provides the only evidence for a Mesolithic occupation.

### CLYRO, RADNORSHIRE (Fig. 189,3)

The collection of the late A.F. Gwynne in the Llandrindod Wells Museum includes one fine example of a scalene triangle (fig. 189,3) from Clyro in Radnorshire. However, the remainder of the flints from the area, both in the A.F. Gwynne collection and in the F. Noble collection in the National Museum of Wales, are predominantly Neolithic and Bronze Age in character (Savory, 1954).

### CRAIG-Y-LLYN, GLAMORGAN (Fig. 188)

Mr. S. Price of Treherbert has made a collection of flints from the moorland around Craig-y-Llyn west of the inter-valley road between Treherbert and Hirwaun. The collection includes scrapers, a barbed and tanged arrowhead and a Mesolithic component, which consists of scrapers, micro-burins, triangles and an assymetric trapeze (1). Mr. Price claims that the flints were scattered along the line of a track recently developed by the Forestry Commission, on the edge of a scarp which overlooks Llyn Fawr.

### CONCLUSION

The distribution of Mesolithic localities in the interior of Wales suggests some penetration by way of the river valleys above Cardiff into the uplands of Radnorshire (fig. 188). However, the occupation of the central massif is very sparse. Whether this lack of settlement is more apparent than real owing to lack of research in the area remains to be seen. If one accepts the evidence at its face value, it would appear that the focus of the Mesolithic settlement is along the coastal lowlands, with very little penetration into the interior.

## 3. THE SUBMERGED LAND SURFACES

### A. DESCRIPTION AND SIGNIFICANCE

All along the coast of south Wales submerged peat beds occur, some exposed by erosion on the foreshore and others disclosed by the

(1) Information in a letter from Dr. H.N. Savory

deep dock excavations at ports such as Swansea, Port Talbot and Barry. The examination of these deposits has produced a large quantity of literature, the most important items of which are given below, (Godwin, 1940; 1956; George, 1930; 1936; 1938; George and Griffiths, 1938; Moggeridge, 1856; Strahan, 1896; Hyde, 1936; North, 1955).

Possibly the most important monolith is that which was obtained from Swansea Bay (Godwin, 1940), in which the lowest samples are referable to Zone 1V and a proportion of the upper samples clearly recognisable as V1b in the forest sequence. Zone V and sub zone V1a are not represented. Two significant points were deduced from this section. Firstly, two of the peat beds although separated by about 15' of silt are both referable to the sub zone V1b, thus indicating that rapid submergence was in progress at that time. Secondly the levels of the peat beds in the several borings would seem to suggest marine retrogression between the formation of the peats of zone 1V and those of V1b. Therefore, at this point in the Bristol Channel region, the evidence suggests a marine retrogression between the pre-Boreal and late Boreal phases, during which time it was possible for the Mesolithic peoples to live on lands now submerged by the sea. This was followed by a rapid submergence of the land in late Boreal times.

This picture is substantiated by the evidence of other investigations along the coast of south Wales. Dr. F.J. North (1955, pp.58-65) suggests that during the period of low sea level the shoreline was about 100' lower than at present. In this case the Bristol Channel would be a valley along which a river made its way to an estuary somewhere in the longitude of Swansea. The greater part of the succeeding marine transgression took place within the Boreal period and Godwin (1956, p.24) suggests that by the end of this phase the sea level had come to within 10' to 20' of its present height. That the submergence was still taking place in Neolithic times is shown by the occurrence of a Neolithic

axe in the upper peat bed at Barry Docks, Glamorgan (Strahan, 1896).

In north Wales there is some considerable evidence for marine transgression between Prestatyn and Great Orme's Head (Morris, 1923; Glenn, 1926; 1935; Neaverson, 1935). From time to time, beds of peat have been exposed through the action of the wind and waves, and at Rhyl one bed of peat was found to overlie a second. They both rested on water deposited silts and clays, the upper being overlain by blown sand and the basal deposit being glacial drift. From the lower peat has come a perforated shaft of red deer antler and a 'pick' of the same material. From the top of the upper estuarine clay have come Graig Lwyd axes, objects of bronze, stone and bone and the remains of domesticated and wild animals. Of interest from the point of view of the Mesolithic occupation are the artifacts which the late F. Gilbert Smith obtained from the lower peat and which he regarded as "approaching the Tardenois type" (Neaverson, 1935, pp.53-54).

The significance of these factors is that the undulating coastal plateau extended further out to sea in Mesolithic times than it does now. As we shall see below there is evidence that the Mesolithic peoples existed in part on these surfaces which are now submerged and consequently, a proportion of the evidence must have been destroyed by the marine transgression. However, a number of Mesolithic industries have been recorded from the 'submerged forests' and land surfaces of the south Pembrokeshire coast, and it is with these that we shall now deal.

## B. THE MESOLITHIC INDUSTRIES FROM THE SUBMERGED LAND SURFACE

### FRESHWATER WEST, PEMBROKESHIRE

An obvious disadvantage of the marine transgression is the sub-

mergence of the evidence, but on the other hand the decayed vegetation of the submerged areas formed deposits of peat. It is clear that if one could but record a Mesolithic industry 'in situ' in these deposits there would be a good chance of obtaining an objective date for it by pollen analytical means. However, until recently such an opportunity had not arisen.

In July, 1960 the writer had occasion to visit the long expanse of sandy beach known as Freshwater West in south Pembrokeshire. A strong gale had been blowing during the previous days, the tide was at its lowest ebb and soon it became apparent that a large expanse of the submerged forest of that area had been exposed through the action of the wind and the waves.

The main exposure was to the north west of a promontory known as Little Furzenip (fig. 191) and had a total area of about twenty square yards. It is clear from the published reports of the late A.L. Leach (1913; 1918) that the same exposure had been revealed in the early years of this century. An attempt was made to visit the exposure at the following low tide but in that time the sand had silted over it once more.

A typical section of the deposits is as follows:-

1. Peat 8" thick
2. Blue clay 4" - 6"
3. Stony clay - probably the rubble 'head'

The exposure is of particular significance as the writer recorded one small tranchet axe and a few flint flakes from the surface of the blue clay, where they were sealed by the peat. Moreover, it is clear that Mr. Leach also recorded flints from the same stratigraphical position, as well as from the blue clay itself. Mr. Leach also records that "at one point a thin layer of hard brittle charcoal was found under the peat and on the surface of the clay" (Leach, 1913, pp.400-403).



Therefore, it was clear that an occupation site of the Mesolithic period had existed at this point, and it was of prime importance to ascertain the date of the peat which sealed the flints.

Under very difficult circumstances a series of samples was taken through the deposits and Professor H. Godwin, of the Botany Department at Cambridge, supervised the analysis of the upper peat. A full report of the analysis is given in Appendix 11 and the conclusion arrived at was that the peat began accumulating after zone VIIa but before any Neolithic culture had reached the area. In other words the transect axe and flint debris recorded by the writer from the top of the blue clay, are sealed by a deposit of peat which began accumulating in Atlantic times.

This is the first instance in Wales where a pollen date has been applied to a Mesolithic industry, and the very inconclusiveness of the results indicates that much more work remains to be done in this field. The transect axe from the site is described below, together with similar artefacts from Wales.

#### WHITESAND BAY, NORTH PEMBROKESHIRE

Mr. H. Hicks has recorded the antlers of red deer, the 'jaw of a brown bear' and a neatly worked flint flake, from clay which was sealed by a deposit of peat on the foreshore at Whitesand Bay near St. Davids (Hicks, 1885, pp. 1-20).

#### AMROTH, SOUTH PEMBROKESHIRE

Mr. Leach recorded two Mesolithic sites at Amroth in south Pembrokeshire (fig. 192). The deposits were exposed through the erosion of streams on the foreshore and consisted of peaty soil overlying a blue clay in which were found flint flakes and cores (Leach, 1913, pp.400-403; 1918, pp.52-59). The material is housed in the Tenby Museum and

the industry from site B2 (fig. 192) includes scrapers, saws, cores, flakes and calcined flints. Three core-trimming flakes were found to fit together (Leach, 1918, Plate 6B). The industry from site B3 (fig. 192), seven hundred yards to the east of B2, includes a core, flakes and charcoal fragments from the blue silt.

#### FRAINSLAKE, SOUTH PEMBROKESHIRE

This site on the foreshore at Frainslake sands in south Pembroke-shire was recorded by Mr. Leach in the gully of a stream which runs across the beach (Leach, 1918, pp. 52-59). The industry was recorded from a deposit of blue clay which was overlain by peat and includes cores, one scraper, many calcined flints and fragments of chert. The Reverend. J.P. Gordon Williams also visited the site and recorded cores, blades, one microlith, six 'limpet scoops', anvil stones, hammer stones and a "bone implement exactly like the Scotch bone tools of the Azilian" (Gordon Williams, 1926, p.106)

The finds made by Gordon Williams are particularly interesting and they were apparently made in an area four and a half yards square, in association with large quantities of charcoal. It is unfortunate that no further description of the 'bone implement' is in existence.

#### LYDSTEP HAVEN, SOUTH PEMBROKESHIRE (Fig. 193, 12-14)

In November 1916 the submerged forest in Lydstep Haven was exposed and was visited by Mr. Leach (1918, pp.50-51). Towards the centre of the bay (fig. 192) the skeleton of a pig lay embedded in peat, about 160 yards from the high water mark. A tree trunk eight feet long and nearly one foot in diameter lay across the neck and shoulders. The sequence of deposits in the vicinity of this skeleton were as follows:-

1. Peaty silt, 2" - 3" with fragile freshwater shells

2. Peat 6" - much compressed and disintegrated
3. Clayey soil - 6"
4. Rubble 'head'

In the peat under the tree trunk but above the neck of the pig were two microliths (fig. 193, 12-13). A third microlith lay in the peat a short distance away (fig. 193, 14). The microliths are now in the Tenby Museum and consist of simple points retouched down one edge.

#### TRAETH MAWR BRIDGE, NEWPORT, PEMBROKESHIRE (Fig. 207, 19)

This site was recorded by Mr. R. Thomas and lies due north of Newport in the bed of the river Nevern. The industry was found at a depth of three feet, immediately below a deposit of peat which rests on rubble 'head'. Fragments of charcoal were found and the industry includes one micro-blade retouched down one edge and partially down the second. The material is now in the National Museum of Wales (Thomas, 1933).

#### CONCLUSION

The industries described above demonstrate conclusively that the Mesolithic peoples inhabited the coastal fringe which is now submerged. Almost without exception they occur on the surface on the blue clay and are sealed by a deposit of peat - the sequence in which the deposits occur is sufficiently regular for this fact to suggest some degree of contemporaneity. Therefore, the date of these deposits is of vital importance to the chronology of the Mesolithic occupation of Wales, and despite the start made at Freshwater West the problem is far from being solved. However, it may be that some solution may be forthcoming if it should prove possible to study these deposits and their industries in a systematic manner.

Typologically, the industries from the surface of the blue clay at various points along the coast have yielded a tranchet axe, micro-liths, 'limpet scoops' and the enigmatic 'bone implement' from Frainslake. These artifacts have little significance until we have discussed the remainder of the Mesolithic industries in Wales.

#### 4. INDUSTRIES FROM THE SOIL DRIFTS IN SOUTH PEMBROKESHIRE

##### A. DESCRIPTION AND SIGNIFICANCE OF THE SOIL DRIFTS

At various points along the south Pembrokeshire coast, the late A. Leach recorded a widespread drift of a gritty red loam (Leach, 1913, pp.396-400). This clayey loam rests sometimes directly on solid rock, but often also on the rubble 'head', as at Freshwater East (fig. 190) where it was sealed by dune sand. Leach established that at Marros in south Pembrokeshire, the rubble 'head' with the overlying red loam can be traced from the highwater mark to where it disappears under deposits of peat on the foreshore. At Manorbier and Swanlake in south Pembrokeshire the red loam or 'rainwash' as it is sometimes called, can be grouped with deposits which underlie the peat of the submerged forest. Therefore these soil drifts have been found to underlie peat of the submerged forests and are overlain by dune sand on the foreshore.

One of the points at which Leach recognised this drift was just north of Little Furzenip at Freshwater West, where it underlies peat of the age of the submerged forest (fig. 191). The writer excavated a Mesolithic industry a few hundred yards south of this point and found that the flints were stratified in the loam (Wainwright, 1959). An analysis by Dr. I.W. Cornwall of the London Institute of Archaeology of the red loam, suggests that it represents a buried surface with an

ancient soil which is typical of a moist cool temperate climate (see Appendix 1). The industry has been described in Chapter V.

Mr. Leach recorded a number of Mesolithic type industries from these soil drifts and the material is housed in the Tenby Museum. Besides the excavated site at Freshwater West the writer has also recorded two small industries from this red drift or buried soil (Wainwright, 1960 A).

#### B. THE INDUSTRIES FROM THE SOIL DRIFTS

All except two of the industries described below are recorded by Mr. Leach (1913, pp.396-400) and the analysis of the industries has been based on his collections in the Tenby Museum. For this reason the sites have not been given individual references except for the two which were recorded by the writer.

#### SAUNDERSFOOT

One microlith, micro-blades and flint chips patinated white.

#### LYDSTEP HAVEN (Fig. 193, 3-4)

One single blow burin (fig. 193, 4) one single point retouched down one edge and obliquely at the tip (No. 3) and a few flakes.

#### MANORBIER BAY

A core, several chipped pebbles, flakes, spalls and a small end-scraper on a blade.

PENALLY

Many sharp flakes and spalls.

FRESHWATER EAST (Fig. 193, 5-11)

A comparatively prolific industry including three obliquely blunted points (fig. 193, 5-7), one micro-burin (No. 8), two micro-intermediates (Nos. 9-10), scrapers (No. 11), blades, flakes and cores. Of particular interest is a circular flat bead of shale with a central perforation identical to those recorded from the Mesolithic industry at Nab Head, which is described below.

SWANLAKE BAY (Fig. 193, 1-2)

One obliquely blunted point (fig. 193, 1), one scalene triangle (fig. 194, 2) and a few micro-blades.

CALDEY ISLAND

Scattered flakes from Priory Bay and Bullum's Bay.

GRAVEL BAY, FRESHWATER WEST

Small sharp flakes and spalls.

LITTLE FURZENIP, FRESHWATER WEST

One core and a few flakes.

CASTLES BAY

Two sites were found in this area by the writer (Wainwright, 1960 A)

which produced two cores, two core trimmings and flakes. The flints were found in a thin layer of red loam resting on the natural rock and sealed by 8" - 9" of humus.

### CONCLUSIONS

The excavation of the Mesolithic site at Freshwater West, Pembrokeshire (Wainwright, 1959) and the analysis of the red loam by Dr. I.W. Cornwall (Appendix 1), has established that the soil drift recorded by Mr. Leach represents an old land surface with a buried soil. This conclusion is supported by the Mesolithic industries recorded from this deposit. The fact that the red loam has been found to underlie the peat deposits of the submerged forest is of interest, for it suggests a possible contemporaneity for the industries from the red loam and the submerged forest.

This suggestion is supported to a certain extent by the typological evidence. The perforated shale bead from the soil drift at Freshwater West is exactly similar to those from Nab Head in north Pembrokeshire where they were associated with an industry including 'limpet scoops' and tranchet axes. A tranchet axe has also been found at Freshwater West, sealed by the peat of the submerged forest. Furthermore, the industry from the soil drift at Freshwater West (see above) includes one Horsham point which is commonly associated with tranchet axes.

It is clear that the examination of these deposits in association with modern techniques such as pollen analysis and C 14 would be very rewarding. Unfortunately, the deposits of the submerged forests are exposed only at very infrequent intervals, and it is necessary that one should be there at that particular time in order to exploit the possibilities.

## 5. MESOLITHIC INDUSTRIES ASSOCIATED WITH AXES

### NAB HEAD, NORTH PEMBROKESHIRE (Fig. 194-197)

There is only one Mesolithic industry in Wales in definite association with Mesolithic type axes and it comes from Nab Head in north Pembrokeshire. The bulk of the material from the site has been published by the Reverend Gordon Williams (1926) and his collection is divided between the National Museum of Wales at Cardiff and the Tenby Museum. There are several other collections of material from the site which include the Kensington collection in the Tenby Museum, the W.F. Grimes collection in the National Museum of Wales and the H.E. David collection, which is also in the National Museum. The Kensington collection in the Tenby Museum has been published by the late A.L. Leach (1933).

It is unlikely that there has been any confusion of periods at Nab Head in spite of the complete absence of stratification. All the recorded finds made over a period of years by a number of collectors have been consistently of Mesolithic type, with the exception of one spindle whorl (Grimes, 1951, pp.12-14). The site lies on a promontory of Old Red Sandstone from which the turf has been denuded.

The following analysis of microlithic types is based on the collections in the National Museum and the Tenby Museum, and is subject to the restrictions inherent in all surface collections.

Obliquely blunted points (fig. 194, 1-6)	6
Microlithic rods (Nos. 7-10, 13-20)	12
Needle shaped points (Nos. 21-27, 32, 38)	9
Single points (No. 28)	1
Scalene triangles (Nos. 29-31, 33, 35, 36)	6
Isosceles triangles (No. 34)	1



Trapezoids (No. 37)	1
Unclassifiable	5
Total	41

The most noticeable feature about the proportions of the microlithic types is the high percentage of the microlithic rods and the correspondingly low number of obliquely blunted points. This feature can be paralleled in the littoral industries of west England, but the Nab Head industry also includes significant numbers of needle shaped points and scalene triangles which are not common along the coasts of Devon, Cornwall and Somerset. Another noticeable feature among the microlithic types from Nab Head is the very large needle shaped point from the Tenby Museum (No. 32).

The industry also includes micro-burins (fig. 194, 41) quantities of very typical scrapers on blades (fig. 195, 4-18), a very fine angle burin (fig. 195, 3), three tranchet axes (fig. 195, 1) and one axe sharpening flake (fig. 195, 2). One of the tranchet axes is of chert as is the axe sharpening flake. In the Tenby Museum are two sandstone maceheads with hour-glass perforations which are well known in Mesolithic contexts from south and south east England (fig. 196, 2, 4). Also in the Tenby Museum are a series of pebble tools from the site. The majority are of Old Red Sandstone and they include hammerstones (fig. 196, 1, 5, 6) and about twenty 'limpet scoops' (fig. 197). A 'limpet scoop' identical to fig. 197, 2 has been recorded from Gwithian in Cornwall (fig. 180, 5).

Of great interest is the fact that over one hundred and thirty perforated beads of shale have been recorded from the site. One typical example is illustrated in fig. 194, 42. They were presumably strung together to form a necklace and similar beads have been recorded from the early Maglemosean site at Star Carr, Yorkshire (Clark, 1954,

pp.165-166, Plate XX), as well as from a soil drift at Freshwater East (see below).

### CONCLUSION

The predominant microlithic type at Nab Head is the microlithic rod - a type which is also dominant in the littoral industries of west England. Needle shaped points and scalene triangles are also quite numerous and the microlithic component is associated with an axe element, abundant scrapers, a bruin and pebble tools. It would appear likely from the material remains that Nab Head represents a mixture of several influences and these will be discussed below.

### STRAY FINDS OF TRANCHET AXES

#### BENTON FARM, BURTON, PEMBROKESHIRE (fig. 198,2-4)

In the E.L. Pegge collection in the National Museum of Wales is a tranchet axe and an obliquely blunted blade from near Benton Castle in north Pembrokeshire. The axe has been published by Professor Grimes (1935; 1951, p.14, fig. 7,2) and is manufactured from a local rhyolite (fig. 198,2-3). The association of the axe and the obliquely blunted blade is not proven, but they are in the same collection which also includes several flint flakes.

#### 'CASTELL POCHA', PENCAER, PEMBROKESHIRE (Fig. 198,1)

This axe is in the T. Mathews collection in the National Museum and has been published by Professor Grimes (1951, p.14, fig.7,1). The

locality of Castell Pocha is unknown save that it is somewhere in north Pembrokeshire. The axe is of flint and retains part of the cortex at the butt (fig. 198,1). It has been suggested that the size of the nodule required to make the axe was so large that it must have been brought from southern England, as very few suitable nodules are to be found on the beaches.

#### PORTH-Y-RHAW, PEMBROKESHIRE

Professor Grimes has recorded a tranchet axe from Porth-y-Rhaw in north Pembrokeshire which is in private hands (Grimes, 1945, pp.34-35).

#### BRUNT FARM, NORTH PEMBROKESHIRE (Fig. 199,2)

Professor W.F. Grimes has drawn the writer's attention to an unpublished tranchet axe in the possession of the Warden of the Dale Fort Field Centre in north Pembrokeshire (fig. 199,2). The axe comes from Brunt Farm in the south west tip of north Pembrokeshire and is a small specimen about 4" long and two inches wide, the tranchet scar is not very pronounced and the implement has a D - shaped section. Parts of the implement have an ochrous patination and the remainder is patinated a deep white.

#### FRESHWATER WEST SUBMERGED FOREST, PEMBROKESHIRE (Fig. 199,1)

One small tranchet axe was recorded by the writer in the summer of 1960 from the deposits of a submerged forest at Freshwater West in south Pembrokeshire. The axe is the only example of its type from south Pembrokeshire and the circumstances of the find are described above. The implement is very small and much abraded, part of one edge having been broken in antiquity (fig. 199,1). It is patinated white and appears to be made from a poor quality flint nodule of a type which is common along

the Welsh coast.

### CONCLUSION

The distribution of transept axes in Wales is concentrated solely in Pembrokeshire, seven examples having come from the north of the county and one from the south. Their presence in this area is obviously due to a movement into the area from outside, but the source of this influence is much more difficult to establish. As we have seen, apart from the Maglemosean penetration (Wainwright, 1960 B), there is little factual evidence for contacts between southern and western England during the period of the flourishing of the Horsham culture. However a few Horsham points and two axes from Cornwall may be evidence of some contact, however slight.

It may be that the same situation occurs in south Wales, where Horsham points have been recorded from Merthyr Mawr Warren and Freshwater West in south Pembrokeshire. The concentration of transept axes in Pembrokeshire may then be due to contacts with southern England via the coastal lowlands. It must be remembered that if the valley of the Bristol Channel was a route between east and west in Mesolithic times, the evidence for its use is now submerged (e.g. Yelland in north Devon). Some facies of the Horsham culture certainly penetrated to south Pembrokeshire and in the light of our present information it is reasonable to assume that the concentration of transept axes in that county stem from this source.

However, the microlithic component at Nab Head is not comparable with that of the Horsham culture. The preponderance of microlithic rods suggests affinities with the industries of the western littoral as does the pebble tool component. The necklace of shale beads must for the moment be assigned to local inventiveness. Therefore, the industry

from Nab Head appears to belong basically to the littoral communities of the west coasts of Britain, with which we have dealt in west England and the Welsh manifestations of which are discussed below. However superimposed on this indigenous stratum are exotic elements such as the tranchet axes and the perforated maceheads. It is these elements which may be derived from the Horsham culture of southern and eastern England, probably by way of the Cotswolds (c.f. Nailsworth) and the valley of the Severn (c.f. Yelland in north Devon, Merthyr Mawr Warren and Freshwater West in south Wales). It must be remembered that the tranchet axe from the submerged forest at Freshwater West is only a few hundred yards from the industry on the cliff which produced the Horsham point.

## 6. INDUSTRIES IN WALES WITH 'SAUVETERRIAN AFFINITIES'

The phrase 'Sauveterrian Affinities' is used in this context to describe those industries in Wales which approximate most closely to the Continental Sauveterrian. This implies a material culture based on the production of the micro-blade, quantities of scalene triangles and 'pointes de Sauveterre' and the absence of an axe component, as exemplified in Chapter 1. The term 'Sauveterrian' has also been used in connection with industries from the high grounds in the west country, and it must be emphasized that its use does not imply a continental origin for the group.

### DAYLIGHT ROCK, CALDEY ISLAND, PEMBROKESHIRE (Fig. 200-202)

Daylight Rock forms part of Small Ord Point which constitutes the most easterly promon-ory of Caldey Island in south Pembrokeshire (fig.200).

The site was investigated by A.D. Lacaille and W.F. Grimes who excavated part of the deposits on the promontory (Lacaille and Grimes, 1955, pp.131-147).

The sequence of deposits (fig. 201) is as follows:-

3. Vegetable mould
2. Reddish loam containing angular pieces of limestone
1. Yellow sandy silt resting on the limestone rock.

Seven thousand three hundred and forty flints and one hundred and fourteen specimens of adinole were recorded (fig. 201), mainly from the reddish loam but occasionally from the overlying vegetable mould.

An analysis of the microlithic types produces the following results:-

Obliquely blunted points (fig. 202, 1-3,5)	4
Points retouched down one edge (Nos. 16-17)	3
Elongated trapezes (No. 6)	1
Oblique arrowheads (No. 7)	1
Needle shaped points (Nos. 18,20)	2
Scalene triangles (Nos. 4,9,10)	3
Isocetes triangles (Nos. 8,14)	2
Crescents (No. 13)	1
Unclassifiable	1
Total	18

The industry also includes scrapers (Nos. 31,35,37-40), micro-burins (Nos. 21,22,24), truncated blades (Nos. 29,30), burins (Nos. 32, 34, 41, 42) and a core tool (No. 27) which is not a true axe but which may have been utilised as a chopping tool.

Therefore, although the microlithic component is not particularly numerous, there are a significant number of triangles and two needle shaped points. The evidence is not sufficiently conclusive to permit

definite classification of the industry but it appears to possess features which are characteristic of the Sauveterrian.

PRESTATYN, FLINTSHIRE (Fig. 203)

A microlithic industry from Prestatyn, Flintshire was first published by the late G. Smith (1926) and later by Professor Clark (1938; 1939). The material is now in the British Museum.

The site consists of a shallow basin in the boulder clay filled with tufa, above which projected three small islands. It was on the middle and smallest of these three that the chipping floor was found. The industry, was covered with 13" of topsoil which rested on 20" of white calcareous tufa. It was not possible to say how much of the tufa had formed before the area was occupied by Mesolithic man, but the greater part of it post-dates the occupation. Unfortunately the site is now covered by a housing estate.

Very little flint was worked on the site, the predominant raw material being a black carboniferous chert which was obtained from Gronant about two miles to the east (Davies, 1949, pp. 294-297). An analysis of the microlithic types provides the following results:-

Obliquely blunted points (fig. 203, 1-13, 15, 16)	15
Micro-blades retouched down one edge (Nos. 14, 17, 18, 20, 22, 23, 26)	7
Single points (Nos. 21, 27)	2
Needle shaped points (No. 24)	1
Scalene triangles (Nos. 29-55)	27
Unclassifiable	1
Total	53

The industry also includes micro-burins (fig. 203, 56-59), scrapers (Nos. 60-65), flakes with edge retouch (Nos. 66-68), cores (Nos. 69-74) a

perforated oyster shell disc (No. 77), a pointed object of bone (No. 75) and an unworked antler tine. Also noted in the surrounding tufa were large numbers of fragmentary hazel nuts and about a dozen pieces of red ochre.

Therefore, the industry from Prestatyn with its extensive microlithic component in which scalene triangles provide over 50% of the varieties, is demonstrably of Sauveterrian type.

#### GOP CAVE, FLINTSHIRE (Fig. 8, 6-14)

Gop Cave is situated at a height of 820' QD. at the northern end of the line of hills forming the eastern boundary of the Vale of Clwyd, two and a quarter miles south west of Prestatyn (fig. 188). The cave has been excavated on a number of occasions, the principal investigations being those of W. Boyd Dawkins (1901; 1902), J.H. Morris from 1908-1914 and T.A. Glenn (1935, pp.194-200). The material is now in the National Museum of Wales and has been partially published by W.F. Grimes (1951, fig. 4, 1-4, 10).

Apart from a collective inhumation of Neolithic date the excavations produced a number of unstratified microlithic points (fig. 8, 6-14). They include two obliquely blunted points (fig. 8, 6-7), two lanceolate points (fig. 8, 8-9), one broad point retouched down both edges (fig. 8, 10) and four scalene triangles (fig. 8, 11-14). The assemblage has a Sauveterrian appearance but the microlithic types are too few to be able to judge with certainty.

#### CONCLUSION

The problem of the Sauveterrian culture in southern and western Britain will be discussed in Chapter XI. Therefore, it is sufficient



to say at this point that one appears to have three industries with Sauveterrian affinities from Wales - Daylight Rock, Prestatyn and Gop Cave.

## 7. SITES WITH COASTAL ECONOMIES

### INTRODUCTION

This section deals with those industries in Wales which have produced microliths or Mesolithic type debris and which appear to belong to an indigenous littoral community. It is suggested that these littoral communities in Wales are an indigenous development along the coastal fringe, similar to those in Devon, Cornwall and Somerset. The similarities between these coastal groups will be indicated in the conclusion. The division of the material into counties has no cultural significance and is purely for ease of reference.

### A. PEMBROKESHIRE

Intensive research has been carried out on the chipping floors of the Pembrokeshire coast. In the first decade of this century the late A.L. Leach carried out a survey of the chipping floors of south Pembrokeshire from Freshwater West to Saundersfoot and the Carmarthenshire border. This survey has been completed by the writer during the last five years and now includes the whole of south Pembrokeshire. The distribution of the chipping floors in that area is shown in fig. 204-206 and the density of the sites testifies to the devoted energy of

Mr. Leach. His collections are now in the Tenby Museum and the maps are compiled in part from his notes, partially from a published account of his work (Leach, 1913) and partially from the writer's own researches (Wainwright, 1960 A). The illustrations of the artifacts were made in the Tenby Museum except where it is stated to the contrary.

A survey of the chipping floors in the north of the county has been made by Mr. T.C. Cantrill (1915; 1919) and also by Professor W.F. Grimes (1932). These surveys include every site from which flint chips have been recorded and for this reason, unless the industries contain artifacts, they are mentioned only by name followed by the reference.

WOGAN CAVERN, PEMBROKE (Fig. 193, 30)

One lanceolate point from the Wogan Cavern, Pembroke is housed in the Tenby Museum (fig. 193, 30).

STACKPOLE WARREN, PEMBROKESHIRE (Fig, 207, 1-2)

A small collection of flints from Stackpole Warren in south Pembrokeshire is housed in the National Museum of Wales in the A.G.O. Mathias collection. It includes scrapers, one lanceolate point (fig. 207, 1) and a single point (No. 2)

GATEHOLM, MARLOES, PEMBROKESHIRE (Fig. 207, 17)

The A.G.O. Mathias collection in the National Museum of Wales includes a fragmentary needle shaped point retouched down both edges (fig. 207,17).

CASTLEMARTIN AND KILPAISON BURROWS, PEMBROKESHIRE (Fig. 207, 3-16)

The late A.G.O. Mathias collected a number of microliths from the

Castlemartin and Kilpaison Burrows in south Pembrokeshire and the material is now housed in the National Museum of Wales. The collection includes three lanceolate points (fig. 207, 8,9,16), an obliquely blunted point (No. 7) and angle backed blade (No. 12), two microlithic rods (Nos. 10-11) an isocles and a scalene triangle (Nos. 5-6), a sub-triangular form (No. 4) and a crescent (No. 3). Of particular interest are two flat shell beads with a central perforation, identical to those recorded from Nab Head and the soil drift at Freshwater East (fig. 207-14-15).

LLANUNWAS FARM, WHITECHURCH, PEMBROKESHIRE (Fig. 207, 26-35)

The A.G.O. Mathias collection in the National Museum of Wales includes a number of microliths from Llanunwas Farm in north Pembrokeshire, a number of which have been published by W.F. Grimes (1932, p.184, fig. 3,7-12). The microlithic types include one obliquely blunted point (fig. 207, 27), four lanceolate points (Nos. 32-35), two single points (Nos. 26-29), a scalene triangle (No. 28) and a crescent (No. 30).

ST. ELVIS AND LOCHVANE FARMS, PEMBROKESHIRE (Fig. 207, 20-25)

The C.M. Rees collection in the National Museum of Wales includes an obliquely blunted flake, two notched blades and three broad blades with edge retouch (fig. 207, 20-25), from St. Elvis and Lochvane Farms in north Pembrokeshire.

ST. GOVANS HEAD, BOSHERSTON, PEMBROKESHIRE (Fig. 207, 18)

Professor J.G.D. Clark has recorded one angle backed blade (fig. 207, 18) cores, blades and spalls, together with one 'limpet scoop' from St. Govans Head in south Pembrokeshire (fig. 205). The material is

housed in the National Museum of Wales.

TREVAYNE, SAUNDERSFOOT, PEMBROKESHIRE (Fig. 193, 26)

Mr. A.L. Leach (1913, p.405) recorded a number of flints from this site including cores, scrapers and a scalene triangle (fig. 193, 26) which is now in the Tenby Museum.

GILTAR POINT, PEMBROKESHIRE (Fig. 193, 20)

Mr. Leach (1913, p.406) recorded hammerstones, scrapers and one lanceolate point from this site (fig. 206).

HILL FARM, MANORBIER, PEMBROKESHIRE (Fig. 193, 16-17)

Scrapers, a calcined flake and two angle backed blades (fig. 193, 16-17) were recorded by Mr. Leach (1913, pp.406-407) from this site (fig. 206).

SWANLAKE, PEMBROKESHIRE (Fig. 193, 18)

This is a very productive site (fig. 206) which was recorded by Mr. Leach (1913, p.407), who found abundant cores, scrapers, notched blades calcined pebbles and one fragmentary isosceles triangle (fig. 193, 18). A polished stone axe has also been found on the site.

FRESHWATER EAST, PEMBROKESHIRE (Fig. 193, 24-26)

Mr. Leach (1913, p.408) has recorded cores, scrapers and two obliquely blunted points (fig. 193, 24-26) from this site on the north side of the bay (fig. 205).

FRAINSLAKE, PEMBROKESHIRE (Fig. 193, 19; fig. 208; 209,1,2,5)

Mr. Leach recorded a chipping floor at Frainslake in south Pembrokeshire (fig. 204) from which he recorded hammerstones, cores, scrapers, a lanceolate point (fig. 193, 19) and a fragment of a polished stone axe (Leach, 1913, pp.408-409).

The site has been reinvestigated by the writer (Wainwright, 1960 A) who recorded a large quantity of waste material a microlithic rod (fig. 208, 1) an obliquely blunted point (fig. 208, 4) and a microburin (fig. 208, 2). Other types include large quantities of scrapers (fig. 208, 5-27) a triangular arrowhead (fig. 208, 3) and a fragmentary Neolithic axe (fig. 209,1). The mixture of equipment of different periods is very typical of the Welsh littoral industries.

LONGSTONE WARREN, PEMBROKESHIRE

The Reverend J.P. Gordon Williams has recorded one microlith, a scraper and four 'limpet scoops' from Longstone Warren in south Pembrokeshire (Gordon Williams, 1926, p.106)

LYDSTEP, SOUTH PEMBS. (fig. 206) (Leach, 1913, p.406.

MANORBIER, SOUTH PEMBS (fig. 206) Leach, 1913, p.406.

PARK FARM, MANORBIER (fig. 206) Leach, 1913, p.407.

EAST MOOR, SOUTH PEMBS Leach, 1913, p.407

WEST MOOR, SOUTH PEMBS Leach, 1913, p.407

GREENALA, SOUTH PEMBS (fig. 205) Leach, 1913, p.408

BARRAFUNDLE BAY, SOUTH PEMBS Leach, 1913, p.408

FLIMSTON, SOUTH PEMBS Leach, 1913, p.408

GREAT FURZENIP, SOUTH PEMBS Leach, 1913, p.409

WEST ANGLE BAY, SOUTH PEMBS Leach, 1913, p.410

The chipping floors numbered 1-19 on fig. 204 were recorded by the writer as a corollary to the work of Mr. Leach (Wainwright, 1960 A). Numbers 17 and 18 represent industries from soil drifts (see above) and the other industries have been collected from the surface. They include cores, blades and scrapers (fig. 209, 4, 6-9, 10-12).

The following description of some chipping floors in north Pembrokeshire is taken from the published reports of Mr. T.C. Cantrill (1915; 1919). Only the most prolific sites are described and they are indicated on the distribution map (fig. 211) by the numbers given to them by Mr. Cantrill (1915).

#### LONGLAND'S FARM, DALE

Cores, flakes and two 'limpet scoops' were recorded from this site by Mr. Cantrill (1915, pp.176-177, Site No. 23).

#### LONG POINT, DALE (Fig. 193, 27-28)

Cores flakes, scrapers and one scalene triangle (fig. 193, 28) together with two 'limpet scoops', have been recorded from Long Point near Dale (Cantrill, 1919).

#### RAMASKELL, NORTH PEMBROKE SHIRE (Fig. 210, 1,3)

Mr. Cantrill recorded scrapers, blades, cores and six 'limpet scoops' (fig. 210, 1,3) from this site (Cantrill, 1915, pp.179-180, Site No. 27).

#### LITTLE CASTLE POINT, NORTH PEMBROKE SHIRE

Cores, flakes and two 'limpet scoops' have been recorded from

this site (Cantrill, 1915, pp.182-183, Site No. 35).

SHORT POINT GULLY, NORTH PEMBROKESHIRE (Fig. 210, 2)

Scrapers, cores, flakes and twenty eight 'limpet scoops' (fig. 210,2) have been recorded from this site by Mr. Cantrill (1915, pp. 184-190, Site No. 37)

WINSLE LEYS Cantrill, 1915, pp. 169-171, Site No. 5

CULL POINT, ST. ISHMAELS Cantrill, 1915, pp.172-173, Site No, 10

MUSCELWICK, MARLOES Cantrill, 1915, pp.177-179, Site No. 26

BRUNT FARM Cantrill, 1915, pp.181-182, Site No. 33

KETE FARM Cantrill, 1915, pp.183-184, Site No. 36

DRUIDSTON HAVEN Cantrill, 1915, pp.191-192, Site No. 41

CONCLUSION

One of the most remarkable features about the Pembrokeshire sites is the large numbers in which they occur, and this can be attributed to a great extent to the accurate and intensive research carried out by Messrs. Leach and Cantrill in the early years of this century. The distribution of the industries as shown in fig. 204-206 is predominantly coastal with a very little penetration into the interior along the banks of the streams. The raw material was obtained from the beach and includes cherts as well as the poor quality nodular flint.

Typologically, little can be deduced from the microlithic component, but the two shale beads from Kilpaison Burrows are of interest for they suggest contacts between that area and the Mesolithic industry at Nab Head in north Pembrokeshire. Identical shale beads from the soil drift at Freshwater East substantiate this suggestion. Attention

has already been drawn to the large numbers of 'limpet scoops' from these surface sites, in particular the twenty eight examples from Short Point Gully in north Pembrokeshire.

## B. CARMARTHENSHIRE

### LLANEGWAD PARISH, CARMARTHENSHIRE (Fig. 212, 1-10)

A number of crude flint flakes and <sup>cores</sup> have been found by E.E. Allen in the north west angle formed by the junction of the River Cothi with the River Towy (fig. 188) (Allen, 1938, pp.92-94, fig. 1-2). All the flints were found within a small area of about forty yards by thirty yards.

Flint is not generally found in the river gravels of Carmarthenshire and therefore the nearest source for the raw material would have been the coast. The industry is very crude, probably owing to the refractory nature of the raw material, and includes blade cores, scrapers and waste flakes, some of which show signs of utilization.

## C. GLAMORGANSHIRE

### THREE CLIFFS BAY, PENARD BURROWS, GOWER (Fig. 212, 11-18)

Mr. T.N. George has recorded an indeterminate blade industry from Three Cliffs Bay, Penard Burrows in the Gower (George, 1935). There are no diagnostic types in the industry (fig. 212, 11-18) but one item of great interest is an irregular flake of a Greensand chert amongst the flint debris. This chert does not occur naturally on the beaches



or in the drifts of Gower, and one must assume that it was transported from the Blackdown Hills in Somerset.

It has been indicated that the floor of the Bristol Channel was a broad river valley in early Mesolithic times, in which case movement between Somerset and south Wales would be greatly facilitated. It is therefore of interest to find evidence of contact between the two areas.

#### BURRY HOLMES, GOWER (Fig. 213)

The National Museum of Wales contains two collections of flints from a Mesolithic site at Burry Holmes in the Gower, the T.C. Lethbridge collection which has been published by W.F. Grimes (1951, pp. 10-11, fig. 4) and the H.E. David collection. The microlithic component of the industry from these collections includes ten obliquely blunted points (fig. 213, 4-7, 11-13, 16, 21, 23), two lanceolate points (Nos. 8, 17), one needle shaped point (No. 9), one single point (No. 22) and four fragmentary points retouched down one edge. The industry also includes scrapers (fig. 213, 1, 2, 24-26), one medial burin (No. 3) and a serrated blade (No. 10).

The absence of geometric microliths from this assemblage and the single burin, may point to connections across the Bristol Channel with a group of similar industries in north Somerset, in particular the industry from Doniford Cliff (see above). The industry from Burry Holmes is of interest because of the simplicity of the microlithic component and future research may throw some light on this problem.

#### LLANGENYDD BURROWS, GOWER

The H.E. David collection in the National Museum of Wales includes

one large obliquely blunted point from Llangenydd Burrows, near to Burry Holmes.

#### PORTHCAWL, GLAMORGAN

The H.E. David collection in the National Museum of Wales includes one single point and a sub-triangular point, from Port<sup>h</sup>cawl in Glamorgan.

#### D. CARDIGANSHIRE

##### ABERYSTWYTH, CARDIGANSHIRE (Fig. 214-217)

This site was initially discovered by Mr. R. Thomas (1912) and excavated in 1922 by Mr. Thomas and Mr. E.R. Dudleyke (Thomas and Dudleyke, 1925). The industry lies at the junction of the rivers Rheidol and Ystwyth on a cliff about 30' above sea level, immediately south of the town of Aberystwyth (fig. 214; 215). The industry was stratified in a dark red loam varying from 35 cms. to 70 cms. in depth which rested on glacial drift, and at one point a thick layer of charcoal was found, underlying the implementiferous layer and resting directly on the glacial drift. The majority of the flints were at the base of the red loam.

The bulk of the material is now in the National Museum of Wales where an analysis of the microlithic types gives the following results:-

Obliquely blunted points (fig. 216, 1-6)	6
Lanceolate points (Nos. 12-13)	2
Microlithic rods (Nos. 7-11)	5

Needle shaped points (Nos. 14-15)	2
Scalene triangles (Nos. 16-17)	2
Isocetes triangles (No. 19)	1
Angle backed blades (No. 20)	1
Blades retouched down one edge (Nos. 18,22)	2
Total	21

The industry also includes about two hundred cores (fig. 216, 34-37), numerous scrapers (fig. 216, 24-26, 28-32), serrated blades (No. 27) and micro-burins (fig. 216, 21). An unusual type is a broad lozenge shaped flake with retouch on all edges (fig. 216, 23). About thirty 'limpet scoops' were found (fig. 217, 1-3), mostly of a dark green mud-stone with a tendency towards a gritty texture. The longest specimen is 13 cms. but the average dimensions are length 8 cms. width 3 cms. and breadth 1.2 cms. One example (fig. 217, 1) is broken transversely and scored along the line of the fracture. Another, (fig. 217, 2) shows longitudinal striae. Two implements of shale were found (fig. 217, 5-6), of which one has flat retouch along one edge (No. 5) and the other a worked notch (No. 6). A quantity of calcined pebbles were found associated with the industry together with a limestone bead.

The assemblage is absolutely typical of the littoral communities in Wales and also of west England. That is, a preponderance of obliquely blunted points and microlithic rods, a few triangles and needle shaped points and quantities of 'limpet scoops'. The triangles and needle shaped points are not sufficiently numerous to justify a Sauveterrian context for the industry, which fits into the complex of littoral communities in Wales and west England.

E. CAERNARVONSHIREABERSOCH, CAERNARVONSHIRE (Fig. 218; 220)

The site was discovered by Messrs. Ridgeway and Leach near Brynrefail Farm south of Abersoch, at a height of about 200' above sea level (fig. 218). The site was excavated in 1946 and numbers of flints were found resting on the bedrock, sealed by about 12" of humus (Ridgeway and Leach, 1946). A thin layer of charcoal was found at one point, fragments of which were identified as oak.

The industry is comprised of about 1,700 flints including cores (fig. 220, 18-23), scrapers (fig. 220, 17), blades with edge retouch (Nos. 5,7,9,11), one fragmentary needle shaped point (fig. 220, 1), two micro-lithic rods (Nos. 2,3) and one micro-blade retouched down one edge (No. 4).

PENCILAN HEAD, LLANENGAN, CAERNARVONSHIRE (Fig. 219)

The R.M. Hartley collection in the National Museum of Wales includes about seventy flints from Pencilan Head near Abersoch, on the southern side of the Lleyn Peninsula (fig. 188). The industry includes cores (fig. 219,5-7), blades and a microlithic component, which comprises two obliquely blunted points (fig. 219,1,4) and two micro-blades retouched down one edge (fig. 219,2,3).

PARED LLECHYMENIN, ABERDARON, CAERNARVONSHIRE

A flint industry has been collected by Drs. Maltby, Oakley and Howarth from a cliff top near Pared Llechymenin, Aberdaron, Caernarvonshire (Maltby, Oakley and Howarth, 1938). A part of the material is now in the National Museum of Wales and includes flakes, blades,

cores and a few microliths of non-geometric type.

BARDSEY ISLAND (Fig. 221, 14-16)

A small collection of flints from Bardsey Island is housed in the National Museum of Wales. The industry includes a truncated blade (fig. 221, 14) a blade retouched down one edge (fig. 221, 15) and a discoidal scraper (fig. 221, 16)

LLANGRANNOG, CAERNARVONSHIRE (Fig. 221, 17-18)

The H.K. Tzghé collection in the National Museum of Wales includes a small collection of flints from Llangrannog in Caernarvonshire. The material includes a few cores, one Blade retouched down one edge and a scraper on a flake (fig. 221, 17-18).

ST. MARY'S CHAPEL, ABERDARON, CAERNARVONSHIRE (Fig. 221, 19-21)

The W.J. Hemp collection in the National Museum of Wales contains a small collection of blades and spalls from near St. Mary's Chapel, Aberdaron, Caernarvonshire. The material includes a broad blade worked to a point at one end, a fragmentary blade retouched down one edge and an end scraper (fig. 221, 19-21)

F. ANGLESEY

ABERFFRAW, ANGLESEY (Fig. 222; 223)

Mr. C.H. Houlder has recently partially excavated a Mesolithic industry at Aberffraw on the southern coast of Anglesey (fig. 188).

The industry was discovered by chance during the investigation of a Neolithic or Bronze Age cairn which overlies the Mesolithic horizon (fig. 222). About 6" of sand accumulated between the Mesolithic settlement and the construction of the cairn and below this drift sand, resting on the bed rock, was a deposit of clayey loam on which the Mesolithic settlement had been established. This loam was overlain by 3" of dark sand containing occasional fragments of flint, which graded into the dune sand. The industry was found in the loam (fig. 222).

The writer is indebted to Mr. C.H. Houlder for permission to examine his unpublished notes and also the Mesolithic material, which is housed in the offices of the Royal Commission on Ancient Monuments for Wales and Monmouthshire at Aberystwyth.

The industry includes a large quantity of waste material, four micro-burins (fig. 223, 1-4), a number of scrapers on the ends of blades or flakes (fig. 223, 27-36) and one very typical angle-burin (fig. 223, 37), together with a series of microliths. An analysis of the microlithic forms produces the following results:-

Obliquely blunted points (fig. 223, 5-11, 14-19, 23, 24)	15
Elongated trapezes (No. 20)	1
Needle shaped points (No. 26)	1
Single points (Nos. 21, 22, 25)	3
Unclassifiable	1
Total	21

The most noticeable feature is the absence of geometric forms although these may be recorded when a more extensive excavation of the area takes place. Fragments of charred wood and the shells of hazel nuts were found in association with the flints.

NEWBOROUGH WARREN, ANGLESEY (Fig. 224)

Mr. T. Page has carried out a considerable amount of research in the sand dune areas of Newborough Warren in south west Anglesey, the results of which he described in a series of papers (Page, 1927 A; 1927 B; 1928; 1929). So far as one can judge from his illustrations the bulk of his collection of flints consists of Neolithic or Bronze Age for ms and large quantities of scrapers (fig. 224, 1-14, 20-22). However, a few microlithic types can be identified and these include two obliquely blunted points (fig. 224, 15, 19) together with three points retouched down one edge (fig. 224, 16-18).

PENMON, ANGLESEY (Fig. 221, 22-24)

The W.J. Hemp collection in the National Museum of Wales includes a small industry from Penmon in Anglesey. The industry includes an obliquely blunted point (fig. 221, 22) a blade with edge retouch (No. 23) and a thumb scraper (No. 24).

G. FLINTSHIRENANT HALL ROAD, PRESTATYN, FLINTSHIRE (Fig. 221, 1, 2, 4-8, 10, 11, 13)

The late F. Gilbert Smith collected thousands of flint and chert artifacts from a large field near the Nant Hall Road in Prestatyn. His collection is now housed in the attics of the Prestatyn Town Council Offices, to which the writer was given access by Mr. T. Pennant Williams.

A large proportion of the material consists of Neolithic and Bronze

Age types, but on typological grounds a number of Mesolithic forms were identified. These include two microlithic rods (fig. 221, 1-2), a lanceolate point (fig. 221, 4), two obliquely blunted points (fig. 221, 5,7) and two broad crescentic types with retouch along one edge (fig. 221, 10-11).

Plentiful use is made of Gronan chert in the raw material, which was obtained from an outcrop some ten miles away.

#### BRYN ROSSA, PRESTATYN (Fig. 221, 3,9,12)

The F. Gilbert Smith collection in the offices of the Prestatyn Town Council includes a small industry from 'Bryn Rossa', Prestatyn. The material includes an obliquely blunted point (fig. 221, 9), a micro-blade retouched down one edge (No. 3) and one elongated crescent (No. 12).

## 8. CONCLUSION

### A. DISTRIBUTION

The distribution of the Mesolithic industries in Wales has already been discussed when dealing with the physiographical background of the Principality. In brief, the evidence suggests that the central high-land massif discouraged occupation of the interior in Mesolithic times. However, a few isolated finds of microliths suggests that this lack of occupation may be more apparent than real. The great proportion of the Mesolithic settlement was centred on the coastal plain, which has since been partially submerged, thus destroying an unknown part of the evidence.



## B. THE CONTRIBUTORY CULTURES

### (i) SAUVETERRIAN INFLUENCES

It has been suggested that there are three industries in Wales, which without prejudice to their origin, may be described as having typological affinities with the continental Sauveterrian. They occur at Daylight Rock in south Pembrokeshire, Prestatyn in Flintshire and Gop Cave, also in Flintshire. The last named has a negligible number of microliths, but the industries from Daylight Rock and Prestatyn are characterised by the microlithic nature of the artifacts, the predominance of scalene triangles among the microlithic types and the absence of axes or adzes. The typological connections with the continental Sauveterrian are confined to these features, but on the other hand these industries are distinct from the remainder of the Welsh sites and the term 'Sauveterrian' is convenient, if somewhat misleading.

### (ii) HORSHAM INFLUENCES

The distribution of Mesolithic axes in Wales is confined solely to Pembrokeshire, where occurs the sole Welsh example of a microlithic industry in association with tranchet axes. These elements are obviously introduced as a result of a movement from a source where the use of the axe was common place, as in the Horsham culture of southern England. A clue to their origin may lie in the identification of two Horsham points in south Wales - one from south Glamorgan and the other from Freshwater West in south Pembrokeshire. This suggests that the concentration of tranchet axes in Pembrokeshire may be due to contacts with southern England by way of the Cotswolds (e.g. Nailsworth), and the coastal lowlands. Some facies of the Horsham culture certainly reached south Glamorgan and south Pembrokeshire, and in the light of

available evidence it is reasonable to assume that the concentration of tranche axes in Pembrokeshire stems from this source. Unfortunately a proportion of the evidence must now lie on the submerged floor of the Bristol Channel.

(iii) SITES WITH COASTAL ECONOMIES

The great bulk of the Mesolithic material in Wales is grouped under this heading, and one assumes that the physiographical characteristics already referred to, enforced a dependence on the sea shore both for food and raw materials. Evidence for such an economy is provided at Freshwater West in south Pembrokeshire where quantities of edible shell fish were recorded. Moreover, if the 'limpet scoops' were indeed used for such a purpose, they provide additional evidence.

Typologically, the industries show strong similarities to those of the littoral communities in Somerset, Devon and Cornwall. They are characterised by geometric and non-geometric microliths, particularly scalene triangles though these are not numerous, numbers of microlithic rods and a pebble tool element in which the 'limpet scoops' play a large role. The latter appear to be more numerous in Wales than they are in south west England.

The origin of these Mesolithic peoples who constitute the littoral communities in Wales is very difficult to determine. As in south west England they probably represent the fusion of several cultural streams. However, as the Upper Palaeolithic settlement in south Wales was particularly robust, it may be that they are derived basically from an indigenous source, with some Horsham influence in the south. A comparison of the remains of the littoral communities from west England and Wales suggests that the very nature of the economy produced

a material culture similar to that which we have seen above, and in which all evidence of its ancestry has been blurred or obliterated.

Nevertheless, despite the uncertainty with regard to their origin, the bulk of the Mesolithic peoples in Wales lived along the coast line and they produced a material culture, which is paralleled with changes of detail; all along the British Atlantic coast from Cornwall to Scotland. For this reason it is justifiable to speak of 'littoral communities' and imply a cultural group.

### C. CHRONOLOGY

Very little objective evidence has been obtained for the chronology of the Mesolithic settlement of Wales. The pollen analytical evidence from the submerged forest at Freshwater West indicates that the Mesolithic industry from the deposits at that point, which includes a small transept axe, can probably be assigned to some period in the middle of the Atlantic climatic phase. This is conformable with the attribution of the transept axe element in Pembrokeshire to the Horsham culture. However, nothing is known of the chronology of the littoral communities, many of which may have co-existed with the Neolithic immigrants. Any attempt at establishing a chronology at the present time would have to proceed without any data, and one of the priority tasks for the future is to establish a chronology based on objective facts.

## CHAPTER XI

### THE QUESTION OF THE SAUVETERRIAN CULTURE IN SOUTHERN AND WESTERN BRITAIN

In 1955 Professor, J.G.D. Clark published a paper which is of great importance to the study of the Mesolithic industries in this country (Clark, 1955). In it he describes a microlithic industry from Peacock's Farm, Shippea Hill, Cambridgeshire, and suggests a new nomenclature for certain of the British microlithic industries. His conclusions are of such importance that they deserve quoting in full at this point (Clark, 1955, p.19).

1. "The Mesolithic industry from Peacock's Farm, Shippea Hill, belongs to a group characterised by the absence of axes or adzes and by the presence of minute geometric microliths, predominantly scalene triangles, made from narrow flakelets. Such microlithic industries occur in England from East Anglia to the extreme south west and north east, in Wales, the Isle of Man and parts of Scotland.

2. Of these certain ones, characterised above all by the presence of micro trapezoids, stand closest to the Peacock's Farm assemblage, notably those from Wangford, Sainthorpe and the Marsden district of the Pennines.

3. The Peacock's Farm industry belongs to Zone VI c of Godwin's

forest history sequence and this is consistent with the pollen-analytic evidence from the Pennines.

4. The British microlithic industries should no longer be termed Tardenoisian except in the most general sense. Their affinities lie much more with the French Sauveterrian. Without prejudice to their continental or native origin, and taking account of certain differences, our British industries may be described as showing Sauveterrian affinities."

The discarding of the name 'Tardenoisian' is a very welcome move for the term is misleading and erroneous when applied to the British microlithic industries. However, the wholesale substitution of the term 'Sauveterrian' for any British industry that is not of Maglemosean or Horsham type is obviously equally incorrect. Moreover, despite Professor Clark's reservations, the very use of the word 'Sauveterrian' to describe those industries which have some affiliations with the continental culture of that name, implies a continental derivation. The problem is therefore a two fold one, firstly whether any industries in southern and western Britain have affinities to the continental Sauveterrian, and secondly whether such similarities are due to influences from France or to indigenous developments.

The industry from Peacock's Farm, Cambridgeshire, if it is of Sauveterrian type, is geographically well positioned on the east coast of England for a representative of continental influence from the home of the Sauveterrian, as defined in Chapter 1. The microlithic component includes Sauveterrian elements in the form of nine microlithic scalene triangles (Clark, 1955, fig. 2, 44-46, 53-57) and one ultra narrow trapeze (Clark, 1955, fig. 2, 52), out of a total of seventy seven microliths. The axe or adze element is absent from Peacock's Farm as it is from the Sauveterrian. However, there are elements in the former

which are not characteristic of the latter. For example, obliquely blunted points are more numerous and much larger at Peacock's Farm and broad lanceolate points, sometimes retouched at the base, are much more common. The short, symmetrical trapezoids of Peacock's Farm (Clark, 1955, fig. 2, 47-51) are not very typical of the Sauveterrian and the 'pointe de Sauveterre', so characteristic of that culture, is completely absent. Furthermore, the Sauveterrian culture as defined by Coulonges at Sauveterre la Lemance (Coulonges 1935), is characterised by large quantities, of scalene triangles, 'pointes de Sauveterre' and by the very microlithic nature of the assemblages - features which cannot be said to characterise the industry from Peacock's Farm.

The broad elongated obliquely blunted points and lanceolate points and the symmetrical micro-trapezoids of the English site are not characteristic of the Sauveterrian. However, they are to be found in the full Maglemosean assemblages in north Germany and Scandinavia, as at Svaerdborg (Früs Johansen, 1918-1919; Clark, 1936, fig. 31) and Duvensee near Lübeck in north Germany (Clark, 1936, fig. 34). In other words, the nature of the industry from Peacock's Farm suggests affiliations with a Maglemosean source rather than a Sauveterrian. An obstacle to this suggestion is the absence of an axe or adze element, but nevertheless the discrepancies between this industry and the continental Sauveterrian are such that the suggested affiliations (Clark, 1955) must be regarded with reserve.

As a result of the writer's research in the museums and private collections of the West Country and Wales, a number of hitherto unrecorded industries were identified as showing clearer affiliation with the continental Sauveterrian. Attention has been drawn to these industries (above) as it became necessary to describe them, and they are now presented as a group together with an analysis of their microlithic types.

VARIETIES	TORRYAN	LONG NEWNTON	HAWKECOMBE HEAD	GIDSLIGH COMMON	TREVISE HEAD	DAYLIGHT ROCK	PRESTATYN	GOP CAVE
Obliquely blunted points	5	6	8	7	8	4	15	2
Lanceolate points	-	-	8	1	-	3	-	2
Microlithic rods	4	7	30	7	8	-	7	-
Single Points	1	2	3	-	-	-	2	-
Needle shaped points	4	3	5	6	8	2	1	-
Elongated trapezes	-	-	-	-	-	1	-	-
Oblique arrowheads	-	-	-	1	-	1	-	-
Symmetrical points	2	-	-	-	1	-	-	-
Angle backed blades	-	2	-	-	-	-	-	-
Scalene triangles	12	6	9	6	6	3	27	4
Isocelles triangles	-	-	-	-	-	2	-	-
Rhomboids	-	1	-	-	-	-	-	-
Trapezoids	-	-	-	-	1	-	-	-
Crescents	1	2	1	2	2	1	-	-
Sub-triangular forms	-	-	-	-	2	-	-	-
Unclassifiable	1	7	-	-	3	1	1	1
Total	30	36	64	30	39	18	53	9

The analysis of the microlithic types shows the strong typological homogeneity of the industries which include the following similarities:-

1. The emphasis on the production of micro blades and the exceptionally microlithic character of the industries. This is particularly noticeable in the numbers of microlithic rods of which thirty were recorded from Hawkecombe Head.

2. The significant proportions of scalene triangles and narrow needle shaped points retouched down both edges to a point (c.f. pointes de Sauveterre). The proportion of scalene triangles is particularly high in the industries from Torbryan and Prestatyn.

3. The relatively small numbers of obliquely blunted points and lanceolate points.

4. The absence of axes and adzes.

These features also represent the chief characteristics of the continental Sauveterrian, but the industries differ from that culture in the scarcity of points retouched down one edge and at the base. However, they provide closer typological parallels to the continental Sauveterrian than any other industry or group of industries in southern and western Britain. It will be noted that the writer's identification of industries of Sauveterrian affinities in the area under discussion, differs from that of Professor Clark (1955, figs. 5,6). This is due to the fact that the writer has had access to unpublished material in west England and to divergent opinions on the attribution of industries such as Yelland, Westward Ho and Constantine Bay.

The distribution of the industries with suggested Sauveterrian affinities is shown in fig. 225 and the second problem to be discussed is the very difficult question of origin. The distribution of the industries may afford some clue in this, for with one exception, that from Trevoze Head, they occur in areas of Upper Palaeolithic settlement. These areas are in the vicinity of Kent's Cavern and Torbryan in Devon, the Mendips, south Wales, (Caldey Island itself has provided evidence for Upper Palaeolithic occupation), and the Vale of Clwyd in north Wales. The relevant Upper Palaeolithic material is discussed in Chapter 11 and 111.

This distribution is so uniform that the writer feels some signifi-



cance should be attached to it. An important gap in our knowledge of the British Mesolithic cultures is the fate of the native Upper Palaeolithic inhabitants, and it may be that in the group of industries under discussion one has a possible answer to this problem. The development of microlithic forms and Mesolithic techniques in the Late-Glacial period has already been demonstrated in Chapter III. The continental Sauveterrian is itself an epi-Palaeolithic survival (Coulanges, 1935, p. 49), and a parallel development in this country may have produced a group of industries with affinities to that culture.

A continental origin for this group seems unlikely in view of their distribution, which avoids the usual landfalls in southern and eastern England and is concentrated mainly on the high grounds of west England and the remoter parts of Wales. The typological differences are not so great as to rule out a derivation from a continental source, but such a solution seems to the writer to be unlikely.

### CONCLUSION

The writer has identified a group of industries in west England and Wales which have a degree of typological homogeneity. They are characterised by the microlithic nature of the artifacts, significant numbers of scalene triangles and needle shaped points and the absence of axes or adzes. The distribution of this group, with one exception conforms to the areas of Upper Palaeolithic settlement with a remarkable degree of consistency.

The origins of this group are uncertain but the possibilities are that they are either derived from an indigenous or from a continental source, that is, the Sauveterrian. In this connection the following facts may be of importance.

1. The distribution of this group of microlithic industries is remarkably consistent with areas of Upper Palaeolithic settlement.

2. The development of microlithic forms in the Late-Glacial period has already been noted and the fate of the native Upper Palaeolithic population is largely unknown.

3. Typologically the group have stronger affinities with the continental Sauveterrian than any other industry or group of industries in southern Britain.

4. The continental Sauveterrian is itself an epi-Palaeolithic survival.

5. The distribution of the industries does not suggest a continental source for them.

It is suggested, therefore, that the term 'Sauveterrian' should be applied only to members of this group of industries, certainly not to any sites outside of this group and the name should preferably be in inverted commas. As the Sauveterrian is itself an epi-Palaeolithic survival, the possibility of a parallel evolution in the areas of Upper Palaeolithic settlement in this country should not be overlooked. It is this indigenous source that may have produced the industries under discussion and as such the term 'Sauveterrian' is misleading, even though it may be broadly true in a typological sense. Indeed, the typological affinities between the continental Sauveterrian and the British group are very close, and it may be that fresh evidence may invoke a continental source. However, the available evidence does not favour this solution, mainly on the grounds of distribution, and an indigenous origin seems the more probably at this time.

## CHAPTER XII

### THE MESOLITHIC PERIOD IN SOUTH AND WEST BRITAIN

#### 1. INTRODUCTION

A detailed description of the material remains of the British Mesolithic industries in the area under discussion has been given in the preceding chapters, together with <sup>an</sup>ay conclusions which can be deduced from the available evidence. An exhaustive survey of each separate culture is therefore unnecessary and this chapter is devoted to a general survey of the present situation, as it appears to the writer, together with suggestions as to future lines of research.

#### 2. TPOLOGY

Broadly speaking, four main cultural groups can be identified on typological grounds in southern and western Britain. They are the Maglemosean and Horsham cultures, the British ('Sauveterrian' and the littoral communities of the western sea board. The objective evidence for the chronology of these groups is discussed below and this section is confined to typological considerations.

Detailed analysis of the microlithic components of these cultures have been given above but for the purposes of this discussion, four Area Histograms have been prepared to demonstrate the percentages of microlithic types in each group (fig. 226-229). The total percentages are based on the figures for the most prolific sites of each culture, the method having been to take the absolute totals of each microlithic type and reduce them to a percentage of the whole. These percentages are then reproduced on the Area Histogram. This method has the advantage of dealing with large numbers of microliths so as to obtain representative percentages, but it obviously does not depict regional variations. However the material equipment of the Maglemosean, the 'Sauveterrian' and the Littoral Communities is remarkably homogenous, and the detailed variations between certain industries of the Horsham culture can be obtained by reference to Chapter V.

The microlithic types are indicated by numbers 1-15, which refer to a simplified form of the writer's classification of microlithic types in Chapter 11 (fig. 16-17). The key to the numerals is given below to assist the reading of the Histograms.

- |    |                          |
|----|--------------------------|
| 1. | Obliquely blunted points |
| 2. | Retouched micro blades   |
| 3. | Lanceolate points        |
| 4. | Needle shaped points     |
| 5. | Single points            |
| 6. | Symmetrical points       |
| 7. | Hollow based points      |
| 8. | Oblique arrowheads       |
| 9. | Angular backed blades    |

- 10.A.            Scalene triangles
- 10 B.           Isoceles triangles
- 11.             Crescents
- 12.             Sub-triangular points
- 13.             Trapezoids
- 14.             Rhomboids
- 15.             Chisel-ended arrowheads

Unfortunately, the percentages for the Horsham culture have been obtained from published evidence. Therefore, scalene and isoceles triangles are described simply as 'triangles' and crescents, sub-triangular points, trapezoids and rhomboids are portrayed under the generic term 'other geometric forms'. In the case of the other groups the material has been examined and classified at first hand. A considerable proportion of it is unpublished and the sources are given in the relevant chapters.

The Histograms admirably demonstrate the variations in the microlithic components of the respective groups. The simplicity of the Maglemosean culture is demonstrated by the occurrence of only seven main microlithic varieties (fig. 226), 86% of the total being obliquely blunted or lanceolate points. A slight tendency towards geometric forms is indicated by very small numbers of elongated trapezoids and crude crescents, which comprise .5% and 1% respectively of the total.

The Horsham culture (fig. 227) is characterised by a reduction in the numbers of obliquely blunted points and lanceolate points (62%) a considerable increase in the proportion of geometric forms and the introduction of the hollow based point and the symmetrical point. The last two varieties each comprise 7% of the microliths considered. Nevertheless the microlithic varieties of the Horsham culture represent

a logical development from the Maglemosean, with an increase in geometric forms and the adoption of specialised types.

The 'Sauveterrian' on the other hand, presents a completely different picture (fig. 228). Obliquely blunted points (20%) are no longer the most common type but are superseded by microlithic scalene triangles (26%) and micro-blades or rods retouched down one edge (23%). There is a corresponding decrease in the number of lanceolate points (5%) and the proportion of needle shaped points is increased to 11%. Apart from scalene triangles, geometric forms are poorly represented with the possible exception of crescentic types. This tendency towards microlithicism as exemplified by the sudden prominence of the retouched rods or micro-blades and the emphasis on scalene triangles and needle shaped points, is clearly indicated in the relevant Histogram (fig. 228). The microlithic component of this group represents a complete break from the Maglemosean and Horsham cultures and suggests a source in a completely different cultural tradition, the problems of which are discussed in Chapter XI.

The obliquely blunted point (38%) is the most common type in the littoral industries of west England (fig. 229) but it is not so numerous as in the Maglemosean and Horsham cultures. It is followed by the microlithic rod (19%) with lanceolate points (7%) playing a subordinate role. The remainder of the microlithic component is fairly nondescript with very small percentages of the majority of geometric forms and the absence of the hollow based point. The small proportions of scalene triangles (4%) and needle shaped points (5%) does not suggest that these industries can be defined being of 'Sauveterrian' type, although a high percentage of microlithic rods is common to both groups.

### 3, DISTRIBUTION

The cultural groups under discussion are distinguished not only on typological grounds but by their distribution. The Maglemosean culture is distributed mainly along the river valleys of the Thames, the Kennet and the Solent, with a penetration across southern England into Somerset and Cornwall. The Horsham culture, on the other hand, is largely confined to the well drained subsoils of southern and eastern England away from the coast, with a very little penetration along the shores of the Bristol Channel. The British 'Sauveterrian' is confined largely to those areas in Devon, Gloucestershire and Wales which supported an Upper Palaeolithic occupation, and the Littoral communities occur along the coasts of Somerset, Devon, Cornwall and Wales.

This distribution implies differing economic concepts for the groups. The economy of the Horsham culture was presumably based on the hunting of small game in lightly wooded country. This implies a dependence on projectiles, in response to which the Horsham or hollow based point was developed. In contrast, the economy of the littoral communities was evidently based on food gathering along the sea shore, with hunting playing only a minor role. It may therefore be significant that only a few examples of the hollow based point have been recorded from the western coasts. The reason for this may be that the type was developed in response to the environment of the Weald and had no place in the economy of the Atlantic coast. The recording of the hollow based point along the latter may therefore be interpreted as stray influence from the south east.

The littoral communities in their turn possess certain tool types which were apparently developed in response to their environment.

Primarily these include the pebble tools and the so called 'limpet scoops'. These bevelled pebbles occur all along the Atlantic coast from Cornwall to Scotland and may fairly be regarded as playing some part in a strand looping economy.

Attention has already been drawn to the significance of the distribution of the industries of Sauveterrian type, which conforms with that of the Upper Palaeolithic settlement. It may be that in these industries one has the survival of a native Upper Palaeolithic tradition.

#### 4. CHRONOLOGY

It is in the field of the chronology of these cultural groups that most work remains to be done. The Maglemosean industries at Thatcham 1 and 11 have been assigned to Zones VI and VII A in the Post-Glacial climatic sequence, and Site 11 has a C 14 date of 8,100  $\pm$  150 B.P. Similar industries at Broxbourne and Uxbridge were sealed by peat of Boreal age, and therefore a date in the Boreal or late Boreal climatic phases seems likely for the Maglemosean culture in southern England. It may be significant that the industry from Peacock's Farm, Shippea Hill, Cambridgeshire, which it is suggested above may have affinities with the Maglemosean culture, has been assigned to Zone VI C on pollen analytical grounds.

In recent years absolute dates have been obtained for two sites of the Horsham culture by means of C 14. At Oakhanger the main occupation is assigned to an early part of the Atlantic period with a C 14 age of 6,300  $\pm$  120 years B.P. The second site at High Rocks, Tunbridge Wells, has produced a date of 3,700  $\pm$  150 years B.C., which



is in general agreement with that from Oakhanger. However, there is still some considerable gap between this chronology and the earliest Neolithic colonisation of southern England.

No objective chronology is available for the industries of Sauveterrian affinities in west England and Wales, or for the littoral communities of those areas. It is in connection with these groups that the aids of the natural sciences need to be applied. A C 14 date for the Sauveterrian type industries is vital for their interpretation and it is to be hoped that one will be forthcoming shortly. The chronology of the littoral communities is equally undecided and in this case the combined sciences of C 14 and pollen analysis are required. The submerged forests of the western littoral may provide a useful field of study for the botanists, with the ever present possibility of charcoal remains.

In conclusion, our knowledge of the organic equipment of Mesolithic man is very slight and an important aspect of any future research must be directed towards the filling of this gap. The most fruitful areas for exploration should be those where conditions of preservation are good and this quest will fortunately go hand in hand with the search for an objective chronology. The deposits of the submerged forests may well yield evidence of this kind and the moorlands of west England and Wales are full of promise for the future.

APPENDICES

1. Report on the Soil Samples from Freshwater West, Pembrokeshire, by I.W. Cornwall.
11. Report on the Samples from the Submerged Forest at Freshwater West, Pembrokeshire, by C.A. Lambert and H. Godwin.
111. The Utilization of Non-Local Raw Materials.
- 1V. The Significance of the Krukowski Burin in Late and Post-Glacial Contexts in Britain.

APPENDIX 1REPORT ON THE SOIL-SAMPLES FROM FRESHWATER WESTI.W. CORNWALL

Three samples were examined, from a vertical section, as follows:

1. Dark humic sand with rootlets
2. Reddish inchherent coarse sand with shell
3. Red sandy loam with O.R.S. pebbles

All were calcareous: (2) very strongly, (3) slightly and (1) only just showing effervescence with dilute acid.

The appearance of (1) at first suggested A-horizon of a podsol, but the absence of any layer of bleaching (A2) below it, the presence (in however small a quantity) of calcium carbonate and the immobility of the considerable iron content showed that this could not be the case. The grey black colour of the sample is due to the presence of calcium 'humates' of the rendsina type. The coarseness and predominantly siliceous nature of the material prevent the formation of true rendsina, a soil of limestone bedrocks, characterized by a marked crumbliness. The modern soil is best described by Kubiena's term "Pararendsina", formed on a parent rock only partially calcareous and destined in time to become decalcified and converted into a Braunerde.

The A-horizon represented by Sample (1) is formed on the highly calcareous reddish sand, (2), which, from its manifest content of marine shell-fragments, appears to be a beach or dune sand. This shows no sign of secondary infiltration by calcareous solutions and may confi-

dently be regarded as the unchanged parent-material (C-horizon) of the modern soil. This means that (3) the layer lying directly on Old Red Sandstone rubble, is a distinct entity, unconnected with (1) and (2) save in juxtaposition. It seems to represent a buried surface with an ancient soil.

Thin sections were made from all three samples. No. (3) was dense and easily sectioned. A lump of No. (1) held together chiefly by the rootlets, was also successfully hardened and ground. No. (2) contained no aggregates, so that it was necessary to make a "debris" preparation to examine its constituent grains in section.

The section of No. (3) consisted, as to about 80% of its materials, of quartz-grains many of which are well rounded and sorted into a grade falling between the limits 0.2-0.4 mm. There are a few larger (e.g. 3.5 x 5.5 mm.) fragments of an iron cemented quartzose sandstone (Old Red?) of much finer average grain (0.01 - 0.02 maximum). In this the quartzes are markedly angular and are mixed with much muscovite mica. This material evidently contributes much of the interstitial matrix of Sample (3), though here, the mica has largely disappeared through weathering. Rare rounded quartzite and flint grains are the only other notable minerals.

On ordinary light the iron compounds are seen to be of a dark reddish chocolate colour and are completely anisotropic under crossed nicols, showing the soil to be of the brownearth type. No calcareous grains were seen in the section, nor was there any visible calcareous cement, despite the chemical evidence for the presence of a small amount of calcium carbonate. The fabric was porous and with numerous voids, showing a good aggregation of the constituent grains and a marked crumb structure. This and the presence of calcium carbonate suggest a Braunerde of mesotrophic character - a typical soil of moist

cool temperate climate on a bedrock not rich, but not markedly deficient, in bases.

The debris preparation of (2) showed some quartzes much larger than in (3) (up to 1.2 mm. maximum dimension) though many were much smaller also than the average of (3). The size sorting, so striking in (3) was not seen here, where a few rounded and numerous angular grains of all sizes were mixed together. Calcareous grains, mostly fragments of shell, were also numerous, amounting, at a rough guess by eye, to some 2/3 of the number of the quartzes and tending to be of larger size (1 - 1.5 mm. diam.). Some scraps of flint and small rounded O.R.S. pebbles were the only other granular components.

The humic sand of (1) was penetrated in all directions by a mat of recent rootlets. Otherwise recognizable plant-remains were rare, the humus being of the mull form, amorphous and occupying the numerous voids and interstices in small granules, which coated some grains. Calcareous grains, as well as quartzes, were not rare, but far less numerous than in (2). They were, on the whole, small and of rounded outline, suggesting that they were being etched by roots and humic acids. The quartzes were ill sorted as to size, as in (2).

The thin section study shows beyond doubt that (1) and (2) belong together, forming respectively, the A- and C-horizons of the modern Pararendsina. (3) is a distinct ancient soil formed on O.R.S. and of brown earth character. Shell fragments are notably absent and the small amount of calcium carbonate it contains is either original or of subsequent infiltration, though the thin section shows no visible evidence of the latter.

No. (3) differs completely in character from the Caldey red loam, owing to difference of parent material. Here, the O.R.S. is the evident

parent, while the more clayey Caldey deposit derived mainly from the acid insoluble residue of the limestone. Climatic conditions for the formation of both would be similar, but there is no evidence in the soils themselves to show even approximate contemporaneity.

APPENDIX 11FRESHWATER WEST, PEMBS.

Samples submitted by G. Wainwright.

Three samples, representing a monolith, were received. Micro-liths had been found at the base of the peat, and a sample of peat, though not itself containing artifacts, was examined. The clay samples were not further examined. The samples were recovered at low tide, the peat being otherwise submerged.

Sample 1.

0-3 cm. Dark laminated coarse detritus mud with abundant twigs and some leaf fragments; some sand and silt and occasional pebbles of stone and clay.

4-7 cm. Dark brown wood peat with abundant wood fragments, compressed, and in situ.

Sample 11

0-8 cm. Peat clay contact at top; stiff grey blue clay with pebbles, some large rootlets penetrating from above.

Sample 111

Stiff silty clay with scattered small pebbles; largely blue grey but red brown at base of the block.

POLLEN ANALYSIS

Samples were analysed from the top and bottom of the block of

peat. The counts are expressed as a percentage of the total tree pollen.

	<u>No. of tree pollen grains counted.</u>	
	<u>Top of peat</u> (1-2 cm)	<u>Base of peat</u> (6-7 cm)
Betula	2	3
Pinus	3	0.6
Ulmus	+	3
Quercus	55	34
Tilia	-	0.6
Alnus	40	59
Corylus	8	12
Salix	9	13
Hedera	+	0.6
Ionicera	-	0.6
Gramineae	4	4
Chenopodiaceae	+	+
Compositae, Taraxacum type	0.6	+
Scabiosa or Succisa	+	+
Filicales	6	2
Polypodium	9	10
Pteridium	0.6	1
Osmunda	-	0.6

It is quite certain that both samples are post-Boreal in age, i.e. Zone VII or later. However, it appears from the absence of the characteristic assemblage of the weeds of cultivation that the deposit was



laid down before Neolithic culture had reached the area. The high values of Quercus and Alnus, the low ones for Betula and Pinus, together with very low Ulmus and Tilia all suggest that this peat began accumulating after Zone VIIa.

The differing Quercus/Alnus ratio between the two samples is probably due to the local presence of Alnus as shown by the macroscopic remains. Ulmus values show a decline in the upper sample, but it seems likely none the less that the peat accumulated fairly rapidly.

#### MACROSCOPIC REMAINS

The following remains were obtained by digesting large samples of the peat in dilute NaOH.

	<u>type of remain</u>	<u>0-3 cm.</u>	<u>4-7 cm.</u>
<i>Alisma plantago-aquatica</i>	fruit	-	rare
<i>Alnus glutinosa</i>	fruit	rare	fairly common
<i>Carex</i> sp.	nutlet	rare	" "
cf. <i>Glyceria declinata</i>	caryopsis	common	rare
<i>Lycopus europaeus</i>	nutlet	-	rare
<i>Potamogeton polygonifolius</i>	fruitstone	fairly common	common
<i>Rubus fruticosus</i> agg.	fruitstone	-	rare
<i>Solanum dulcamara</i>	seed	rare	-
<i>Bryophyta</i>	leaves	common	fairly common
<i>Plumatella</i> sp.	statoblast	rare	-

The presence of Potamogeton polygonifolius suggests that the deposit formed in a shallow, probably acid, pool. The finds of Alnus fruits in the lower part and cf. Glyceria declinata in the upper part

bear out the stratigraphical evidence of fen wood being locally replaced by more muddy conditions. Nearby dry land is indicated by Rubus fruticosus agg. and Solanum dulcamara.

The tentative identification of Glyceria declinata is of interest since it has not hitherto been found fossil.

#### CONCLUSION

Although the pollen analysis suggests that this peat formed just before the opening of the Neolithic period, the presence of local peaty swamps indicated by the plant remains would nevertheless accord with the type of environment favoured by the hunter fishers of the Mesolithic period.

It is to be recalled that at Barry Docks there was recorded a peat bed, two feet thick, with abundant trees of willow, pine and oak. This bed was at a level of about -3 to -5 ft. O.D. and in it was found part of a polished stone axe.

If it were possible to say that the fen wood at Freshwater had been submerged as a result of rising sea level, than a radiocarbon dating of the timber in it would indeed register a stage in the land and sea level changes of the S. Welsh coast, but this seems uncertain in the absence of a marine deposit over the peat bed.

C.A.L., 18.10.60

APPENDIX 111THE UTILIZATION OF NON-LOCAL RAW MATERIALS

A number of pebbles of a suggested non-local material have been collected from certain sites of the Horsham culture in south and south east England. The sites include Farnham, Blackdown and Oak-hanger (Rankine, 1949; 1960). A number of these pebbles have been examined by the Petrological Department of the Geological Survey, the results of which suggest that the pebbles were derived from the Devonian sediments of south Cornwall, the Gramscatho Beds exposed near Helford in Cornwall and other deposits in the neighbourhood.

An immediate implication of this evidence is that the pebble 'rubbers' were brought to the Weald by human agency, thus providing evidence for contacts between Cornwall and Surrey during the period when the Horsham culture was flourishing. However, before arriving at this conclusion one must be certain that similar pebbles do not occur closed at hand.

One of the most striking features of the south coast of England is the great shingle ridge known as the Chesil Beach or Bank, which covers one third of the coastline of Dorset. The pebbles of this huge storm beach are mostly of flint and chert, with some quartzites and a very small admixture of fragments of local Jurassic Limestone. In addition, pebbles occur that can be matched with deposits in Devon and Cornwall (Chatwin, 1948, p.80; Bond, 1951). They were presumably transported by means of the 'long-shore drift' and may well occur still further to the east. Therefore, the coast cannot be disregarded as a possible source for the pebble 'rubbers' of the Weald,

and the transportation of these pebbles from Cornwall by human agency seems most unlikely.

Nevertheless, contacts between Dorset and Surrey are evidenced by the finding of microliths of Portland chert from a Farnham pit-dwelling (Rankine, 1954). Such connections are quite feasible in view of the fact that the Horsham culture had flourishing outposts in Dorset, as at Iwerne Minster and Plainfields Farm.

Elsewhere there is little evidence for the utilization of non-local raw materials. The Blackdown Hills in Somerset were a well-frequented source for cretaceous cherts which were then transported to the north coast of Somerset. A fragment of this material has been found on a Mesolithic site in the Gower Peninsula and presumably affords evidence for some community of tradition on both sides of the Bristol Channel.

# APPENDIX 1V

## THE SIGNIFICANCE OF THE KRUKOWSKI BURIN IN LATE AND POST GLACIAL CONTEXTS IN BRITAIN

The Krukowski burin was first recognised as a clearly defined type by Professor S. Krukowski in Poland in 1915 (Krukowski, 1915). Since the publication of that article, prehistorians in France and north Africa have frequently drawn attention to the presence of Krukowski burins in Late-Glacial and Mesolithic industries, but its occurrence in Britain has been neglected. As a result of the writer's researches in west England and Wales a number of unrecorded specimens have been found, and it is felt that a discussion of the significance of the Krukowski burin in the light of recent research may be of some value.

The name 'Krukowski burin', like the term 'micro burin', is a mis-nomer in so far as it is not an artifact but a by-product from a process similar to that which produces the micro-burin. It is very similar in form to a micro-blade retouched down one edge except for the fact that the other three sides form triangular facets. The facet which is opposed to the retouched edge appears to be the result of deliberate snapping, and is thus formed in much the same way as the triangular facet of a micro burin (fig. 19, 13, 14; 20,34; 25,9; 159,64; 187,40). The Krukowski burin would seem to be the by-product in the manufacture of retouched micro blades by a process which is akin to, but different from, the notch and twist method which produces the micro burin. The definition of E.G. Gobert and R. Vaufrej arrives at substantially the same conclusion, "le nom de micro burins Krukowski

aux lamelles à dos rabattu quand elles ont été tronquées par le même procédé." (Gobert and Vaufrey, 1950, p.32).

The cultures in which the Krukowski burin occurs most frequently are the Oranian and Capsian cultures of north Africa. The microlithic component of the Oranian industry from El Hamel (Balout, 1955, pp. 361-362) is largely composed of micro blades retouched down one edge, with a very low percentage of geometric forms. The ratio of micro burins to Krukowski burins in this industry is 9:41. The transitional industry which is stratified above the Oranian on the same site, is characterised by a reduction in the percentage of retouched micro-blades and an increase in the number of geometric forms. The micro-burins in this industry outnumber the Krukowski burins. It seems probable, therefore, that the Krukowski burin is a by-product from the manufacture of microlithic rods by a variation of the micro burin technique, which explains its abundance in the Oranian industry from El Hamel.

This situation recurs in the Capsian as at El Mekta (Balout, 1955, pp.407-408), where the microlithic component of the 'Capsien typique' is characterised by micro blades retouched down one edge (33% of the implement total), with micro burins comprising 8% and Krukowski burins 2% of the total industry. The Krukowski burin occurs elsewhere in the Capsian as at Henchir Mezib and Khaza (Vaufrey, 1938, fig. 6; 10), and Abri 402 near Tunis where a significant number of Krukowski burins were associated with an industry in which micro blades retouched down one edge (Gobert and Vaufrey, 1950, fig. 8) are predominant. The evidence from the Capsian supports that of the Oranian in that the Krukowski burin is a by-product from the manufacture of micro blades retouched down one edge.

In Europe a Krukowski burin has been recorded in association with

an Azilian industry from Abris Pagés (Lot), which includes harpoons and numerous micro blades retouched down one edge (Niederlender, Lacam and Sonneviller-Bordes, 1956, p.426, fig. 3, 28). The type has not been recorded in an earlier context on the continent and the micro burin has not hitherto been identified in an Azilian industry. However in Britain the Krukowski burin has recently been found in Late-Glacial contexts associated with industries of Creswellian type. Two unpublished examples have been recorded from a demonstrably Late-Glacial context at Three Holes Cave, Torbryan, Devon (fig. 19,13,14), associated with an impoverished industry of Creswellian type (1). Moreover A.D. Lacaille and W.F. Grimes illustrate one example from Nanna's Cave, Caldey Island in south Pembrokeshire (Lacaille and Grimes, 1955, fig. 15, 7). It is associated with a typical Creswellian industry which includes angle backed blades, trapezoidal blades and blades retouched down one edge (fig. 20, 34).

This evidence gains significance from the fact that recently Dr. C.M.B. McBurney has published two micro burins from a Late-Glacial deposit in Cathole, Gower (McBurney, 1959, fig. 1), which are associated with a typical Creswellian industry including microlithic forms. It has been indicated that the Krukowski burin is a by-product from the manufacture of micro blades with edge retouch, and it may therefore be suggested that their occurrence signifies a knowledge of Mesolithic techniques. It is doubtful whether one would be justified in making this suggestion, if it were not for the fact that the micro burin has also been recorded in British Late-Glacial contexts. The techniques which produced the micro burin and the Krukowski burin are not identical but they are certainly closely allied to each other.

- (1) The writer is indebted to Professor F.E. Zeuner for permission to illustrate the unpublished industries from Torbryan and for drawing his attention to the Krukowski burins.

Moreover, Krukowski burins occur in greater numbers in the succeeding Mesolithic period. It is therefore suggested that their occurrence in Late-Glacial contexts at Torbryan and Nanna's Cave, are indicative of the use of Mesolithic techniques in the same way as are the micro burins.

This implies a knowledge of similar techniques in the Azilian, but until more examples have been recorded one cannot draw any conclusions in that respect.

The Krukowski burin occurs in the true Mesolithic industries on the continent in association with micro burins and a microlithic component. At Rocher de Saint Pierre (Vallée du Loing) it has been recorded in association with a Sauveterrian type industry (Daniel, M. and R., 1953, pp.229-230). In the same area nine Krukowski burins, associated with a late Tardenoisian industry which includes 515 micro burins and fragments of pottery, were recorded from Rocher de Chaintreauville (Daniel, M. and R., 1953, pp.230-234). Other Tardenoisian contexts in which the Krukowski burin occurs include Piscop (Giraud, Vaché and Vignard, 1938, p.22, fig. 10,11,16), and the type area for the Tardenoisian culture (Daniel, M. and R., 1948, pp. 421-423, fig. 5,36).

In Britain four unpublished examples have been identified by the writer in Mesolithic contexts three of which are from Three Holes Cave, Torbryan, Hawkecombe Head, Exmoor and Trevose Head, Cornwall (fig. 20, 34; 159, 64; 187, 40). It will be remembered that these three industries belong to the small group of sites which the writer has suggested may represent the survival of the native Upper Palaeolithic peoples (Chapter XI). More specimens need to be identified before definite conclusions can be drawn but the evidence is suggestive of a lingering industrial tradition. The fourth Krukowski burin has been identified in an indeterminate industry from Blue Anchor on the north Somerset coast (fig. 163, 19).



The microlithic component of the industry from <sup>H</sup>Hawkecombe Head, Exmoor, is comprised of microlithic rods or retouched micro blades to the extent of 50%. Large numbers of these types were also recorded from Trevoise Head. This strengthens the suggestion that the Krukowski burin is a by-product from the manufacture of retouched micro blades or rods, through the use of a technique similar to that which produces the micro burin.

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CHAPTER X - APPENDIX 1V

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