



General Certificate of Education

A2 Archaeology 6011

**ACH5 Material Culture, Technology
and Economics**

Mark Scheme

2007 examination – June series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

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ACH5

Material Culture, Technology and Economics

Study **Figures 1 and 2** and then answer **both** parts of the question below.

Knowledge of the specific periods is not required.

Section A

Quality of Written Communication

The assessment of the Quality of Written Communication (QWC) in Section A is judged through the assessment of the clarity and appropriateness of the archaeological material presented. There are no discrete marks for the assessment of QWC but where questions are "levels" marked, QWC will influence the mark awarded within a particular level.

As a rough guide, QWC performance is characterised by the following descriptors.

- Level 1** Language is basic, descriptions and explanations are over-simplified and lack clarity.
- Level 2** Generally accurate use of language; descriptions and explanations can be easily followed, but are not clearly expressed throughout.
- Level 3** Accurate and appropriate use of language; descriptions and explanations are expressed with clarity throughout.

Further guidance on the assessment of QWC will be given at the Standardising Meeting.

Question 1

- (a) Use **Figures 1 and 2** and your own knowledge.

Explain the material culture changes that you would expect to accompany a move from a hunter-gatherer way of life to that of a farmer. (12 marks)

Target: AO1 (4) AO2 (8)

- L1: Fragmentary or fleetingly relevant responses.**
Purely descriptive responses based on the examples given or from memory which contain some relevant content. 1
- L2: Muddled, limited or poorly focused responses containing relevant points.**
Attempts to link in additional material in an attempt to answer the question, although this will not be coherent. Alternatively, valid responses which are little more than lists of possible evidence or styles of approach. 2-4

- L3: Partially successful responses: Focused but limited or detailed but unfocused or unbalanced.**
Either outlines a range of possible approaches and identifies some aspects of the pattern visible with some discussion. May include fleeting reference to the sources. Better responses may provide additional examples.
Or, entirely consists of discussion of what kind of evidence and approaches to its interpretation can be provided by this example. The best responses are likely to cite a similar example from memory. **5-7**
- L4: Good responses: Largely balanced and focused.**
 Includes both elements of L3. Responses which clearly draw on both sources and own knowledge, cite additional examples but are unbalanced or limited in their range. **8-10**
- L5:** Discuss a range of possible patterns and approaches drawing on both examples given and additional ones. Top level answers may consider how well their discussion fits the examples and real analysis and evidence of critical faculties being employed. May discuss the ambivalent nature of much archaeological evidence. For L4 and above there must be explicit reference to the aspect of change. **11-12**

Indicative Content

Most of changes will hinge upon the mobility of hunter-gatherer and their consequent inability to carry large and heavy items of equipment. Light portable items are therefore at a premium and the overall amount of material culture is smaller. Hunter-gatherer material in figure is armatures from arrows and fishing equipment in the form of barbed harpoons and leisters. Also, expect other kinds of fishing devices from hooks to fish traps and discussion of important role of organic materials in construction and consequent problems of survival and archaeological visibility. The Natufian material emphasises heavier items dedicated to food-processing and the beginnings of semi-permanent house structures. The stone bowls and containers might be interpreted as pottery which would be acceptable here. The role of sedentism and storage technology should also be discussed at this point. Candidates may support their answer by reference to comparative material from sites such as:

- Mount Sandel
- Howick
- Vedbaek
- Tell Abu Hureyra
- Hayonim Cave
- LBK

Indirect evidence of use of querns from arthritis in individuals at Tell Abu Hureya.

- (b) Apart from material culture, what archaeological evidence is there for changes in diet between hunter-gatherers and farmers? **(13 marks)**

Target: AO1 (5) AO2 (8)

- L1: Fragmentary or fleetingly relevant responses.**
 Purely descriptive responses based on the examples given **or** from memory which contain some relevant content. **1**

- L2: Muddled, limited or poorly focused responses containing relevant points.**
Attempts to define patterns and/or link to economic terms in an attempt to answer the question, although this will not be coherent. Alternatively valid responses which are little more than lists of possible evidence or styles of approach. **2-5**
- L3: Partially successful responses: Focused but limited or detailed but unfocused or unbalanced.**
Outlines a range of possible approaches to distributions and identifies some aspects of the pattern visible with some discussion. May include fleeting reference to the sources. Better responses may provide additional examples. Or, entirely consists of discussion of what kind of evidence of pattern and approaches to its interpretation in economic terms can be provided by this example. The best responses are likely to cite a similar example from memory. **6-8**
- L4: Good responses: Largely balanced and focused.**
Includes both elements of L3. Responses which clearly draw on both sources and own knowledge, cite additional examples but are unbalanced or limited in their range. Stronger explanation in relation to source. **9-11**
- L5: Discusses a range of possible patterns and approaches, drawing on both examples given and additional ones. Constructs a more convincing scenario, using correct terminology, in relation to observations from source. Top level answers may consider how well their discussion fits the examples with real analysis and evidence of critical faculties being employed. May discuss the ambivalent nature of much archaeological evidence.** **12-13**

Indicative Content

The focus in this question is firmly on types of evidence **other** than material culture, which is specifically excluded by the wording of the question. Hunter-gatherer-fisher economy based on the exploitation of a wide variety of food and other resources. Economy characterised by mobility and a range of different settlement types from overnight camps through short-term bases for the exploitation of specific seasonal resources to semi-permanent home bases where the resources are sufficiently abundant to allow residence for weeks, even months. Population size and density linked to carrying capacity of land and its resources at different times of year – ‘fission and fusion’ principle drawn from ethnoarchaeological parallels. Site catchment analysis and annual territory. Specific hunting practices – selective culling. Optimal foraging – the affluent hunter-gatherer – sites situated on the boundaries of several resource zones. Farmers’ diet based on cereals and ovicaprids in the Near East or on maize in Mesoamerica. Cost and effects of change in diet. Evidence mainly bones, change in wild/domestic proportions – species spectrum change, seeds, other ecofactual approaches, coprolites and freak preservation of food items in stomachs and in cold, wet and dessicated environments. Indirect landscape evidence such as woodland clearance (snails and pollen), field boundaries and preserved plough marks.

- Mount Sandel – wide range of resources
- Franchthi Cave – fishing
- Lepenski Vir – semi-sedentary fishing on Danube
- Star Carr – Mesolithic deer-hunting in North Yorkshire
- Tell Abu Hureyra – specific hunting of *Gazella subgutturosa* and evidence of arthritis
- Trentino – changes in hunting over time
- Lindow Man, Lady Dai and Otzi
- Maize at Ceren,, El Salvador

Section B

Marking Thematic Essays at A2

The thematic approaches in ACH4 and ACH5 enable candidates to answer from many different contexts. These will in turn impose their own strictures and bias in favour of one form of evidence over another. It will be appreciated by centres that the examiners cannot supply rigid mark schemes which could only deal with a specific context. The mark scheme must be as flexible as the specification and sufficiently broad and catholic in its nature as to be capable of embracing whatever culture and time period teachers and candidates elect to study in that particular year. It will be clear then that particularist forms of mark scheme are entirely inappropriate for our needs. Marking guidance therefore falls into two main types. A broad hierarchy of levels based on the assessment objectives for all essays and exemplification for each particular question. In the latter case the contexts and types of evidence suggested are simply for the sake of illustration. There are many other sets of evidence, which would provide equally good answers.

Good examining is, ultimately, about the consistent application of judgement. Levels of response mark schemes provide the necessary framework for exercising that judgement but cannot cover all eventualities. Where you are very unsure about a particular response, refer to the Principal Examiner.

Generic Essay Mark Scheme

Level 1 **1-5 marks: AO1 (1-5) AO2 (0)**

Weak or undeveloped answer

Either: Responses at the bottom of this level (1-2 marks) may provide **some information** which could be relevant to the question but it will be undifferentiated from irrelevant or inaccurate material – in other words it will be randomly rather than purposefully linked to the question. More typically the candidate will demonstrate some understanding of the thrust of the question but will be unable to respond in an adequate manner. Some understanding may be shown by the selection of relevant material although this will be presented in a ‘scattergun’ fashion with **little discrimination**, explanation or attempt to use it as part of a logical argument. The account will be superficial and may be within the context of a purely narrative or descriptive framework.

Or: Alternatively the response may consist of a **series of assertions**, some of which may be relevant to the question but which are unsupported. Nevertheless, some of these could have been developed into higher level responses. Also include at this level responses which do address the question but are only a few sentences in length or undeveloped lists or plans which had the potential to become higher level answers.

Level 2 6-9 marks: AO1 (5-7) AO2 (1-2)**Limited response with some merit**

Either: Responses which demonstrate understanding by including **some material relevant to the question**. However, it is likely that the candidate has been unable to organise their work successfully in order to meet the demands of the question. Typically this may include elements of a case study or the naming of 2-3 sites which are mentioned in less detail. Understanding of the issues in the question will be **simplistic** and there will be little assessment of the data which will often be presented in a descriptive format.

Or: Answers which do address the question and demonstrate some understanding of the issues, perhaps making several valid points. However, there will be very little or no relevant archaeological examples to support their case. The weakest responses at this level may refer to regions and periods rather than sites. Also include at this level, good, detailed essay plans and promising essays which have not been developed.

Level 3 10-13 marks: AO1 (9-11) AO2 (1-2)**Reasonable response**

Either: Responses which largely contain **material relevant to the question** and where the candidate has begun to organise and structure their work successfully in order to meet its demands. This may be of similar depth to level 2 responses but will be largely focussed on issues raised by the question. Introductions and conclusions are likely to be limited at this level and **appraisal will be fairly simple**.

Or: Answers which **address the question** and demonstrate a reasonable understanding of the issues and reach sensible conclusions but which contain **very brief archaeological examples** to support their case. These will typically take the form of name checks of a number of sites and/or methods, but they will not be developed. Include at this level responses which are of level 4 or 5 quality but which have only addressed half of a question which contains two main elements.

Level 4 14-17 marks: AO1 (12-14) AO2 (2-3)**Sound response**

Either: Responses largely containing **well focused, relevant material** organised in the form of 1-2 detailed case studies or a range of 4-6 shorter examples with some relevant development. The response must reach **some conclusions** – perhaps in the final paragraph. Depth of understanding of terms and case studies may be very good but commentary and argument will be underdeveloped.

Or: Well focused responses which address the question directly and demonstrate a **good understanding of the issues** raised by it. The account is likely to have a coherent structure and may be argued consistently. However, **supporting**

evidence will still be sparse, perhaps including a few relevant examples with just a sentence on each. Detailed appraisal of specific studies will not therefore be possible. Include at this level responses which are of level 6 quality but which have only addressed half of a question which contains two main elements.

Level 5 18-21 marks: AO1 (15-17) AO2 (3-4)

Good response

Either: Responses containing **considerable, well focused relevant material** either in the form of 1-2 detailed case studies or a range of 4-6 shorter examples with some relevant development. Expect at least the equivalent of a sentence on each. **Analysis will be present** although this will not necessarily be consistent and not all the data will be appraised. Evaluation and assessment of the relative merits of different sources and lines of argument will be limited. A conclusion will be reached about the main element in the question.

Or: Responses which address the question directly and precisely, demonstrate a **very good understanding of the issues** raised by it. The account will be well structured and should be argued consistently. Appraisal of specific studies may be limited since supporting evidence will be relatively thin. This may include under-developed case studies or a wide range of very short examples.

Level 6 22-25 marks: AO1 (18-20) AO2 (4-5)

Very good to excellent response

Responses which explore issues in **greater depth or achieve sharper focus in argument** than at Level 5. While the two elements of critical analysis and relevant supporting evidence are both present these **may still be slightly unbalanced**. The essay will be well structured, largely analytical in approach and will address most aspects of the question. The candidate is able to sustain a logical and structured argument supported by appropriate examples, drawn from a particular archaeological context or from several. At this level two or three well developed and detailed case studies should be expected or at least 4 shorter ones, each of which contain several sentences of relevant material. The candidate will demonstrate an ability to successfully appraise some of the evidence and make comparisons. However, not every piece of data will necessarily be successfully linked to the specific demands of the question. Similarly, not all the case studies will supply sufficient detail or show sufficient discrimination in choice of material. Evaluation will be present, perhaps in a developed conclusion which answers the question. There should also be some awareness of the limitations of the evidence.

Reserve 25 marks for **exceptional responses**. These may display an ability to stand back from the detail; to consider a range of interpretations and reach a personal but well-supported judgement, which appreciates the interconnectedness of things.

Deciding on marks within a level

One of the purposes of examining is to differentiate between responses in order to help awarders distinguish clearly and fairly between candidates. We want to avoid too much 'bunching' of marks, which can lead to regression to the mean. A key element here is the way that examiners approach the work. Given the constraints of time and circumstance, candidates will not produce perfect work. Ideally you should take a 'cup half full' rather than a 'cup half empty' approach to responses above Level 2. This should help you to use the full range of marks available. Start by allocating the essay to the level which best describes it even though it may not be a perfect fit. If you really cannot decide between one level and another award the response the top mark of the lower level where the decision is between Levels 1-2 or 2-3 and at the bottom of the higher level in all other cases

Where you are confident about a level, you should start by placing the essay on one of the middle marks for that level. Next consider whether you feel that mark to be about right, slightly generous or slightly harsh in comparison with other responses at that level. In the latter cases move the essay out to lower or higher mark in that level. In making decisions away from the middle of the level, examiners should ask themselves whether the response is:

- precise in its use of factual information?
- appropriately detailed?
- factually accurate?
- appropriately balanced, or markedly better in some areas than in others?
- generally coherent in expression and cogent in development (as appropriate to the level awarded)?
- well-presented as to general use of syntax, including spelling, punctuation and grammar?

The latter two points indicate how the candidate's Quality of Written Communication might influence the award of marks within a given level of response and complement the information given elsewhere.

Quality of Written Communication

The Quality of Written Communication (QWC) exhibited by the candidate will influence his or her level of performance, and performance within a particular level, as can be seen from the descriptors, which follow here.

At Levels 1 and 2, candidates are likely to display poor communication skills, work being characterised by disjointed prose, poor organisation and frequent lapses of spelling and grammar.

At Level 3, communication skills are likely to remain limited and may be adequate at best. At the lower end of the level spelling and grammatical errors are likely to be frequent and answers will show limited powers of organisation. At the higher end there may still be insecure structuring of paragraphs and weaknesses of expression breaking the flow of the answer.

At Levels 4 and 5, communication skills will be generally effective and organisation serviceable. Though spelling and grammar will be sound there may be passages of less well directed writing or an overly schematic approach.

At Level 6, the candidate will show strong communication skills, with arguments logically structured, in good English, coherently expressed and cogently developed.

Question 2

How far, and for what reasons, is our understanding of past technology limited by differential survival? (25 marks)

Target: AO1 (20) AO2 (5)

Use generic levels.

Indicative Content

Differential survival of organic materials. Comparison between 'ordinary sites', in terms of missing components like handles, glue and sinew and sites with good preservation. Woodworkers' marks, axe marks and joinery. Splitting and sawing wood. Leather, horn and other materials that rarely survive. There are many approaches to this question based on the complementary record provided by analogy and by dry, wet and frozen sites with exceptional preservation of organic materials. Responses using analogy/proxy evidence should focus firmly on the technological aspects rather than general coverage of wet sites. Thus the [chains operative] of making stone axes in Papua New Guinea is relevant while discussion of Lindow Man is not.

- What do the artefacts themselves reveal?
- Associated material like debitage from flint-knapping and crucibles/tuyeres from metalworking
- Contribution of experimental archaeology?
- Contribution of ethnoarchaeology?
- What do other types of exceptional preservation tell us?
- Use of pictorial and written evidence
 - Flag Fen – Bronze Age woodworking
 - Batan Grande – copper working in early Peru
 - Somerset Levels – the 'Sweet Track'
 - Swiss Lake Villages – structures and axe handles
 - Oakbank Crannog – axe marks/spoon/ platform piles
 - Jorvik – barrels/skates/structures
 - Ozette – structures and everyday artefacts
 - Tybrind Vig – dugout canoes and paddles
 - Tomb of Rekhmyre – Egyptian building and sculpting techniques
 - Otzi the Ice Man – clothes and tools
 - Shipwrecks – ship construction
 - Stone axe making in Papua New Guinea

Question 3

How do archaeologists attempt to characterise and define the products of a single craft specialist or production centre? (25 marks)

Target: A01 (20) AO2 (5)

Use generic levels.

Indicative Content

Distinctive styles of pottery or other class of artefact. Sets of attributes. Creation of distribution maps by fall-off analysis and trend-surface analysis. Standardisation of size, shape and weight. Material from shipwrecks. Actual craftspeople's workshops. Tools and waste material or debitage. Foreign workers' barrios. Labels and names on artefacts. Literary and artistic evidence. Sourcing raw material by petrology/NAA/XRF/isotopic analysis.

- Maya feather craftspersons
- Shell workshop at Copan
- Roman pottery shop at Colchester
- Setius and amphorae from Cosa
- Samian ware
- Oxford Roman pottery
- Zapotec potters at Teotihuacan
- Black-burnished ware

Question 4

To what extent has technology affected modes of transport in past societies? (25 marks)

Target: AO1 (20) AO2 (5)

Use generic levels.

Indicative Content

Technological limits on transport of particular periods – what they could and could not do. Role of water transport, the wheel, animal traction and riding. Roads and trackways with both wheeled and human carriage.

- Stonehenge – movement of bluestones and Sarsens
- Roman roads
- Inca roads
- Neolithic trackways
- Shipbuilding technology as shown by prehistoric logboats, classical wrecks and medieval wrecks
- Chariots in Iron Age Europe
- Pochteca system of backpacking – Aztecs
- Flag Fen wooden wheel
- Dereivka – horse domestication
- Sledges and skis – Zvejnieki

- Movement of stone – pictorial evidence from Egypt
- Evidence from disused canals and railways

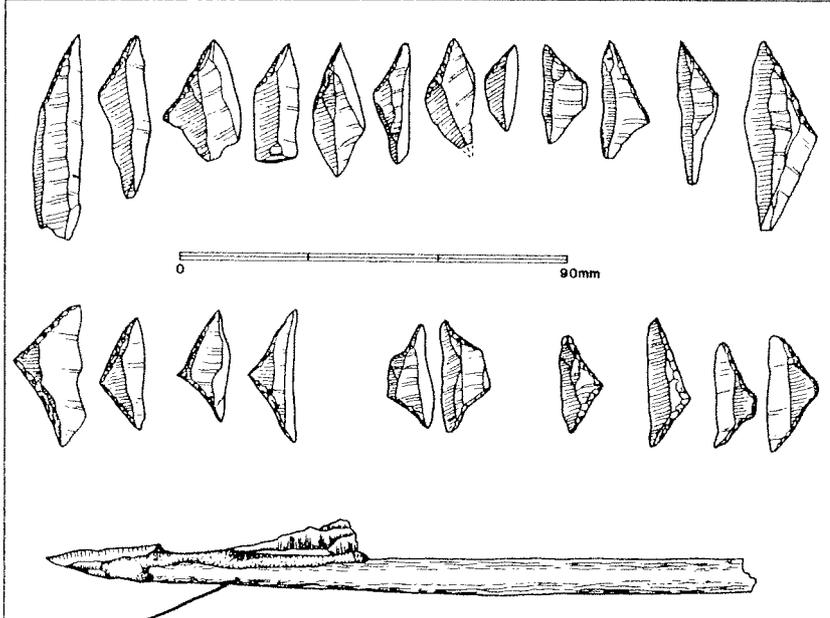
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APPENDIX WITH MARK SCHEME

Figure 1 Examples of artefact types from Star Carr, Yorkshire

MOBILE ECONOMY

MICROLITHS



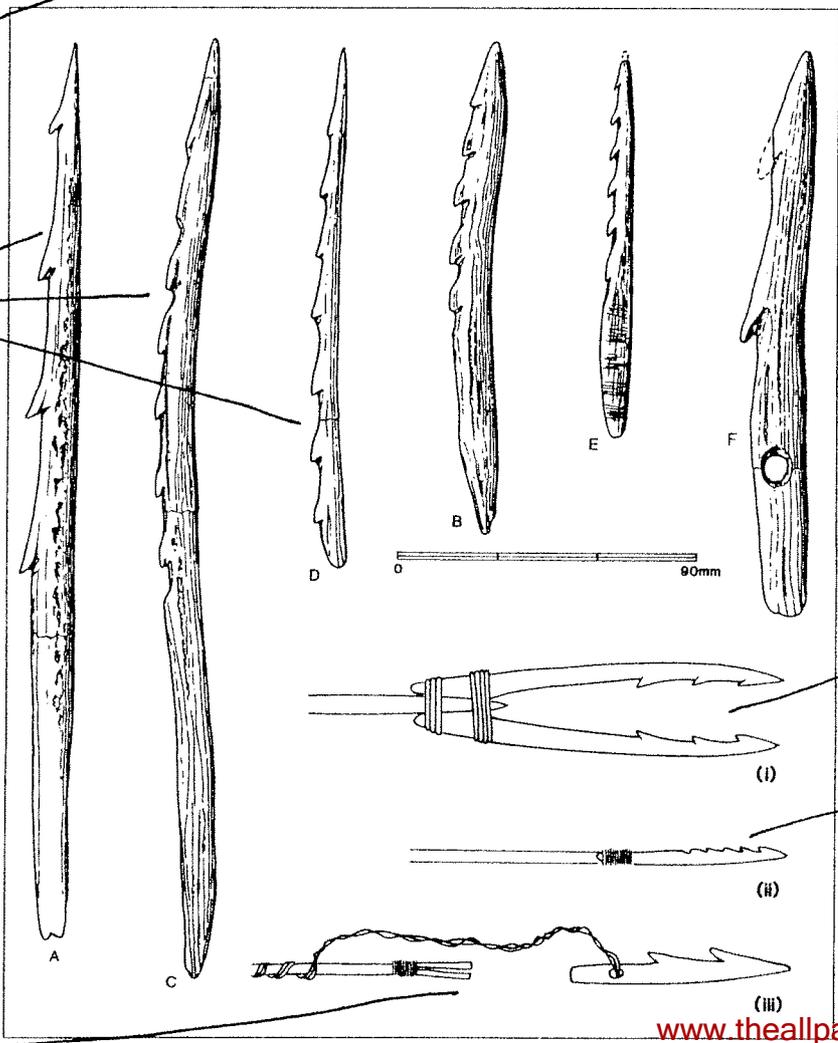
- LIGHT
- PORTABLE
- EASY REPAIR

SITE —
TEMPORARY
SHELTERS

RECONSTRUCTION
OF A MESOLITHIC
ARROW SHAFT
WITH FLINT POINT
+ ARMATURE
GLUED IN WITH
RESIN

COMPOSITE
TOOLS

UNISERIAL
HARPOONS
MADE OF
ANTLER /
BONE



RECONSTRUCTION
OF A
LEISTER

MOUNTED
UNISERIAL
HARPOON

HARPOON WITH
DETACHABLE
HEAD

Figure 2(a) Early Farming (Natufian) site at 'Ain Mallaha, Israel

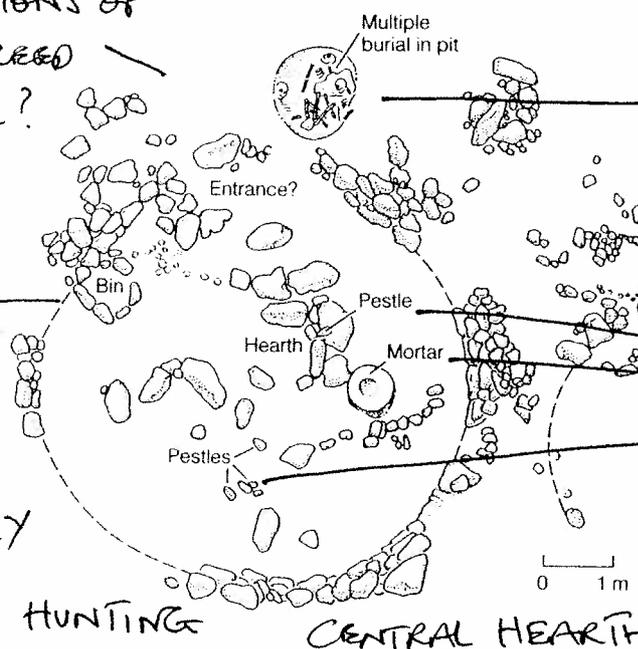
SEMI-SEDENTARY ECONOMY

STONE FOUNDATIONS OF HOUSES WITH REED SUPERSTRUCTURE?

BURIALS - GENDER ROLES? TERRITORY INVESTMENT OF TIME + EFFORT ANCESTORS

FOOD SURPLUS + STORAGE
SUPER-ABUNDANT RESOURCES
WHEAT + BARLEY

FOOD PROCESSING
QUERNS
HEAVY EQUIPMENT



CONTINUED HUNTING

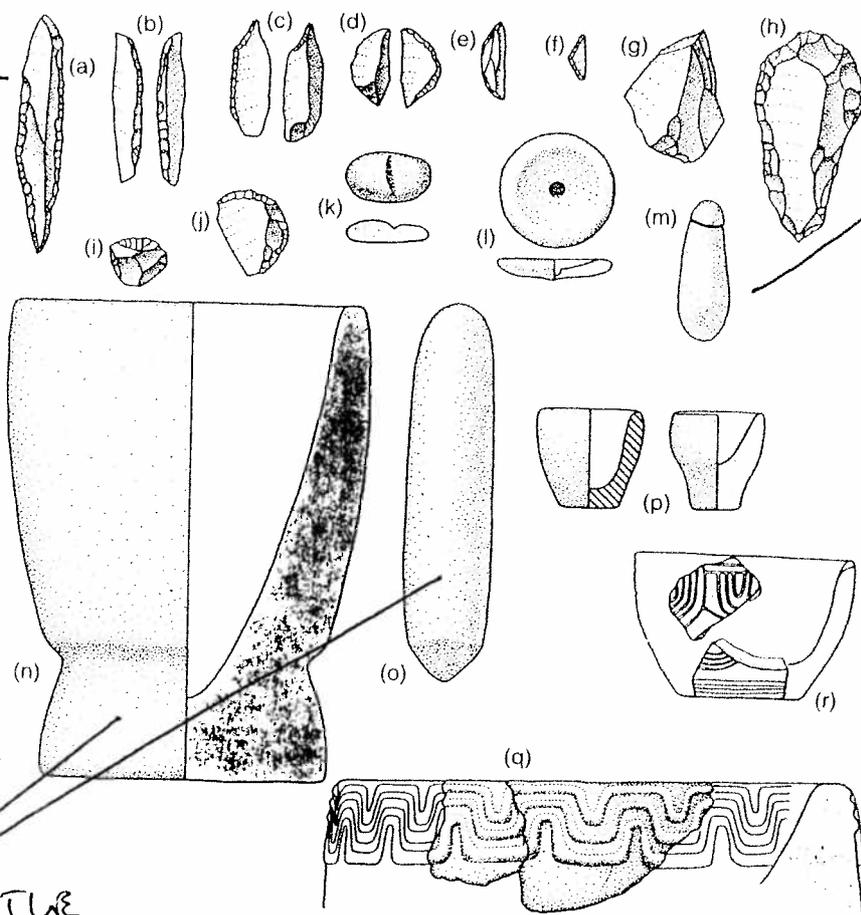
Figure 2(b) Early Farming (Natufian) material from 'Ain Mallaha, Israel (all objects shown at approximately 1/10 scale)

MICROLITHIC TOOLS
- HUNTING ARMATURES
- SICKLE BLADES (GLOSS)
- SCRAPERS
- BURINS

COMPOSITE TOOLS
PHALIC SYMBOL?

WIDER RANGE OF TOOLS
SOME ITEMS NON-PORTABLE

CONSISTENT PATTERNS - CULTURE



MORTAR + PESTLE - BARLEY

STONE/CERAMIC STORAGE JARS

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