THE TEMPLE BUILDERS OF PREHISTORIC MALTA

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for the University of London Ph.D.

in Archaeology.
Abstract of the doctoral thesis.

Nowhere in the world have men discovered a temple culture similar to that of the Neolithic Maltese. Thus it appears logical to me to seek the reasons for this remarkable neolithic efflorescence within their own socio-economic context, firstly by examining their cultural remains, and secondly by inference, deduction and sometimes analogy. Copper being absent, I propose abandoning the term "Maltese Chalcolithic" while distinguishing between Neolithic A and B groups. This step is required by the material finds; it allows us to see the developments as originating within the microcosm of Malta, and to examine the considerable cultural achievements as responses to indigenous factors rather than diffusionism. I hold that the main factors were ecological and social.

It is my further contention that there is sufficient evidence to show a substantial growth in population in the Gg and Tx phases, and that the resultant pressure on land and resources created a rare neolithic consciousness of 'territorial rights' which found an important and parochial expression in building temples. As these were probably associated with reverence for the dead ("ancestor worship") as well as fertility, the temples became the form through which a community could establish its claim to ancestral lands. Thus a specifically Maltese cult developed, expressing and enacting their ideas and religious beliefs.
Though there is evidence for a degree of specialisation unusual in neolithic communities (masons, sculptors, and especially architects and priesthood), I do not find any material evidence for chiefdoms - a Chalcolithic feature. Instead I find that the burial evidence points to a continuing neolithic egalitarianism, without the specialists forming a true élite. I find religious features of a matristic kind, with the worship of a chthonic goddess associated with cereals. Finally I find evidence indicating a reason for the abandonment of Malta c. 2500 B.C.: demographic pressures combined with drier conditions and drought.
# TABLE OF CONTENTS

1- MAPS (3, interleaved), p. 17a, 90a and 242a

2- TEXT :

<table>
<thead>
<tr>
<th>Section A</th>
<th>Methodology</th>
<th>p. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ecology</td>
<td>p. 17</td>
</tr>
<tr>
<td></td>
<td>Dating and Phasing</td>
<td>p. 32</td>
</tr>
<tr>
<td>Section B</td>
<td>Demography</td>
<td>p. 42</td>
</tr>
<tr>
<td></td>
<td>Parish Temples</td>
<td>p. 78</td>
</tr>
<tr>
<td></td>
<td>The Hypogeum</td>
<td>p. 134</td>
</tr>
<tr>
<td></td>
<td>The Temple Functions</td>
<td>p. 165</td>
</tr>
<tr>
<td></td>
<td>The End of Temple Building</td>
<td>p. 213</td>
</tr>
<tr>
<td>Section C</td>
<td>Conclusions</td>
<td>p. 258</td>
</tr>
</tbody>
</table>

3- BIBLIOGRAPHY p. 284

4- TEMPLE PLANS (11, interleaved),

5- COLOUR PLATES p. 298

6- FIGURES p. 327

**SUPPLEMENTARY MATERIAL** (published or forthcoming)


2. The Prehistoric Parish Temples: (Second Malta Conference) (forthcoming).

MAPS


TEMPLE PLANS

These are taken from Evans 1971 unless otherwise stated.

Plan 2. Ta Hagar p.107a.
Plan 8. The Hypogeum p.135a (upper level).
Plan 9. The Hypogeum p.138a (lower levels).
Plan 10. Tas Silg p.229a (site, from MaiaM).
COLOUR PLATES (p. 299-315)

All photographs are the author's own, except for Plates 8.1, 11.1 and 18.1 (M.J. Publications, Valletta). He is indebted to Dr Gouder and other museum and library authorities for their cooperation and help.

Plate 1.1  Natural Coralline slab in situ at Ta Cenc.
Plate 1.2  Coralline outcrops at Ta Cenc.
Plate 2.1  Ggantija South, facade and forecourt, by Brocktorff in 1827.
Plate 2.2  Ggantija South, facade with interior view.
Plate 3.1  Ggantija South, court 7, cyclopean masonry.
Plate 3.2  Ggantija North, courts 11, 14 (terminal apse).
Plate 4.1  Ggantija South, inner and outer doorways.
Plate 4.2  Ggantija South, court 4, section by entry trilithon.
Plate 5.1  Hagar Qim, cyclopean masonry inside main doorway.
Plate 5.2  Hagar Qim, the great megalith and facade.
Plate 6.1  Hagar Qim, ashlar masonry in court 5.
Plate 6.2  Mnajdra South, masonry of court 4.
Plate 7.1  Mnajdra South, ashlar masonry of court 1, with porthole slab (right) and two 'oracle holes'.
Plate 7.2  Mnajdra Central, ashlar masonry and 'oracle hole', court 8.
Plate 8.1  Tarxien West, terminal apse with altar niche and decorated 'altar' stone, court 6.
Plate 8.2  Tarxien West, court, detail of masonry.
Plate 9.1  Tarxien East, orthostats of court 22.
Plate 9.2  Tarxien Central, orthostats of court 12, with flagstones and fire stains.
Plate 10.1  Tarxien Central, megaliths of external wall.
Plate 10.2  Ggantija South, megaliths of external wall.
Plate 11.1  The Hal Saflieni Hypogeum, the 'Holy of
Plate 11.2 The Hypogeum, Main Hall, showing upper window and entries to two subordinate chambers and one niche (right).
Plate 12.1 Dolichocephalic skulls from the Hypogeum.
Plate 12.2 The grave goods from the Hypogeum, with necklaces, etc, above, and greenstone axe-pendants and sherds below.
Plate 13.1 Hagar Qim, view across the forecourt to the facade, with unidentified buildings ('priests' houses') right.
Plate 13.2 Mnajdra, view across the forecourt to Mnajdra South (left), Mnajdra Central, and Mnajdra North (right).
Plate 14.1 Ta Hagar West, megalithic facade with steps.
Plate 14.2 Tarxien West, restored neolithic model of facade.
Plate 15.1 Hagar Qim, megalithic temenos wall beside Hagar Qim North.
Plate 15.2 The ceremonial megalithic entrance to the Ggantija temenos as painted by Brocktorff in 1827.
Plate 16.1 Tarxien court 13, low-relief fresco showing bull and cow or sow.
Plate 16.2 Tarxien West, court 3, carved block with animal frieze.
Plate 17.1 Ggantija South, court 6, showing cyclopean coralline masonry of walls and triple altar niches in globigerina.
Plate 17.2 Tarxien Central, courts 9 and 10, showing hearth, monolithic bowl and blocked entry trilithon.
Plate 18.1 Tarxien West court 2, with monumental cult figure and carved altar blocks (copies).
Plate 18.2 Tarxien West, plinth of monumental cult figure with engravings.
Plate 19.1 'Goddess' figurines sculpted in limestone from Hagar Qim.
Plate 19.2 'Goddess' figurine from Tas Silg, first court
right.
Plate 20.1 Two porthole slabs in Hagar Qim, court 1, with floral altar.
Plate 20.2 Mnajdra South, porthole slab entry into court 3 showing honeycomb decoration and altar niche.
Plate 21.1 Hagar Qim court 10, orthostats and betyl.
Plate 21.2 Hagar Qim, external altar, room 15.
Plate 22.1 Betyl from Ggantija South, Rabat Museum.
Plate 22.2 National Museum, Valletta, with model phallic niches and phalli in foreground.
Plate 23.1 Quern with 7 compartments in situ in Kordin West.
Plate 23.2 'Altar quern' from Tarxien Museum.
Plate 24.1 Neolithic tools in the National Museum, Valletta.
Plate 24.2 Neolithic implements in the National Museum, Valletta, with antler picks above, querns and bowl below.
Plate 25.1 Blocking-stone from entry to Tarxien Central court 14, with spirals ('prophylactic eyes').
Plate 25.2 Carved screen from Tarxien Central court 17, with two pairs of antithetical spirals.
Plate 26.1 Limestone portal slab from entry to Tomb 31 at Castelluccio, showing 'eye' spirals.
Plate 26.2 Limestone portal slab from entry to Tomb 34 at Castelluccio, showing two pairs of antithetical spirals. (both now in the Paolo Orsi Museum, Syracuse.
Plate 27.1 Rock-cut tomb at Cava d'Ispica, Sicily, showing central porthole-type entry in concave facade with pilasters.
Plate 27.2 General view of other rock-cut tombs near Cava d'Ispica, Sicily.
Plate 28.1 The 'Brocktorff Circle', Gozo, as painted by Brocktorff in 1827.
Plate 28.2 The excavation of Bayer's Pit in the 'Brocktorff Circle', painted by Brocktorff in 1827.

(viii)
FIGURES

Fig.1. Graph of proposed population figures  p.56a.
Fig.2. Tarxien West: Ceschi's reconstruction of the façade (Ceschi 1935, fig.25)  p.328.
Fig.3. Tarxien West: Ceschi's reconstruction of courts 1 and 3 (Ceschi 1935, fig.10)  p.329.
Fig.4. Tarxien West: views of courts 1 and 2 with carved altars, hearth and cult figure.  p.330.
Fig.5. The Hypogeum: a) plate of Main Hall, b.1) Holy of Holies, b.2) figurine, b.3) the Sleeping Lady.  p.331.
Fig.6. The Hypogeum: Ceschi's reconstruction of the Main Hall (Ceschi 1935, fig.37)  p.332.
Fig.7. Tas Silg: monolithic basin and betyl (MaiaM 1968)  p.333.
Fig.8. Tas Silg: footing stones from possible second temple (MaiaM 1970, fig.26)  p.334.
Fig.9a. The hypogeum at Malpasso (Tusa 1983) p.335.
Fig.9b. The hypogeum at Calaferno (Tusa 1983) p.335.
Fig.10. Tombs at Contrada Paolina (Procelli 1981, 88) p.336.
Fig.11. Porthole slab and tomb sections, Contrada Paolina (Procelli 1981, 89)  p.337.
Fig.12a Houel original 416: unidentified megalithic structure in Malta (Sicilcasa 1989, 266)  p.338.
Fig.12b. Houel original 444: earliest extant painting of a Maltese megalithic temple, probably the Ggantija (Sicilcasa 1989, 261)  p.338.
METHODOLOGY
Methodology

This thesis is a study of the Maltese temple builders, an objective requiring an appropriate methodology. It focusses on a neolithic community which was unique in its creation of permanent temples in stone, therefore the methodology has to be adapted to the creation of a model, as complete as is compatible with the evidence, showing the various features of this community. This study does not aim at drawing conclusions from the Maltese situation and then applying them to other societies either in the Mediterranean or further afield. Such procedure would be quite unjustified given the relative absence of evidence for Maltese influence on neighbouring societies. Instead, my aim is to use the material evidence provided by archaeologists and others to reconstruct, as far as possible, this microcosmic and relatively isolated community, and to examine the physical and social forces which led to a cultural achievement quite remarkable among neolithic peoples.

The methodology used here is principally one of interpretation with the aim of constructing a model of this limited, insular, but extremely talented neolithic population. Substantial use is made of inference and deduction to arrive at a deeper understanding and a more detailed reconstruction, since it is not satisfactory to abandon investigation at the stage of description or even classification. In order to control this procedure, reference is constantly made to the established facts of the Maltese neolithic context wherever possible, only going further afield when necessary or appropriate. In the same way, deductions and hypotheses are made in accordance with what is probable or likely for this context.
Methodology

However, this study may well contain ideas which may throw useful light on other early societies. In particular, the relationship developed between economic factors and religious cult could be more generally applied. Too often religious ideas and cult practices appear as almost divorced from workaday life; this is partly because of university departmentalisation, yet also because they are studied at a particular moment in time, synchronically rather than diachronically. In prehistory as in history, the full picture we aim at reconstructing incorporates details relevant to successive phases, and at disclosing processes unfolding in time, not just snapshots of the moment time stood still.

To achieve my aim, the methodology I have used is inter-disciplinary, or, better, multi-disciplinary, an approach which draws freely from the scientific method and from some of the methodologies used in the arts. This approach is required by my aim as well as by the nature of the phenomena under consideration; further, it is in accord with modern study techniques. Even the trained archaeologist is still fully dependant on the techniques, and technologies of others - dendrochronologists, pathologists, spectrographic analysts, etc. In these fields it can fairly be stated that the principle of verifiability, normally by scientifically-devised experimentation with controls, is the fundamental and unifying approach: indeed, it is also the basis of modern material progress, industrialisation and technology.

However, universities throughout the world have continued to maintain the Arts, where the various methodologies, though not unaffected by scientific positivism, normally and healthily apply the principle of verification in completely different manners. Whether we take law, philosophy, history, languages, art or religion,
Methodology

each has its own discipline, methods, and version of the principle of verification. What is more, each has its classical and prehistorical roots. As the Arts remain an integral feature of our civilisation, their methods too have to be used in any attempt to understand and reconstruct a prehistoric society. The Neolithic Maltese certainly created a society which was multi-dimensional and thus cannot be fully studied by exclusively scientific methods.

In science and technology, times, ideas and methodologies continue to change. The problem with methodologies is not the simplistic question of which is the right, best or correct one, but rather of which method is suitable in which circumstances, i.e. the problem of defining areas of application, and of relating these to functions and objectives. As Heisenberg pointed out, complete objectivity is impossible even in nuclear physics: in creating the situation by which a particular hypothesis can be tested by scientific experiment, the scientist himself forms part of the total situation, and his aims as well as his methods form part of the research procedure.

These conclusions are supported by experience from computerised data banks. In the 1960's, the French government began an attempt, directed by André Malraux, to produce a complete and objective inventory of Art Objects throughout France. This attempt failed after two years when it became evident that the information being stored was not being used because it was neither useful nor edifying (except possibly for managers). Despite the creation of teams trained in descriptive methodology for architecture, art, etc, the experts simply did not agree on what was relevant and important: it was impossible to avoid the subjective angle. Prof. Gardin, a computer expert who was a member of the team, draws an important conclusion
from this experience; he says that the correct approach is to renounce universal solutions and to accept local solutions which can develop a network of local data banks, such as that already existing for the study of Greek vases.

In his paper 'Problems of Iconographic Interpretation'' (Val Camonica Symposium, July 1987), Gardin focussed his attention on the problems involved in interpreting prehistoric icons, outlining the following stages:

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<thead>
<tr>
<th>acquisition</th>
<th>(monuments, icons, etc)</th>
</tr>
</thead>
<tbody>
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<td>↑</td>
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<tr>
<td>description</td>
<td>(representation)</td>
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<td>classification</td>
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Commenting that no description exists per se, he distinguished between two basic archaeological approaches, 1) the precise objective description which is both analytic and universalist, and 2) the view that descriptions are end-products of interpretations. His experience of 25 years' with data banks showed that the first type cannot be used and is now considered a Utopian dead-end because of the impossibility of 'objectifying' the details. Consequently, given the extraordinary complexity of the subject, there is no real choice between the approaches. The implication of type 2 is that the end is left open, not
Methodology

closed and final as in type 1. Type 2 is not universalist but local, and is not over-ambitious.

This processual scheme of Gardin's is relevant to much wider fields than just the study of iconography, and can be equally well applied to archaeological method as a whole; here, it helps to clarify the methodological problems we are facing. Gardin's stage 1, acquisition, covers the essential and fundamental skills involved in exploring a site by excavation, techniques which are typically scientific, though even here some subjective elements are involved in such decisions as whether to apply a mainly horizontal or a mainly vertical technique. Even more basic than the methodology is the problem of where to dig, and despite the usefulness of aerial photography and helpful indications like surface sherds, it can hardly be claimed that scientific considerations dominate subjective feelings or even the element of luck. Dr Trump believes that there may be as many as fourteen other hypogea awaiting discovery in Malta, and Evans agrees that others probably exist, yet no-one knows either where or how to start looking for them.

Gardin's stage 2, description, has its scientific and objective aspects, yet, as we have seen from the French experience, the idea of an absolutely objective description is Utopian as well as virtually unusable. The simpler the object found, in principle the easier the description, yet simple objects are not necessarily functional. For example, querns are usually simple flattish stone objects with a concave upper surface suitable for vigorous grinding when placed on the ground. From Tarxien we have a group of objects called querns with a slightly concave upper surface which shows signs of apparent use, yet they form the top of a stone column about two feet high which seems most inappropriate for grinding. Taking their temple context into account, together with the close similarity of their
Methodology

outline to seven objects carved in relief on the plinth of the monumental statue in Tx W, I have interpreted them as perhaps ritual querns designed for use by an attendant standing before the cult image (Ferguson 1986). This is quite plausible, and even, given the context, reasonably likely, yet neither I nor anyone else can be certain that this is correct.

Taking the same example through Gardin's stage 3, comparison, we have to admit that these 'ritual querns' are considerably different in form from the basic Maltese neolithic querns of limestone or lava, and also from the stone 'trough' considered by Mayr and Trump as a quern for the "communal grinding of the daily flour" (Trump 1983; 73). These standing querns are quite as close in form and height to the famous 'floral altar' from Hagar Qim, which also has a concave upper surface. Comparison here plays a positive role in interpreting function (which here is ritualistic rather than functional) - that is to say, in determining the typology.

Yet how free should we feel in making comparisons? Totally free, or relatively free within the context of a particular geographic zone, or relatively free within the framework of a particular chronological era, or even of a particular economic (and/or social) stage of development? This question cannot be answered dogmatically. We have various historical examples of how researchers have been guided to important conclusions while others have been totally misled as a result of the comparisons they have felt free to make. In Malta, Aegean comparisons have proved quite misleading, yet comparison is essential. As Bray and Trump say,

"comparison of different types will often show which are more closely, which more distantly, related, in exactly the same way that taxonomy classifies and relates the species, genera, etc, of the animal and vegetable
Methodology

kingdoms. Taking this further, the relationships between similar types can sometimes be shown not merely to classify, but also to explain, their development. This process is known as seriation."

But they also admit,

"Attempts to produce purely objective classifications have so far met with comparatively little success." (Bray & Trump 1986; 252-3)

The relativist solution that has to be proposed is that this partly semantic problem is likely to be best solved by making comparisons as close to home as possible, in geography, chronology, and economic and social development. This done, we should then try to justify the comparison by showing links between the two if at all possible, and if this is not possible, then by showing that the two societies are sufficiently similar for the comparison to be valid. Many ethnological comparisons fail on this count; among these I include Renfrew's comparison between Neolithic Malta and recent Easter Island chiefdoms.

Classification procedure continues with the use of series, on which Bray and Trump comment,

"Outside evidence, such as the dating of two or more stages in the development, may be needed to determine which is the first and which is the last member of the series." (Ibid.; 218)

Again the qualification is valuable, and is also relevant to the Maltese situation. Here a group of artifacts are classified as 'temples'; partly for lack of a more suitable term, we borrow a word from the urban Latins. Zammit, followed by Evans, claimed that, in the later phases, one could see a distinct decadence or degeneracy in style. I do not dispute the facts about the expertise of the masons of the different temples, but see
the rougher, unhewn or less polished style as normally being more primitive, i.e. earlier in the sequence. Absolute dating is not yet available for two of the key sites concerned, Tal Hagar East and Tarxien West. Yet on our interpretation rest important aspects of the relative ages of the buildings concerned, even affecting how we see the sequence as a whole. Should Tal Hagar East be seen as early and primitive, or as later and decadent, or even as a possible archaism? These are real problems, including the semantic element, and they can vitally affect our basic view of the object in question. I have chosen temples as the example, but could equally have chosen trilithons, porthole slabs, altar blocks, slingstones and goddess figurines.

How then are we to apply our necessary principle of verification over great distances? The answer was indicated by Prof. Renfrew in his analysis of four kinds of context, the temporal, spatial, social and cognitive, in his article "The Prehistoric Maltese Achievement and its Assessment" (in Bonanno (ed) 1986). Although his remarks were directed towards "any study of early religion", in fact, like Gardin's, they are true for the study of early societies in general.

"First of all we have to define very closely the temporal context: to define with great clarity what are the dates we are speaking of. Secondly we have to establish the spatial context. That is very much more difficult."

- due to the major problem of where to draw the boundaries. He proposes drawing these quite narrowly at first, then examining "other areas which may have had interaction." This all seems appropriate and helpful methodologically. Absolute dating systems provide the chronological corrective (we can no longer look for any Minoan influence on Malta), though it is better, where possible, to check
Methodology

one system against another. The matter of spatial boundaries, however, introduces the inevitable subjective element. If the immediate central Mediterranean area is to be explored in the first instance, this surely has to include, as Prof. Fedele suggests, not only Sicily and Lampedusa, but also the neighbouring parts of the North African coast. Looking further afield, it appears that we must consider not only Sardinia (and perhaps Mediterranean France ?), but also southern Italy, and presumably across into Greece and the Aegean, not neglecting possible elements from Turkey and the South Balkans.

Renfrew's third context is the social context, by which he means the structure of society. It is clearly useful to make the major distinction between hierarchical, class-structured societies, and egalitarian societies such as postulated for parts (or even the whole) of the Neolithic. Following Service, Renfrew interposes a chiefdom society between the two extremes. Seen as process, this is clearly generally correct, especially by the Bronze Age when not only can we show the trade network capable of creating surpluses which chiefs could subsequently redistribute, but also the means of controlling society by arms such as the bronze dagger, a weapon type which became widespread in the third millennium. The problem for the Maltese context is deciding when this stage was reached. Certainly for the Tarxien Cemetery folk this can be justified, but is there any proof, or even any evidence, that it is correct to extrapolate it back into the temple period which was never genuinely Chalcolithic, but rather Late Neolithic ? In terms of hard material evidence, there is nothing to suggest either the means of control, or a trade surplus, or any sign of status burials. In such circumstances I fail to see temple-period chieftains as significantly different from village headmen.
Methodology

Renfrew's fourth context is 'the cognitive context', and was unfortunately not developed in this article, but we can have recourse to his more substantial fourth subsystem as given in his "The Emergence of Civilisation", 1972, which he names 'the projective or symbolic subsystem', and which expressly includes religion, art and language as well as science. It seems inappropriate to postulate a standardised set of religious beliefs and practices for the Neolithic, since the mechanism to spread and enforce them hardly existed, but there is clearly a case to be answered for a considerable and very widespread degree of similarity (not uniformity) in both cult and religious ideas. Here too, what is characteristic for bronze-using societies generally constitutes an anachronism for their neolithic predecessors.

E.Anati made a significant contribution in his paper "Religion and Society in the prehistoric Mediterranean", subtitled 'Phenemonology and Beyond' (Val Camonica Symposium, July 1987). If we take a particular form capable of typological definition, such as the dolmen, we often find a global range, in this case stretching far beyond Europe to India and even the Far East. With an equally wide spread in the chronological context, the case for diffusion between the continents can be ruled out; ergo, there are elements which go beyond cultural diffusionism and are termed phenomenological. The same consideration holds for other types, such as other megalithic forms, Impressed Ware, etc. Anati's conclusion is that beyond cultural analogies and phenomena there are some universal paradigms and universal archetypes. This conclusion not only provides an acceptable alternative where diffusionist explanations are impossible or unlikely, it also provides a framework which can include other explanations of cultural and religious similarities as
proposed by Renfrew: common ancestry, cultural homology, analogical process and convergent evolution.

The acceptance of universal paradigms and archetypes has the further advantage of accommodating certain advanced psychological theories, especially those of Jung, which have an important role to play in the interpretation of certain artistic and religious forms. For example, considering the range of sculpted artefacts classified typologically as goddess figurines, we are immediately faced with enormous difficulties, including acceptance of a degree of diffusionism apparently improbable for neolithic times, if we try to read the process as the spreading of the same cultual and religious ideas throughout most of neolithic Europe. If, on the other hand, we read the evidence as a combination of local responses to a universal human experience with a limited spread (where this seems indicated) of practices moving with or after the Neolithic Revolution, then we have a model which is much more satisfactory. And if the goddess figurines apparently symbolise maternity (of which the supreme archetype is the mother suckling her babe), then they can reasonably be called mother goddess figurines. If they are found in an archaeological context such as a temple or a shrine which is appropriate to cult practices, then it is reasonable to speak of a mother goddess cult. I suggest that such a conceptual framework is capable of assimilating some conflicting aspects of diffusionism vs local evolution, and the Sciences vs the Arts.

Gardin's final stage is that of interpretation. Here we are faced with the discernment of meaning, an area where subjective differences between researchers are at their maximum. There is a considerable range of artifacts, from utilitarian objects whose function at times can be defined with considerable precision to others which are complex and
Methodology

symbolic; once more, it is the archaeological context of associated objects which frequently helps in their interpretation. One major criterion is that the interpretation should be suitable to the economic and social levels of the society being studied. A principal characteristic of symbolic forms is that symbols are normally polyvalent, gaining power through their ability to absorb and represent different levels of meaning. I suggest that, in interpreting symbols, we should distinguish between the primary denotation and the secondary connotations, and Gimbutas has pointed out that neolithic art forms are rarely abstract in any fundamental sense because "the tie with nature remains." It is this 'tie with nature' which has to be sought first, and which generally carries the primary meaning. Neolithic art generally is relatively naturalistic, though considerably less so than Palaeolithic art, and while there is a marked trend towards schematisation and abstraction as the Neolithic unfolds, even when we are presented with relatively abstract forms it may frequently be possible to read them immediately, or else to trace their meaning by finding their place in a typological series. It is the connotative aspects which are the most difficult, and which are consequently susceptible of the widest range of interpretations. Here there are few rules or guidelines, though appropriateness to technological, economic and social context remains the major control.

If symbols are viewed as a complement to the presumably limited neolithic language forms, Gimbutas is justified in stating that "Images and symbols represent the grammar and syntax of a kind of meta-language, through which an entire constellation of meanings and values is transmitted." (Gimbutas, 1989) In a similar vein, Burkert says, "In recent times the tendency is more to regard rituals as an initially autonomous, quasi-linguistic system
Methodology

alongside and prior to the spoken language." (Burkert 1985; 54) So the rich ritual life of neolithic societies can be seen as a semiotic device which incorporates symbols; both rites and symbols play a major role in enacting and thus transmitting the value and meaning systems of the societies to which they belong.

A key feature of the research study model proposed by Gardin is its feedback system. Research procedure should not be seen as a simple linear process; instead this feedback is a control which can operate at each level, checking whether the new stage is consistent with what has gone before or the interpretation reached. Even when the interpretation has been developed, the process remains incomplete in a sense, since we can continue to check, for example, the validity of a classification as and when new information becomes available. So this is a framework which does not try to produce an end-product which is as 'objective' as possible, but rather one which, in its flexibility and continuing reassessment, reflects the accumulation of knowledge over several generations, deriving from increasingly sophisticated techniques and approaches.

When we compare the models reconstructed for local societies in history with those of prehistory, the need for a varied methodology drawn from many disciplines becomes clear. This comparison is particularly valuable for archaeology, which relates to both periods. In prehistory archaeology is the major explorative technique, but comparison with the variety of sources used in historiography shows the limitations inherent in archaeology in creating a comprehensive model of society. We need to extend and create interpretative techniques which can be used to complement the discoveries and conclusions of archaeology. Within the sciences the
framework for this support role already exists in part, from dating technologies to chemical and anatomical analyses. It is the arts and related studies such as anthropology and sociology that most need to be developed to complete comprehensive prehistoric models. It is through art, architecture and religion as well as writing that we have such a detailed picture of Egypt of the third millennium - and these artifacts have frequently been recovered by archaeologists. The differences between late neolithic societies and the earliest historical ones, like the Egyptian, though considerable, are offset by substantial similarities, especially in the subsistence basis. While political and social forms can vary dramatically, the religious forms are much more conservative, frequently retaining neolithic elements. There are universal archetypes and paradigms; the methodological problem is one of exploring as fully as possible the variations, to create comprehensive models which reflect faithfully both the common features and the diversity, the features derived from trading or other diffusionist aspects together with the insularity and local evolution.
"The critical factor, standing between fair intelligibility and stark unintelligibility is surely ecology, the study of the physical environment."

C.F.C. Hawkes (American Anthropologist, 1956)
Any attempt at a detailed study of a human population is necessarily incomplete until the group concerned has been examined in its ecological context; this is quite as true for prehistoric as for historic communities, though presenting more difficulties. Seen from another view, this ecological relationship displays the impact of man upon natural ecosystems and particular ecological niches, and underlies the means of subsistence. For early Malta, the relation between the early settlers and their small portion of the ecosystem has a particular importance, since it appears that the "abrupt" yet non-violent end to the temple-builders culture is best interpreted as due to the interplay of two factors, 1) the increasing strain placed by a dense human population on the resources of a strictly limited territory which (like many other neolithic territories) was presumably subject to diminishing returns due to heavy exploitation, and 2) climatic factors and changes which may have had both short and long term disadvantages for the early Maltese.

Malta and Gozo have the advantage for research purposes of providing a clearly-defined ecological system. The simple geological structure, with its layers of limestone, greensand and blue clay, is well known; indeed it was the neolithic discovery of the constructional properties of both coralline and globigerina limestone which formed an essential basis for the temples themselves. However, the geological structure itself deserves more detailed study: some writers have assumed that both chert and alabaster had to be imported, yet it appears that west Malta provides chert of a satisfactory quality, and there are deposits of alabaster
quite sufficient to account for the amounts known to have been used. If the stratified nature of coralline limestone is generally accepted, it is only very recently that Mr Attard has demonstrated the outcroppings at Ta Cenc as the likeliest source for the Ggantija megaliths (Plates 1.1, 1.2). In fact we need to locate the nearest local outcroppings of both coralline and globigerina for all temple sites. Since we are faced with megalithic construction, it would be valuable to ascertain, as far as is now possible, how far the various megaliths had to be hauled from sources which must include the world's earliest quarries.

A major factor in the archipelago's ecosystem is the availability of fresh water. The islands have strictly limited supplies, and today's population of 345,000 is not really satisfactorily catered for (by modern standards) in the dry summer months, despite the desalination plant, the importation of mineral water from Italy and France, and now the bottling and sale of mineral water from Malta's own sources. The archipelago has its own water table which breaks surface at various points in season to provide fresh water. Today these sources are mainly found in Gozo and W. Malta, the neolithic sites at Skorba and Ta Hagrat being within easy reach, like the 'megalithic clusters' of the western coast. But these modern sources are not necessarily indicative of those available in prehistory, or even of relative modern times; Plate 252 b of Houel's Voyage actually depicts a geyser in Gozo, though perhaps its lifetime was short.

Apart from sources welling up from the water-table, the Maltese are dependent on the annual rains for themselves, their crops and animals. Currently the annual
Ecology

rainfall averages about 25", a figure which conceals major fluctuations. Virtually the whole of this falls in the six winter months from October to March, with the possibility of slight additional rainfall in September and April. The five or six summer months are effectively without rain, and thus a potential period of crisis. But how long has this modern pattern existed, which we recognise as the typical Mediterranean climate? There are no indications of other than minor fluctuations back to Roman times, and very little to suggest that Bronze Age conditions were significantly different. There remains the possibility of significant climatic change between 5000 BC and 2500 BC. Although the alkalinity of the soil is unfavourable to the survival of plant remains including pollen (just as it favours the survival of bones), sufficient material, including pollen, has been recovered to suggest that by the Bronze Age the archipelago was as treeless as today. The evidence for significant climatic change will be examined later; for the present it is sufficient to note that both the drying up of the earlier Sahara pastures and the end of the occupation of dense neolithic sites on the Tavoliere indicate a widespread if not dramatic shift in climate which must also have affected the Maltese islands. Considering the 'mystery' surrounding the end of the temple-builders' civilisation, any further advances in the scientific examination of prehistoric climates will be more than welcome.

With the rest of the central Mediterranean, the archipelago enjoys a favourable range of temperature. Today the monthly mean varies from 9.5 - 15.0° C in January and February to 21.8 - 30.6° C in August. There are summer days when the temperature rises into the 40's and can stay there; normally winter brings no snow or frost. Sea temperatures are equally significant, ranging
Ecology

from 14.5° C in January - March to 25.6° C in August. In historical times, this climatic range has been favourable for the growth of many forms of vegetation whenever there is sufficient rain, and from the photosynthesis occurring on land and sea for between 5.30 hours daily of bright sunshine in January to 12.11 hours in July, the resulting vegetational growth creates the trophic basis for the invertebrate and vertebrate species that depend on it. Thus the present climate favours a wide range of vegetative growth, from the staples - wheat, barley and the pulses - through a healthy range of market-garden vegetables and herbs to fruit trees which range from the Mediterranean olive, fig and vine to almond, carob, peach, plum and medlar. Even cotton can be grown, as a painting of Houel reminds us. The problem, of course, is to detect which plants and crops were grown when; for Neolithic Malta, the surviving evidence is limited to such a few species that we cannot believe that they represent more than the base. The survival index of most vegetables and herbs is so low that they elude current technology and research. However, there is no reason whatsoever to believe that the prehistoric Maltese failed to exploit the gammut of edible natural resources, whether flora or fauna.

We are well aware of the essential cultivated crops and domesticated animals they brought when establishing their first colonies in Malta at the 'fringe' of the Neolithic revolution. We know beyond doubt that ovicaprids were the predominant stock, that they also raised, and sacrificed, cattle and pigs; there are even a few enigmatic horse bones from W.Malta. These are the species that they introduced and that became a permanent feature of the local ecosystem. What we are far less certain about is the native species they found, and the extent of their exploitation. However, there are certain
Ecology

floral and faunal species which, if hard proof remains lacking, it would be most surprising to find absent from the neolithic Maltese ecosystem we are trying to reconstruct. Our reconstruction is never likely to be complete; it would be Utopian to believe it could be. In the circumstances we are obliged to argue by analogy from adjoining areas, from prehistoric times wherever possible, and to accept statistical probability. All models necessarily contain a subjective and heuristic element which needs to be corrected and adjusted as research and procedural techniques improve.

The Neolithic Maltese had a wide range of floral species available: while most of these elude the archaeologist (as did Minoan flax before the decipherment of Linear B: see Chadwick 1987), comparative studies and what is known of Mediterranean palaeobotany establish a fair degree of probability of their choice. We can be sure that they knew the various species and their properties better than the modern population, and that they would have considered a much wider range as edible. The following list names edible or possibly edible species probably growing in Neolithic Malta:

**Trees:** carob, fig, olive, pine (Pinus pinea), Ilex, hazel, wild almond, medlar, plum and cherry.

**Shrubs:** grape, pomegranate, lentiscus, myrtle, juniper, bay, strawberry tree.

**Herbs:** mint, thyme, rosemary, sage, savory, rue, borage, chamomile, lovage, parsley.

**Monocots:** garlic (Allium sp.), iris, Orchis and Ophrys sp., wild asparagus, crocus, asphodel.

**Dicots:** Carrot (Ferula sp.), fennel, caper, wild peas (Pisum sp.), chicory, Brassicas, nettle, watercress, black nightshade, corn-salad.

**Miscellaneous:** edible seaweeds, fungi, yeasts.

While developing techniques should improve our
recognition of certain species, it is probably unrealistic to imagine that we will ever have hard detailed proof of Neolithic usages.

Faunal species must have been nearly as important. Apart from the core of domestic animals, probably brought by both waves of settlers, the only large mammal they could have hunted is the red deer (Cervus elaphus). Even here we are on somewhat uncertain ground, as although the Ghar Dalam evidence shows that the red deer was indigenous during the Ice Age and also for an unmeasured period after, we have no real indication of the date at which it became extinct in Malta. The various antlers found associated with neolithic remains could conceivably have been imported, but the strong probability is that it was hunted to a fairly quick extinction in the Neolithic; the extremely small number of arrowheads is as counter-indicative of hunting as of warfare. A smaller edible animal is the rabbit, with bones found by Tagliaferro in a neolithic context in a cave north of Kaccia (MAR 1913-4) and still found on the island; it could have been hunted with sling or else snared. Various reptilian and amphibian forms are also indigenous, and probably were an acceptable addition to the neolithic diet; these include snakes, lizards, ghekoes and skinks as well as frogs and toads. Yet we are aware of the size of collecting societies that can be supported by such species.

We should not neglect the relation of the neolithic population to the various species of birds. As well as forming the permanent home to a range of resident species, Malta also lies directly on a major flightpath of the autumn and spring migrations between Africa and Europe. This is surely a phenomenon from which the neolithics must have profitted, as well as forming a source of repeated wonder and amazement. The Maltese
tradition of collecting, netting, and eating birds is undoubtedly a long one; today it is an all-male preserve. In Neolithic times, it is hardly likely that they would have neglected this source, especially at times when the islands' limited resources were under strain. Though their means of capturing birds were restricted, this could have been achieved by netting and using slingstones (though hardly the larger size exhibited under this name in the National Museum). Another means used by primitive peoples is by scattering seeds which have been previously soaked in an alcoholic drink: the birds quickly become fuddled and can readily be captured. Yet another source of food would have been their eggs. Although I do not consider that this would have been important enough to incorporate in their ritual (see Ferguson, 1986), this would have been a welcome addition to the protein supply in the nesting season. Various species are listed as common by ornithologists, and some, such as quail and turtle-dove, as abundant. Although modern populations are no certain guide to prehistoric populations, ecological systems generally are of ancient origins, with roots going back beyond the Ice Ages. Natural populations certainly undergo their own fluctuations and adjustments, but, taken as a whole, there is no doubt that once the post-glacial balance was established for each habitat, the major subsequent change has been that created by man.

In all Maltese prehistory there is little doubt that the major ecological event was the introduction of farming, covering virtually all the available territory, cutting down the tree cover, and creating a new ecological balance which is essentially what we observe today. While woodland species would have been directly affected by this assault on their habitat, sea, shore and cliff species would have been little affected, and migratory species even less so. For birds, as the means
of hunting remained strictly limited before the introduction of firearms, the major impact of man is likely to have been the reduction of available territorial space and the felling of woodlands. Even here however, birds, like some other species (notably rodents), show considerable evolutionary adaptability in employing the settlements sites of humans. So, for the prehistoric period, our general conclusion must be that most birds and many other species would have been relatively little affected by the neolithic human population. Certain species would have been affected, especially those deprived of land under cultivation, while for others the old order would essentially have continued.

The same criteria apply to fish, which throughout history have formed an important factor in the Maltese subsistence subsystem, one which, for various reasons, has produced little material evidence for the archaeologist. There seems little doubt that, with the general post-glacial rise in temperatures, the seas would have supported a richer and more complex ecosystem than in the previous period. Going to the base of the food-chains, the higher temperatures would have increased the rate of photosynthesis in the marine flora, extending through the range of algae to other forms such as plankton. This would have produced an important increase in the food supplies available to the marine forms feeding directly on them, producing a proportional rise in their numbers. This process would have continued on up the food-chains, leading directly to a major rise in the populations of most marine forms. So, considering the Mediterranean as a relatively intact ecosystem, it seems evident that the populations of most marine forms would have benefitted from the rise in temperatures, forming denser populations and a more complex ecosystem. This in
turn would have benefitted the species capable of exploiting the situation, which in the central Mediterranean at this time means principally birds and man. Roman evidence from literary sources and mosaics indicates both a complex marine ecosystem, abundant in numbers and variety, and a developed and extensive human population specialised precisely in exploiting the situation.

Considering the marine populations, it appears likely that the post-glacial rise in temperatures would have led to an important rise in most populations, levelling off to the natural ecological balance at the new temperatures. This is the situation the neolithic population inherited, and the new, more complex ecosystem of which they formed a part. While on land we may suppose that the neolithic farmers, exploiting the territory to the full, irreversibly changed it in the process, both the diminutive size and relative isolation of the islands indicate that here the neolithic Maltese were in an exceptionally favourable situation, in the central Mediterranean with effectively no other human competitors and seas so rich in resources that even a maximum population of 20,000 would not have affected it significantly, except in the very limited area of the islands' coasts.

It is true that our knowledge of prehistoric seacraft is extremely rudimentary; we appear to be operating in a void, and cannot even say whether the
neolithic craft used in the Mediterranean were hollowed canoes, rafts, or some kind of hide boat with a frame of branches, like the coracle or curragh. Experimental marine archaeology has not yet attempted the reconstruction of models earlier than the Bronze Age. Yet boats or rafts of some kind there must have been: the evidence is conclusive. Not only could Malta only have been reached by sea, but sea travel continued to form a regular feature of their activity. Again the evidence is unambiguous. While Professor Fedele may be going too far in trying to recreate an elementary trading network in the fifth millennium (a perfectly feasible possibility), the material evidence of objects, especially obsidian, brought in from abroad is clear. Spectographic analysis of obsidian (see Cann and Renfrew, 1964) found in Malta has established two main sources, Pantelleria and Lipari. To obtain obsidian from Lipari, the longest stretch of open water was the 75 kms from Malta to Sicily, but Pantelleria was important early on. If the route was westwards along the southern coast of Sicily, they then had some 110 kms of open sea to reach Pantelleria. An alternative route certainly shorter and faster would be from Gozo to the Isole Pelagie (c.130 kms for Lampedusa, but only c.110 kms to Linosa) and then on to Pantelleria (c.140 kms for Lampedusa, but only c.130 from Linosa); these distances are slightly greater than the 110 kms from Sicily to Pantelleria. We are almost certainly wrong to postulate too short a range, and should note that, with good visibility, both Malta and the Pelagie would be visible at the half-way stage. Apart from the remarkable distances successfully traversed in the Pacific by the Polynesians without navigational equipment, evidence from the Aegean (Melian obsidian at Franchthi Cave) shows that such distances were already being achieved from about 7000 BC. The evidence of the Tarxien graffiti of ships was interpreted by Woolner
Ecology

(1957) as probably belonging to the Tarxien phase. There is no reason why ships with prows as depicted could not have been in use by the third millennium.

The significance of these deduced voyages to marine fish resources is obvious; what is lacking is the hard material evidence. Yet from the ecological point of view it seems evident that there would have been a basic tendency towards full exploitation of the Maltese ecosystem (Diamond's 'local adaptation phase'), and that, while less pressing with lower populations in the Ghar Dalam and again Zebbug phases, the considerable demographic expansion and the consequent pressure on limited land resources must have been a major motivating stimulus to harvest the seas up to maximum neolithic efficiency. Even in the absence of substantial evidence, this is quite clear; what is lacking is the detailed articulation of the process. Here scientific minimalism is not a constructive approach.

Starting from the coast, there is no likelihood that the prehistoric Maltese failed to make full use of its edible resources. Neither molluscs nor crustacea make suitable sacrifices, so it is not surprising to find these largely absent from the record of temple and tomb, but a variety of shells found in inland sites including Ta Hagrat and Qortin show they were known. Land snails are still eaten today, and doubtless formed part of the neolithic diet. The present Maltese coast has a fair variety of shellfish, crustacea and cephalopods (squid, cuttlefish and octopus) which are now caught by boys of ten or so, and in Neolithic times it is likely that both numbers and variety were greater. Of the temple sites, even Skorba and Ta Hagrat are only 20 minutes from the sea and while the south coast is characterised by high cliffs, these are broken by inlets such as the Wied Babu
Ecology

in Malta and Xlendi Bay in Gozo: it is still possible to scramble down the cliffs to the sea below Mnajdra. In fact the longest stretch of unbroken cliff is the Dingli Cliffs, on top of which are no known neolithic sites: this may be indicative of the importance of seafood in the neolithic diet. Tectonic movements have produced a progressive tilting, raising the southern cliffs and lowering the northern coast, which consequently provides an excellent series of bays, harbours and inlets with fine opportunities for collecting and fishing for coastal species.

But it is the shoals of medium-sized and large fish which could have been most important to the prehistoric Maltese. These fish have seasonal migration patterns, and represent an important supply of protein which has not been neglected by the Maltese in historic times. Fish such as lampuki, cod, dentex, etc, are abundant during their seasonal visits, and we may readily believe that they were caught in nets, though these like other fabrics have not survived. An important case is that of tunny and swordfish. These are large fish with adults weighing 70 kgs or more. While the Sicilian-type June 'mattenza' can be discounted because of its advanced Arab origins, using sophisticated netting techniques, the use of nets to catch individual fish would present no unusual problems. The harpoon ('delfiniera') technique can perhaps be discounted as it used a metal harpoon, although the Melos-Franchthi evidence may well indicate an obsidian prototype. Night-fishing for spada with lights and nets is still practised today, and could equally have been used in neolithic times, especially from coracles (being stable). These big fish are plentiful during their reproductive season from April to June, but are also caught at other seasons. Since tunny at least were successfully captured at sea from
Mesolithic times, the appropriate techniques could certainly have been applied by people capable of erecting the temples. On the Aegean evidence, Renfrew comments,

"At around 7000 BC, a dramatic change occurs. Large vertebrae, probably of tunny fish, appear in considerable numbers, up to 50% of the total bulk of bone recovered in some cases. The much greater meat/bone ratio of tunny compared to land animals such as deer suggests that tunny may have become the prime component of the diet, at least during the season of the catch." (Renfrew 1972; 269)

The specific significance of this for the temple-builders is that, when demographic growth was placing increasing strain on the land ecosystem by the beginning of the third millennium, here in the surrounding seas was a rich, important and evident source of protein available for exploitation. The extent of such exploitation, however, is likely to continue to elude archaeological research.

This original attempt to survey the relationship between the temple-builders and their ecological niche necessarily contains disparate elements. On one hand are the 'hard' facts of the archaeological record, most of which are well known, although features such as intensification of farming practices can only be inferred. On the other hand we have the Maltese ecosystem itself, a complex structure whose present balance was largely established with the 'modern' Mediterranean climate, but with its older roots. Our understanding of this ecosystem involves the creation of a model; since its age is at least 4000 years, there is no 'divide' here between prehistory and history. Consequently I feel justified in arguing back from history to prehistory. This is a different procedure
from the study of the 'hard' facts of archaeology, and, as a hypothesis, requires each link of the chain to be tested where and when possible. The exceptional finds at Franchthi indicate new areas for research, some relevant to the sailors of Malta; if the neolithics generally lived in village huts rather than caves, they continued to make use of caves such as Ghar Dalam and Bur Mghez for various purposes - the archaeological exploration of Maltese caves is still far from complete. To men capable of hauling around megaliths of 10 tons, the problems posed by 70 kilos of live tunny would not have been insuperable. This model of the prehistoric ecosystem needs to be built up and tested, species by species. While certain details inevitably remain speculative at present, that there was such a complex ecosystem in prehistoric Malta is certain. Finally, we do well to remember Jarman's observation (1972) that territorialism is functionally an ecological, not a behaviouristic phenomenon. It relates to population density, and to humans as well as other living species.
DATING AND PHASING
This section is very brief as I have little original contribution here, wishing just to record my position on this subject. I use throughout the calibrated radiocarbon dating which by now has general international acceptance. There can be no doubt that a system of absolute dating is a primary requirement: we have but to look at the mistakes of eminent scholars in the past to see how easy it is to go astray, whether dealing with megaliths, or with cultural traits 'from the Near East' or 'of Aegean influence'. Among absolute dating systems, there is little doubt that that of radiocarbon is most generally useful - provided that we can obtain organic remains. The half-life of C 14 used to be taken as 5,568 years as originally measured by W.F.Libby who introduced radiocarbon dating in 1949, and this is still the basis for most radiocarbon dates. Recent work has refined Libby's result, and the half-life of C 14 is now given as 5,730 ± 40 years. The early radiocarbon dates left important discrepancies between dates in Egypt and the Near East and those in Europe; these discrepancies were due to the fact that the amount of radiocarbon in the world's atmosphere is itself a variable. To rectify these readings, the tree-ring dating system was introduced. Dendrochronology depends on the annual growth rings laid down by trees, and examination of samples of ancient living trees (such as the bristle-cone pine) and of ancient wood has led to the creation of data-banks which are expanding rapidly. Although an individual tree may exceptionally skip a year (depending on climatic factors, etc), it can be compared to other trees, and the 'jump' rectified. The 7272 Belfast chronology, for example, goes back to 2500 BC, and most
Dating and Phasing

years are spanned by 20-30 trees. These data-banks, as they continue to expand, become increasingly reliable. In south-west Germany, where large data-banks of tree-ring dates are being amassed at the Institut für Ur- und Früh Geschichte at the University of Freiburg, dates are now sometimes given to within a decade even for the third and fourth millennia BC. For Malta there is close general agreement between the radiocarbon dates obtained by the British Museum laboratory and that of the University of California, Los Angeles. For these reasons I do not hesitate to adopt this widely accepted dating technique. Although we cannot be sure that we know the factors causing variation in atmospheric radiocarbon, once these dates have been checked with dendrochronology and calibrated, we may feel that we are on solid ground. Further checks should be sought: these can include thermoluminescence and varves where appropriate. As Renfrew has observed, "How satisfactory if radiocarbon and thermoluminescence and fission-track dating would render obsolete the seriations, the typologies and the cross-datings." (Renfrew 1970; 207)

Since radiocarbon dating is a young technique, it cannot be applied to old excavations unless suitable organic material has been retained. Sometimes provision has been made by far-sighted archaeologists: Zammit left for future scientists samples of the bone mass at two parts of the Hypogeum, and these have not yet been submitted to radiocarbon dating. It is remarkable what an accurate estimate of date Zammit reached without this aid: in 1929 he wrote "the Tarxien site was in about 3000 BC ... utilized by the inhabitants of the Island for the construction of three megalithic temples" (Zammit 1929, 1980; Preface). There are also eleven skulls from the Hypogeum in the National Museum, and it would be valuable to know what dates they span - without destroying the
Dating and Phasing

specimens. Absolute dating helps to clarify a number of problems, especially crucial points of priority, but a date is ultimately a number on a scale, and cannot provide the type of information about a society such as is given by the Three Ages system or the cultural phases revealed by ceramic typology. The limitations of the Three Ages system are fairly clear, and I discuss some of them below in reference to systems archaeology, in Section C. Suffice it to state here that the term 'Chalcolithic' is unfortunate when applied to Malta, whose first copper (daggers and axes) belongs to the Tarxien Cemetery. Although sometimes used by Zammit and then Trump, it has been criticised by Ridley (1976) and Bonanno (1986), while Evans' view was that for classifying Maltese prehistoric material it was better to "avoid the terms 'Neolithic' and 'Bronze Age' as a source of confusion." (Evans 1953;41) If considering their technological level, or for comparison with technologies of other societies, it seems reasonable to call these people neolithic, perhaps Late/Final Neolithic. However, these terms are not very helpful and can mislead when applied to the remarkable society that built the temples. Their technology was a limitation they overcame exceptionally well.

From the Neolithic on, ceramics constitute an important part of archaeological finds, and since they constitute such a characteristic feature of a culture, they can help define its rise, development and end. For prehistoric Malta, the phasing of its cultural sequence has been a major research area. The stratigraphic examination of sites makes it possible to place different artifact types, especially ceramic types, in a chronological sequence, while analysis of each ceramic type makes it possible to see how one type is related to another in a developmental sequence, or at times to
Dating and Phasing

establish a break in ceramic traditions. For Malta, this basic work in phasing the ceramic sequence was achieved by Evans, with important additions and corrections made by Trump as a result of his excavations at Skorba, where a full stratigraphical sequence was obtained. The result of these labours is shown in the table of phases (with their abbreviations that I use passim) given below, and including radiocarbon dates obtained from material found in strict stratigraphic context:

<table>
<thead>
<tr>
<th>Site</th>
<th>Abbreviation</th>
<th>Date</th>
</tr>
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<tbody>
<tr>
<td>Ghar Dalam</td>
<td>Gh D</td>
<td>5200 BC</td>
</tr>
<tr>
<td>Gray Skorba</td>
<td>G Sk</td>
<td>4500</td>
</tr>
<tr>
<td>Red Skorba</td>
<td>R Sk</td>
<td>4400</td>
</tr>
<tr>
<td>Zebbug</td>
<td>Zb</td>
<td>4100</td>
</tr>
<tr>
<td>Mgarr</td>
<td>Mg</td>
<td>3800</td>
</tr>
<tr>
<td>Ggantija</td>
<td>Gg</td>
<td>3600</td>
</tr>
<tr>
<td>Tarxien</td>
<td>Tx</td>
<td>3300/3000</td>
</tr>
</tbody>
</table>

Bronze Age

<table>
<thead>
<tr>
<th>Site</th>
<th>Abbreviation</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tarxien Cemetery</td>
<td>TC</td>
<td>2500</td>
</tr>
<tr>
<td>Borg in-Nadur</td>
<td>BN</td>
<td>1500</td>
</tr>
<tr>
<td>Bahriya</td>
<td>Ba</td>
<td>900</td>
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</tbody>
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Historical Period

<table>
<thead>
<tr>
<th>Period</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phoenicians</td>
<td>c.750</td>
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</table>

To these phases, Trump has added a sub-phase, Saflieni, between the Ggantija and Tarxien phases; he also regards the Mgarr as a sub-phase. He observes, "Since the various phases of Maltese prehistory are defined solely in terms of their pottery it is not always possible to date other artefacts directly." (Trump 1966; 24)

Although these phases are essentially of ceramic
styles, we should remember Evans' point that "it was found possible to correlate these in part with the typological development of the temples themselves." (Evans 1953:43) No temple is currently placed earlier than the Gg phase, though there is evidence discussed below that prototypes must have been earlier. In any case there is no necessary link between ceramic styles and temple-building. We have also to note that although Malta is far better provided with radiocarbon dates than Sicily, for example, the precise dating of the phases is only a relatively valid approximation; more radiocarbon dates would better secure the dating of the phases. In particular we urgently need more dates for the change c.2500 BC. As Renfrew observes, "Further dates for the Tarxien Cemetery phase are still needed, however, in order to substantiate the early end of the Tarxien phase; at present too much weight has to be placed on a single determinant, BM 141" (Renfrew 1972; 144): this was a sample of carbonised horsebeans from the Tarxien Cemetery, with the high standard error of ± 150 years. The problem of dating and phasing is even more urgent for Sicily, where the Three Ages system hardly shows real breaks, the relation of the different pottery phases is not always clear, and there is virtually no absolute dating. As for dendrochronology, it is far from likely that prehistoric Malta will ever provide enough samples for satisfaction.

In 1953 Evans divided Maltese prehistory into two periods, Period I corresponding to the early phases and down to the temple-builders, and Period II lying between them and the arrival of the Phoenicians, i.e. effectively the Bronze Age. As he says, "The five main phases of Period I were first worked out chiefly on grounds of style and technique in the vases" (Evans 1953:43). His
criteria enabled him to distinguish the break between the Tx and TC phases, but not the earlier break. His reliance on stylistic criteria did not enable him to realise that, while Mg and Zb wares were closely related, in fact the Zb style was the earlier. This was duly rectified by Trump who had the advantage of excavating a site where the stratigraphy revealed all the early phases in their correct sequence. By now both Evans and Trump agree that the ceramic evidence shows a break in continuity between R Sk and the next phase, Zb, and they have thus established the essential basis for the 'neolithic' phases. Accordingly, in this thesis I refer to the first immigrants as the A-people and the second wave as the B-people, recognising that there is no evidence that the first immigrants did not survive to be absorbed by the newcomers. However, the examination of the ceramic evidence, though detailed, appears to be substantially based on 'style' which judging from the descriptions includes the form (shape), size, decoration, and features such as handles or lugs. This seems satisfactory for distinguishing between different phases (decoration applied before firing in Zb and Mg, but after firing in Gg and Tx, etc) but these features are not in themselves adequate when the important point of cultural continuity is raised. Although sensitive to quality of pottery (rough/fine), texture (presence or absence of grits) firing (well or poorly fired), and presence or absence of a slip, the wares have apparently not been examined in more detail using more modern techniques.

In a short but valuable paper given at a conference on acculturation and continuity, B. Hulthén examined the use of pottery as evidence for continuity or discontinuity. Noting the essential dependence of modern, including ethnic, potters on received traditions, she concluded that pottery could form an
adequate criterion provided that there was agreement between different parameters which she listed as "choice and preparation of clay and temper materials, forming, surface treatment, firing, etc. Against this background it is justified to formulate a discontinuity criterion: Sudden changes of most of the above mentioned elements indicate an inflow of vessels and/or potters from other areas." However she warned that "Shape and decoration are elements which can easily be copied. For this reason conclusions about inflow can never be based on these elements alone." (Hulthen 1976; 120)

It seems that neither Evans nor Trump had available the most developed scientific techniques of ceramic analysis, and that though their analysis seems quite satisfactory for establishing the sequence and styles of the different phases, it is perhaps not sufficiently precise to establish continuity or discontinuity. Perhaps they are ultimately too dependent on shape and decoration, the factors held by Hulthen to be the easiest copied. The sophisticated techniques used for studying Minoan ceramics at the University of Cologne include dispersive X-ray analysis, X-ray diffraction; scanning electron microscopy and thin section microscopy, as well as other advanced techniques. Such techniques would surely enable us to ascertain whether, as Evans has suggested (1973; 218), it is possible that TC ware could have evolved from the rough domestic ware discovered and named Pellegrin ware by Trump.

We have also to consider the possibility of an overlap of styles. It is possible that when the Tarxien style was introduced at Tarxien, the Ggantija style continued for an indefinite period in Gozo: the two phases span over a millennium between them. More
Dating and Phasing

radiocarbon dates from stratigraphically secure contexts in both islands could settle the point.

I do not consider it proved that there was a total break around 2500 BC, although an 'archaeological' break seems likely (see Section B5). As Brea says, before arriving at conclusions about the TC phase, a more complete and detailed knowledge is required (in Kokalos 1976-7; 91). At Tarxien itself, that metre of silt seems conclusive for a substantial break, but at Tas Silg the finds were different, so, with the excavators, Brea argued for some continuity. In fact the use made of the old temples varied with site, and where we apparently have evidence for religious continuity, it is difficult not to accept some ethnic continuity too. As the population was far lower in the TC phase, it is perfectly possible that the newcomers continued with, and ultimately absorbed, a few remaining pockets of the old temple communities. It is possible that the Phoenician evidence referring to the restoration of Gozitan temples may also indicate a continuing religious tradition there, but these are obscure matters.

In conclusion we should recognise the following points: 1. phasing by ceramics has led to a sound system of ceramic phases for the temple-builders; 2. there is no necessary link between ceramic styles and other aspects of material culture such as temples; 3. we need considerably more radiocarbon dates to determine more securely the length of each phase, bearing in mind a possible difference between Malta and Gozo; 4. the events occurring around 2500 BC and thereafter are still considerably obscure. Even if we can point to the probability of a substantial emigration to Sicily, this was not necessarily total in the context of fairly independent temple-communities. We do not know which was
the first TC site in Malta, nor do we have adequate
details of their culture. New technological methods are
probably capable of determining whether there was any
continuity in ceramic traditions (perhaps from the
Pellegrin ware). Ethnic continuity needs to be tested by
physical types: what percentage were roundheads in 2400
and in 2000 BC? The absence of settlement sites from
all phases remains a real handicap; perhaps a meticulous
excavation of the unexcavated area to the south-east of
the temple at Tas Silg would produce many answers.
Religious conservatism is very strong, the temples are
still impressive after five millennia, and even a small
community continuing the old rites at sites like Tas Silg
and in Gozo could have transmitted various religious
practices. The temple at Tas Silg, with that at Samos,
was described by Cicero as "sanctissima and
antiquissima"; if not the oldest (which is quite likely),
they were among the oldest sanctuaries known to Cicero
and dedicated to 'Juno'. The Italian evidence found at
Tas Silg does apparently show religious continuity: Brea
is in agreement with the excavating team. As Moscati
says,

"la documentazione di Tas Silg è illuminante,
sopratutto nell'adattamento delle strutture del
santuario dall'una all'altra fase: adattamento, del
resto, che quasi emblematicamente si ripete
nell'oggetto stesso del culto, la dea madre della
preistoria che diviene l'Astarte fenicia e diverrà poi
Era dei Greci, Giunone dei Romani." (in Kokalos 1976-
7;151) A handful of metal daggers and axes hardly
preclude the possibility of the cohabitation of small
numbers of both groups in a largely deserted island
whose agricultural resources had been exhausted
through over-exploitation in the Neolithic.

- 41 -
"The time has now come when it should be useful to speak in quantitative terms, however approximate."

Colin Renfrew (1970; 203)

Fig. 1, Braidwood's Cone, a diagram of the growth of projected world demography since the Neolithic Revolution
General Considerations

Estimating the size of prehistoric populations is no easy matter, and hardly merits the status of an exact science. The inevitable element of chance in archaeological finds, the physics and chemistry of the survival of different substances and materials (organic and inorganic), behavioural patterns and attitudes of peoples being studied, and the timescale involved - these all play important roles. Still, the fact remains that population size and density are factors we cannot afford to ignore, and if the attempt must be an estimation rather than an exact calculation, at least it can provide both an idea of the scale involved, and also of the main variations. The Americans use the term 'semi-quantitative', which is a fair description of the numbers we shall be considering. In this field, experts have not hesitated to make use of comparisons with both ancient and contemporary societies.

We have to consider Maltese demography not only as part of the spread of the Neolithic, but also as a special variant due to its island character. Although the 'wave of advance' model proposed by Ammerman and Cavalli-Sforza has been criticised in certain areas by various experts, these criticisms are not really levelled at the geographic area of Italy and south-eastern Europe, where Zvelebil recently conceded, "I am quite happy to admit that there are grounds here for postulating demic diffusion." (Zvelebil 1989; 382) This concurs with Whitehouse's views of the introduction by immigrants of the fully developed Neolithic with Impressed Ware into southern Italy (1968), and although Tusa (1983) has proposed a local pre-ceramic, pre-Stentinello phase at
Demography

the beginning of the Sicilian Neolithic, there is no
evidence for the colonisation of Malta prior to the
arrival of the first immigrants with their Stentinello
culture c 5000 BC.

In an article studying colonization cycles in man
and beast, Diamond (1977) stated that colonization cycles
in animal species involve changes not only in
distribution, but also in the strategies of reproduction,
dispersal and resource-hunting, as well as in niche
breadth and competitive dominance. He formulated a
general description of the phases of successive cycles as
1) expanding phase, 2) local adaptation phase, and 3)
retreating phase. Regarding the colonization of islands,
he commented, "For primitive man, the overwater
colonization funnel is narrow. Virtually all colonization
is probably by coastal people." (1977; 253)

In a related study of the earliest colonization of
the Mediterranean islands, Cherry stated,

"Island colonization is probably related to other
important features of cultural evolution over the past
10,000 years (such as massive demographic growth and
the inception of sedentary food-producing economies).
The pattern naturally suggests purposive behaviour
over a relatively short time span..." (1981; 42).

He concluded that:

"the islands tend to offer poorer environments for
farming than the mainland and that they were therefore
colonized only as a late phase of the neolithic 'wave
of advance'... when rising population density on the
mainland encouraged the move into secondary, marginal
environments."(1981 ; 59)

What demographic pattern should we expect at the
colonization of a new island? Diamond's three phases
appear to be demonstrated by both the Maltese A- and B-
peoples, with a longer time-scale and a considerably greater population for the B-people. However these differences are to be explained (different numbers of original immigrants? differences in social dynamism?), there is no doubt that we should expect the initial immigration to be followed by a period of significant growth. This is the pattern of new settlement analysed by Birdsell in 1957 for Australian aboriginees, where he found a doubling time of about 20 years, equivalent to one generation. Dolukhanov comments,

"Demographic processes which take place when new economic structures are being introduced (in our case food-producing) may be regarded as processes of populating previously unoccupied ecological niches. As Birdsell (1957) has shown, the growth curve reflecting the intrinsic rate of growth of the population in such cases is logistic in general form. Birdsell has equally shown that when any given habitat is saturated to its carrying capacity the process of budding-off prevails." (1973; 331-2)

Moving to Neolithic Europe, Barker states,

"The fourth millennium then witnessed major changes in settlement, population, technology, and subsistence. It seems clear that the period was marked by a substantial rise in population." (1985; 69)

The continuation of this process is confirmed by Sherratt:

"A critical change in population density, distribution of settlement, technology and social organisation seems to have occurred in many parts of Europe in the third millennium, whether the groups involved are labelled 'Bronze Age', 'Copper Age', or 'Late Neolithic' according to regional terminologies." (1972; 532-3)

These considerations give clear indications of what we should expect to find at the colonisation of the Maltese archipelago in its virgin state, tree-cover still intact. We should expect the peaceful conditions and new agricultural land to produce good returns for experienced
farmers, and that their population would respond by
doubling every twenty years or so. As Renfrew observes,
"In ideal circumstances, the population of a newly
occupied island can double every generation, until the
limited land available demands more intensive
agricultural practices." (1983; 180) Insofar as
conditions are less than ideal, we expect an
approximation to these responses. We should also expect a
growth curve which is logistic in general form, tailing off as the carrying capacity is reached. Evans (1977) has
remarked that the population could have reached its limit
within a few hundred years. Accordingly we have first to
examine the population figures proposed to date, and then
turn to the evidence from the islands themselves.

Maltese Demography

Dr Trump states his view as follows:

"The present population is a little over 300,000.
Comparison with some of the Aegean islands today, for
example, would suggest that Malta and Gozo might have
supported a population of the order of 10,000 in
antiquity, a very different figure. This cannot by
the nature of things be more than a rough and ready
estimate, but some sort of figure is needed for any
assessment of the temples or the Hypogeum." (Trump
1972; 19)

Renfrew reaches a similar figure from a different
route:

"The modern figure of 300,000 is entirely a function
of its importance as a commercial port, and population
figures from historic times are also of little help.
The area of the archipelago is 316 square kilometres
(122 square miles), and 60 % of this is today
classified as arable land. Soil erosion has taken
place, and perhaps a higher proportion was originally
suitable for agriculture - say 70 %. ... For what may
be a maximum estimate, we shall allow as little as two
hectares (five acres) of arable land per head (i.e.
fifty persons per square kilometre of arable land),
giving a total population of 11,000." (Renfrew 1973;
Demography

Renfrew's final view appears to be expressed in the following sentence:

"We thus have an island of some 300 square kilometres, of little ecological diversity, supporting a population of up to 11,000 persons divided into six territories, each with about 2000 people." (Renfrew 1973:169)

This is very close to the figure suggested by Trump. Although I do not agree with Renfrew's concept of territorial chiefdoms (see below), his figures certainly provide a base to work with.

A higher estimate was reached during the Fourth International Sicilian Conference. Prof. Le Lannou was invited as a geographer to state his opinion on Maltese populations. In historic times, the population was 100,000 in 1798, 25,000 in 1530 at the arrival of the Knights, and some 10,000 in 1200 AD. Calculating on the basis of Maltese wheat yields which are average for Mediterranean Europe, Le Lannou estimated a carrying capacity of up to 20,000 inhabitants five millennia ago. This figure was accepted by Evans as appropriate for the numbers required to build the temples (Kokalos 1976-7; 11-19). I term this estimate the maximum figure, and the Trump-Renfrew the minimum figure.

The higher figure is supported by arguments using Barker's figures for southern Italy: "With grain yields between 5 - 10 quintals per hectare, a kilometre territory on the crosta would support communities of some 50 people." (Barker 1985:67) Even at 5 quintals per hectare, Malta's 220 arable square kilometres could produce 110,000 quintals annually. But Champion et al. (1984; 118) have suggested that a person could perhaps be
supported by 250 kgms of wheat per year, so this easily supports the figure proposed by Le Lannou. These largely calorific calculations have to be seen in conjunction with the animal protein constituent of diet, produced mainly by ovicaprids grazing non-arable land, and also by pigs and cattle. Since the islands are tiny and have coasts and sea, we have also to add the protein-rich resources of seafish as well as shellfish. We must remember that Barker was working from average figures, and that Champion's figures refer presumably to adults. It is difficult enough to arrive at even approximate averages for prehistory, and we have even less idea of the fluctuations compatible with the survival of communities, nor to their adaptive changes to years of low productivity. Overall, these figures establish the acceptability of the higher population of up to some 20,000 for the temple-builders.

Minor indications of population size exist; such as they are, they give general support to the range of figure proposed. There is Zammit's calculation of some 7,000 dead being buried in the Hypogeum, surely only a fraction of the total local population. Then there are the two water cisterns in the Hypogeum, whose capacities I have calculated at about 33,000 and 7,000 litres, which would provide 20 litres per person for a population of 2,000, and must have represented an important reserve for periods of summer drought. The modern reservoir at Tarxien contains 275,000 litres for a population of 8,000 with modern demands, i.e. roughly 34 litres each. Malta still has not solved its summer shortage of water.

But Malta was occupied by neolithic farmers for some 25 centuries: where do these population figures belong? Clearly somewhere in the temple period. I am
Demography

not aware of any prior attempts to differentiate beyond this point.

Looking at the material evidence for the A-group, all the indications are of strictly limited population size, perhaps a handful of villages (unknown apart from Skorba), and the possibly seasonal occupation of caves, providing the early sherds. We have the unsatisfactory evidence from Ghar Dalam, itself a cave but possibly testifying to a neolithic village nearby. We have the far more satisfactory evidence provided by Dr Trump's excavation at Skorba, covering the Gh D, G Sk and R Sk phases in stratified layers two metres deep. Here is unambiguous evidence of an A-group village with some of its huts and two oval rooms which Trump sees as shrines. To have a separate hut as a shrine, with the other evidence, probably implies the size of a healthy village, say 200 - 250 individuals. This impression is reinforced by a stretch of 16 feet of surviving wall. Gozo too had A-group inhabitants, although the evidence here is not very satisfactory, sherds from Xaghra, Xewkiya and Ta Kuliat, some obsidian, and nothing yet to rival the Skorba village. All in all, we are hardly justified in estimating the total population of the A-group much above the thousand mark, although if we make allowance for undiscovered sites, the figure could have been nearer 2000 for both islands.

For the B-group we have provisional figures ranging from 11,000 - 20,000 for the mid-Tarxien phase. Again the evidence is not decisive, yet the total remains are far greater, including a variety of burials and potsherds, the temples themselves with their contents, and the Hal Saflieni Hypogeum. This amounts to a considerable and informative body of evidence; the main lack now is of sites of at least a few B-group villages.
Burials are always important evidence; the main defect here is the inadequate intra-phalal dating. Clearly the calibrated radiocarbon technique is capable of providing invaluable detail, especially when applied to a statistically satisfactory number of specimens. This should be given high priority should further hypogea or burials be discovered, together with modern detailed examination of bones (animal and human), even if jumbled together in bone pits. Next comes the pottery evidence, which is all the more precious since all phases of prehistoric Malta were ceramic. Its virtue is also its limitation: it is invaluable in phasing, but cannot provide more precise indications within the long Maltese phases. Perhaps one day thermoluminescence will be able to help.

I shall develop my examination by starting with the solid evidence provided by the temples themselves. This will subsequently be compared with sherd evidence, and, later, both will be compared with the largely independent body of evidence from the Hypogeum. In this way we can check each source of evidence with two others to reach further conclusions. This is particularly necessary because of the nature of archaeological investigation. There is never any way of checking precisely what percentage of the original material has been recovered. Cross-checking is essential in order to create a reasonably assured basis. I make use of sherd counts which are large enough to be statistically significant; we shall see that there is a fairly direct relationship between sherd counts and temples. Since we shall shortly discover that there is (not surprisingly) a relationship between the numbers of temples built and the sherd counts, I see no obvious objection to accepting a roughly proportional relationship between population size and sherd counts: we are dealing with semi-quantitative figures.
rather than precise measurements. Whether used for burials, ceremonies or domestic purposes, it seems reasonable to suppose that if the population doubled, it would require roughly twice as many pots; in fact similar assumptions are already made about food and other material requirements. Fortunately we can base our examination on the pattern of temple-building, while the Hypogeum provides supporting evidence in its own unique and tantalising manner.

The Temples

We come now to examine the temples from the demographic point of view. Renfrew has suggested that monument building may be a territorial reaction of small scale segmentary societies to population stress (1976; 200), so there are prior reasons for suspecting that demographic factors are enshrined in the temples. Dr Trump observes,

"Twenty-three classifiable temples are known, of which six stand alone, ten are in pairs, and there is one group of three and one of four. Five more structures of similar type have irregular plans, and there are at least twenty scatters of megalithic blocks with sherds of the appropriate period which could represent the last vestiges of former temples. Tas-Silg came to light as recently as 1964, but it is on the whole unlikely that many more remain to be discovered. The number completely destroyed we shall never know." (1972; 27)

Evans too has spoken of 'some twenty temples'.

If we accept that the "twenty scatters of megalithic blocks" were indeed neolithic (sherd evidence), it is not necessarily the case that they were all temple vestiges; the Brocktorff Circle is firm evidence of an alternative (though related) use for megaliths, and it could well be
Demography

that the megalithic stumps found above the Hal-Saflieni Hypogeum had a similar role. So could the It-Tumbata remains: indeed funerary circles using megaliths constitute the only attested alternative use of megaliths in neolithic times, though surviving evidence makes them much rarer than temples. For dating the temples, we are still basically dependent on the associated pottery finds, which at least enables us to distinguish between Gg and Tx phase temples. There is also the evidence of evolving ground plans, while stylistically there is the advance from the rough cyclopean walling of Ggantija or Ta Hagrat to the finely finished ashlar masonry of Mn, Tx C and parts of HQ. The associated stone structures (especially carved blocks and altars) also show stylistic evolution in their ornamentation, from plain surface to honeycomb-like pitting and on to the elaborate curvilinear artistry of the mature Tarxien style.

With the advance of technology, the organic contents of temples provide scope for radiocarbon dating, though this has only been sparsely tried to date. Since the temples were not used for human burial, the samples would have to be the animal bones and horns. If these were indeed stored as some kind of memorial of individual sacrifices, their dates could show the period over which the temples were used, which would be an independent check on the pottery sequence. Although it is probable that the temples had roofs which incorporated wooden beams, so far samples have only been recovered from Skorba. Such radiocarbon dating should be an important priority when any further temples are recovered, especially if buried like Tarxien. It is important to create a still more solid and more detailed dating scheme for prehistoric Malta: those twenty-five centuries need precise articulation, although the first ten provide far less evidence than the last fifteen.
Demography

Trump summarizes the current view as follows:

"the temples span from early in the Ggantija phase to the end of that of Tarxien. Using conventional radiocarbon dates, this covers a period of some eight centuries, 2800 - 2000 BC or, as provisionally corrected, something like 3500 - 2500 BC." (1972; 28)

In 1972 Trump published a table classifying temple development in which he included 20 temples (1972; 26). In 1981, when his object was no longer the classification of temple types, he concluded his essay on 'Megalithic Architecture in Malta' with an Appendix which he subtitled 'Catalogue of Temples and Rock-Cut Tombs'. This catalogue lists 36 sites, of which some 20 include one or more temples, even if anomalous, 12 are either ruinous or have been destroyed, and 4 are rock-cut tombs and include the great collective tomb at Hal Saflieni. As my concern here is with the phase to which particular temples belong, I have combined Trump's two tables to produce the following table of 43 individual temples according to phase, Gg or Tx.

Catalogue of Temples and Temple Sites (after Trump)

with abbreviations used in the text.

<table>
<thead>
<tr>
<th>Gg phase</th>
<th>Tx phase</th>
<th>Unclassified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gg S</td>
<td>Tx W Tarxien West</td>
<td>Xewkija</td>
</tr>
<tr>
<td>Gg N</td>
<td>Tx E Tarxien East</td>
<td>Borg li Mramma</td>
</tr>
<tr>
<td>Ta Ghejzu</td>
<td>Tx C Tarxien Central</td>
<td>Li Mrejsbiet</td>
</tr>
<tr>
<td>Santa Verna</td>
<td>Ras il Pellegrin</td>
<td>Borg il Gharib</td>
</tr>
<tr>
<td>Ta Marziena</td>
<td>Li Mdawwar</td>
<td>Armier</td>
</tr>
<tr>
<td>THW</td>
<td>THE Ta Hagrat East</td>
<td>Ghajn Zejtuna</td>
</tr>
<tr>
<td>Sk W</td>
<td>Sk E Skorba East</td>
<td>Ta Lippija</td>
</tr>
<tr>
<td>Mn E</td>
<td>Mn S Mnajdra South</td>
<td>Il Maghtab</td>
</tr>
<tr>
<td>HQC</td>
<td>Mn C Mnajdra Central</td>
<td>Sqaq il Bal, Qrendi</td>
</tr>
<tr>
<td>HQW</td>
<td>HQN Hagar Qim North</td>
<td>It Tumbata</td>
</tr>
<tr>
<td>KI</td>
<td>Kordin I</td>
<td>Debdieba</td>
</tr>
<tr>
<td>KII</td>
<td>Bu Bugibba</td>
<td>Hal Far</td>
</tr>
<tr>
<td>KIIIW</td>
<td>TS Tas Silg</td>
<td></td>
</tr>
</tbody>
</table>

- 53 -
In compiling this table, I have counted Hagar Qim (Central) as two temples, central and western, on the basis of Evans' belief that court 11 was originally part of a separate temple as well as because of its great size and partitioned nature. I have counted all four of the Kordin temples, and I have classed Ta Hagrat East as a Tx phase temple, though this is somewhat dubious. I am aware that not all those sites classed as 'Unclassified' can be proved to be temples; It Tumbata in particular might well have been a funerary circle. Omissions from this catalogue include the remainder of Trump's "twenty scatters of megalithic blocks". I have also omitted the remains which indicate second temples at Tas Silg and Borg in-Nadur. As our knowledge stands, temples and circles constitute the only use for megaliths - and we know very little about funerary circles, although the Brocktorff Circle is beginning to indicate how valuable these can be. We may be certain that further temples existed in antiquity, though not of their number. However, temple-building is established as a major activity throughout both islands.

This analysis establishes, on considerably solid grounds, that temple-building proceeded very actively in both phases, with a few more being built in the Gg phase. This ratio of Gg 17 : Tx 14 is, of course, only approximate and cannot reflect additions and alterations such as those at Hagar Qim. It is however significantly close to two others comparing the Gg and Tx phases, the
accepted time-scale (Gg c.600 years : Tx c.500 years) and also the sherd count from the Hypogeum (Gg 996 : Tx 834). As these are all obtained from independent lines of enquiry, they clearly support each other in a general way. While we should avoid reading too much into such figures, it is apparent that a general pattern is emerging from the different lines of enquiry.

If we now consider the geographic spread, we observe that five temples were built on Gozo during the Gg phase; none there are attributed to the Tx phase. In contrast to this situation, we find that in Malta 12 temples were constructed during the Gg phase and 15 during the Tx phase. So we arrive at the following initial conclusions:

1. Temple-building began in the Gg phase and continued at an apparently even rate through the Tx phase.
2. Temple-building in Gozo was apparently limited to the Gg phase, while it continued in Malta at, if anything, a slightly faster rate down to the end. In the Tx phase, Tarxien itself became a major centre, outpacing its near neighbour Kordin. Mnajdra established itself as a centre comparable to its near neighbour Hagar Qim, while other nearby sites were established at Tas Silg and Borg in-Nadur.

The hypothesis under investigation here is that variations in population are quantitatively reflected by material remains. The temples constitute by far the most important and unambiguous remains. Only at Skorba is there evidence of a temple falling into disuse, while there is plenty of testimony from many of the Gg phase temples that they continued in use to the end; this is firmly established by Tx sherds and temple furnishings, such as the carved blocks at Ggantija. Since there is
proof that temples continued to be built to near the end, the most plausible and satisfactory explanation is that this was in response to an increasing population who needed more territory and who used their temples both as an indication of their relative strength and as an essential title to the land they held.

I propose an approximate figure of 1000 for the population in 4000 BC, early in the Zb phase, with two possible figures for late Tz, a lower figure of 11,000 and a higher one of 20,000. We have already seen that a priori considerations lead us to expect an exponential growth rate initially; as Case says, "a pioneering farming population may have tended to expand exponentially and kinship groups to segment away in increasing numbers from parent settlements, as their comfortable carrying-capacity was reached."

(1976:45)

That this applies to Malta is confirmed by Trump who considers the Zb phase "a long phase of population increase from immigrant origins to the great period of temple-building." (Trump 1966a: 49) While we may expect an exponential rate initially, we also expect the total growth curve to have a logistic form, tailing off as the carrying-capacity was reached, and, as we have seen, it appears that the carrying-capacity should be placed around 20,000 for the prehistoric period.

The dispersal of temples throughout both islands by the end suggests that all available land was used and that the capacity was effectively saturated. As temple construction implies steady growth, we can now express these data in graph form: see Fig. 1.
Fig. 1. Graph of suggested demographic growth, 4000 – 2500 B.C.

a) Lower estimate (Trump – Renfrew): exponential curve peaking at 10,000.

b) Higher estimate (Le Lannou – Evans): exponential curve peaking at 20,000.

c) Higher estimate (Ferguson): logistic curve levelling off at 18,000 c. 2800 B.C.
**Demography**

Although natural fluctuations in population cannot be shown on such an approximate graph for the Maltese or almost any other prehistoric population (we would need to be able to combine radiocarbon dating with a statistically significant number of burials, such as provided by another hypogeum), we can use the graph to read off the following estimated figures for the neolithic population:

<table>
<thead>
<tr>
<th>Lower figure</th>
<th>Higher figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,000</td>
<td>early Zebbug</td>
</tr>
<tr>
<td>4,100</td>
<td>c.4000 BC</td>
</tr>
<tr>
<td>7,800</td>
<td>early Ggantija</td>
</tr>
<tr>
<td>11,000</td>
<td>c.3600 BC</td>
</tr>
<tr>
<td>13,000</td>
<td>early Tarxien</td>
</tr>
<tr>
<td>20,000</td>
<td>c.3000 BC</td>
</tr>
<tr>
<td>20,000</td>
<td>the end</td>
</tr>
<tr>
<td>11,000</td>
<td>c.2500 BC</td>
</tr>
</tbody>
</table>

Clearly these figures are approximate rather than exact, but they are based on calculations which are as accurate as possible at present. Only in exceptional circumstances is it possible to achieve real accuracy for prehistoric populations. It is true that there are other possible graph shapes: the peak could have been reached earlier - but continuing temple-building implies a mid- to late Tarxien phase. Other theoretical possibilities are not supported either by probability or by the material remains. If there was indeed a direct correlation between temple-building and
Demographic growth (and there are other reasons supporting this belief), then these graph forms do approximately represent the material facts insofar as we know them. Moreover, given a peaceful society with successful agricultural techniques, this represents an inherently reasonable interpretation of their demography.

We have seen that there is no indication for a maximum population of more than 1000-2000 for the A-group. On the other hand there is every indication that the B-group expanded until they occupied all the available space on both islands, and a strong suggestion that over-population was a critical factor at the end. I have chosen to work from an initial figure of one thousand by 4000 BC, early in the Zebbug phase, but even if this had been as small as one hundred, the ten thousand mark could theoretically have been passed in less than ten generations, i.e. some 200 years. Such is the nature of human fertility when not constrained by nutritional, territorial or other factors: the human demographic potential. The considerable contrast between the two waves of immigrants is presumably to be explained in terms of social dynamism, since the islands' potential, and their technique for exploiting it, were essentially the same. There is as yet no evidence on whether they were able to intensify their agricultural practices, though to a limited extent this is likely. Extension of their exploitation territory by heavier fishing could well have exacerbated their population problem.

The Hypogeum
Demography

The next evidence in this demographic study comes from the Hypogeum at Hal Saflieni, in the form of burials, pottery, and the form itself, and it constitutes an essentially independent check. Firstly, as regards dates and phases, it seems highly probable that the rough cave-like areas of the upper level go back to the earliest phases of the B-group: this is confirmed by sherds from the Zb as well as the Mg phases. It also seems clear that the Hypogeum was in use throughout the Gg and Tx phases: not only did the burials continue, but important extensions and alterations were made at a later date. It is extraordinary that the third level was found almost empty by Zammit; it is likely that it was an addition late in the Tx phase. Evans also considered the water cistern late because of its finish.

It is most unfortunate that no phasing or dating of the burials was possible when it was excavated, and lamentable that so little of the original material remains. Today a major find such as a hypogeum could provide a wealth of detail through examination of the bones, both as regards the period of use (dating) and as regards the ages, sexes, etc, of the burials. The discovery of the intact skeleton of an adult male in flexed position probably indicates a late Tarxien death, and the massive bone heaps of 'the ancestors' are testimony to many centuries' use. However, what we have missed with the bones can partly be made up from the sherds, with a phase count as follows:

Zb 36  Mg 21  Gg 996  Tx 884.

These numbers constitute statistically relevant figures and are substantial testimony to its use over all phases. They point to rather occasional or strictly
limited use during phases Zb and Mg, but to heavy use in both Gg and Tx phases. Although the use of sherd counts from temples could be criticised on the grounds that they are incomplete (though this applies equally to all phases) and that temple rituals involving ceramic vessels could vary and do not necessarily reflect population changes, here we have a similar type count (see below) which must surely be associated with burials and thus with demography. As with the temples themselves, we have here quite independent evidence of a much larger population in the last two phases. It is true we cannot be certain that burials inside the Hypogeum represent a consistent proportion of the total local population, yet this could well be the case, since it is quite likely that burial inside the Hypogeum would have been inherited by certain proto-families who would themselves (considering Zammit's statistically impressive estimate of 7000 individuals) reflect the demographic tendencies of their community.

This Hypogeum almost certainly embodies an important transition from very limited Zb-phase burials in its upper level to the mass collective burials lower down, and this transition itself displays the process of substantial demographic growth. As Sluga Messina has observed (1988; 3), the change to collective burial implies population growth and / or different family structure. In the case of Malta, both may be indicated. Chapman (1981; 80) argues from an anthropological basis that imbalance in critical resources leads to interment in cemeteries and the emergence of territorially-based descent groups (see Conclusions).

While the Hypogeum only provided a few megalithic stumps externally to suggest that it became a
ceremonial rather than remaining a private burial centre, the latest evidence from Brocktorff's Circle provides proof that Zb phase tombs there were eventually monumentalised by the circle of megaliths in the Tx phase (Trump, personal communication).

Megalithic circles are necessarily communal efforts; the entrance pillars to the Circle painted by Houel and Brocktorff weighed some 30 tons each (dimensions given by Houel). All of which gives a new importance to the investigation of other Maltese circles which may also be funerary.

It is instructive that at Hal Saflieni the Gg count actually exceeds the Tx count, while all the demographic evidence we have used to date indicates that the Maltese population peaked in the Tx phase. How is this to be explained?

Sherd Counts

Like buildings and burials, sherds bear their own witness to human activities, and we must suppose that they are, in a general sense, quantifiably related to human activities. As all phases of Maltese prehistory are ceramic, we are dealing with an old, established pattern of behaviour involving regular use of pottery. Whether for domestic or ritual purposes, pots were in general use throughout the community, and it seems reasonable to postulate a direct relationship between community size and amount of pottery. While domestic pottery was normally coarser and shorter lived, ritual pottery has had a higher survival index.

A first point is geographic: both Kordin III and the Tarxien temples lie within a kilometre of the
Demography

Hypogeum, and there is no evidence to link the Hypogeum with either exclusively. Kordin I and II, lying about 500 metres away towards Grand Harbour, produced sherds from Mg, Gg and Tx, so should probably be assigned to the Gg phase, with indications of an earlier occupation of the site. At Tarxien, only Tx FE is accepted as of Gg phase, while Tx E, W and C all belong to the Tx phase. It is perfectly possible that the Hypogeum was used by both communities especially as the communities may have been closely inter-related, and close relationships could be reflected in burial practices. Kordin was certainly more important in the Gg phase, with 4 temples to 1 at Tarxien. Then we see a changing situation, with major new temples being erected at Tarxien, implying that their community was large enough to require more temples early in that phase. That Tx W and Tx E were added at roughly the same time (say within 100 - 150 years of each other) could indicate a movement of population from Kordin to Tarxien: we have to consider that Tarxien may have developed as a splinter group or a daughter community from the older site nearer the harbour.

From Tarxien there comes further evidence of this possibility in the sherd count from Zammit's excavation:

Zb 15  Mg 2  Gg 212  Tx 1652.

The low sherd count for Zb and Mg is normal, and clearly reflects the lower population in these two phases, but what is surprising is the gross disparity between the figures for Gg and Tx - almost 1 : 8 , as compared with rough parity at the Hypogeum nearby and the figures from Ggantija which are less than 2 : 1. Both the conditions of Zammit's excavation ( a
virtually virgin site) and the high sherd count (almost 1900 sherds) make this a satisfactory count to work from. As the temple ratios do not seem to account for this high potsherd discrepancy from this carefully excavated site, I conclude that movement of population from Kordin to Tarxien seems to be indicated in the late Gg phase or very early Tx phase. This accords well with two solid facts, that Kordin was more important early on, and that Grand Harbour would have prevented expansion to the north. Thus it seems only logical to accept that Tarxien represents an expansion of the Kordin community in the only direction available, the south.

However, we are now faced with a further problem. The temples at Kordin were still used in the Tx phase (sherd evidence), so at most we are talking of a partial displacement of population to Tarxien; the Kordin community remained active and continued to use their own temples. But the evidence from Tarxien (new temples, high Tx phase sherd count) points to a considerable rise in population. Why then is this not reflected by a higher Tx sherd count from the Hypogeum?

There are different possible explanations. It could be the case that burial within the Hypogeum became increasingly restricted during the Tx phase. It seems very likely that the power of the priesthood was increasing at this time; both the increasing closing-off of the inner courts (most strikingly at Tx C) and the probability that burial practices, or at least those within the Hypogeum, would have been controlled by the priesthood, support this view. Secondly, it could also be the case that the Hypogeum had first been developed for burial purposes by certain families of the Kordin community who largely managed to retain
control of it in the Tx phase. This possibility can hardly be discounted, since Kordin was important in the Gg phase, and there is no evidence of its later growth. However, Zb and Mg phase sherds have been recovered alike from Kordin, Tarxien and the Hypogeum, and the Hypogeum is closer to Tarxien than Kordin. On balance it would seem that these two factors in combination can explain the fact that the sherd count from the Hypogeum does not indicate population growth in the Tarxien phase.

This growth and expansion of the original Kordin community would represent Birdsell's 'budding-off' process. V. Reynolds has observed that "Population growth in present day simple agricultural communities is followed by splitting up, just as it is in monkeys" (Reynolds 1973; 473). We are apparently dealing with an organic demographic process widespread among various biological populations.

Furthermore, it appears that the relationship between Kordin and Tarxien was repeated by that between Hagar Qim and Mnajdra. Again we have two temple complexes which are situated curiously close to each other if we were to accept Renfrew's hypothesis of a territorial division of the islands between contending chiefs. Analysing the work on the temples by phases, we see that at Hagar Qim the work on the main temple was completed before the end of the Gg phase, while the minor temple HQN was added in the Tx phase. The situation at Mnajdra is the reverse of this, with only the small Mn E built by the Gg phase population, while their Tx phase followers constructed the much larger temples of Mn S and Mn C in the early and mid-Tx phase.
Demography

This pattern is already suggestive, and when we combine it with Ashby's sherd count for Mnajdra, the similarity to the Kordin-Tarxien situation is unmistakable. The sherd count reads:

\[
\text{Zb 4  Mg 1  Gg 34  Tx 700.}
\]

Again we have a minimal count of Zb and Mg sherds, which may not represent more than a few old vessels surviving (as treasured relics?) from those early phases. Again this is followed by a totally disproportionate count for the Gg and Tx sherds, producing here a ratio of 1 : 20. Although the count is smaller, the total of over 700 is satisfactory for statistical purposes. If accurate, I cannot see this as only a reflection of demographic growth, and again I suggest that the growth was combined with another factor - population displacement. As Evans concluded that Hagar Qim reached its final form before the end of the Gg phase, my interpretation of the record is that the earliest temple building was at Hagar Qim. Its population grew, and eventually produced a small splinter (or daughter) community at Mnajdra. By the Tx phase, further population growth created the need both for HQN and for a significant movement of population to Mnajdra where the two great temples were then constructed. Unfortunately no sherd counts exist for HQ; no burial hypogeum has yet been discovered in the area.

Thus at Hagar Qim -Mnajdra as at Kordin - Tarxien, I maintain that, insofar as we can read the available evidence, the picture is one of steady growth of the initial community who built their first temples (partly to designate the territory they controlled), continued to grow, and, perhaps amicably rather than
contentiously, founded daughter communities at Mnajdra and Tarxien by the end of the Gg phase. By the turn of the phase, around 3000 BC, further population growth had occurred, and this pressure on land and resources was met by a significant displacement of the community to the up-and-coming centres at Tarxien and Mnajdra, where the sudden increase in population was reflected both by building major temples and by their apparently exaggerated Tx sherd counts. The community at HQ continued to grow (more land was available than on Kordin Heights), making alterations to their main temple, and also constructing a new 5-apse temple, HQN. The population was stabilised at Kordin, as apparently at Ggantija, by the end of the Gg phase, and no further temples were built. A possible drop in population at Ggantija is suggested by its sherd count.

I have been able to arrive at more detailed conclusions for the major Maltese centres of Hagar Qim, Mnajdra, Kordin and Tarxien by combining the dating by phases of the temples with the sherd counts, and in the latter case by evidence from the Hypogeum. For demographic purposes we should note that Malta's total of 15 Tx phase temples (as compared with 12 Gg temples) indicates a population which continued to grow, apparently at a slightly faster rate. New temples were built elsewhere, at Skorba East, Ta Silg, Tal Qadi, etc. These figures are for known temples, without any allowance for those that have disappeared. For Gozo the picture is rather different, since all of its datable temples were built in the Gg phase; there is no evidence of new temples being built there in the Tx phase. If we are justified in applying the small sherd count from Ggantija to population, it would appear that the local peak was reached in the Gg phase, and may have declined slightly later. The general picture does
Demography

Demography seem reasonably clear, with Gozo, the smaller island, experiencing greater pressure from its growing population on its resources in the Gg phase, and reacting to this pressure by creating temples which also served to demarcate territory; this process seems to have been completed by the end of the Gg phase. In Malta, on the other hand, while at least 12 temples had staked out territorial claims by 3000 BC, a further 15 were built in the subsequent Tx phase. If Gozo experienced its population crisis rather early, that of Malta seems to have been building up throughout the entire period. I do not find evidence of decadence or decline; the most that can be pointed to is what Trump has called "a hint of decline" which was apparently limited to Skorba West. Our picture is one of population growth, relative prosperity and steady creativity in temple construction throughout Malta, coupled with the increasing pressures on strictly limited resources.

Population Estimates

We are now in a position to try to relate temple ratios to population estimates. Gozo has 5 definite Gg phase temples to the 12 of Malta where 15 more were built in the Tx phase, giving these ratios:

<table>
<thead>
<tr>
<th></th>
<th>Gozo</th>
<th>Malta</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>end of Gg phase</td>
<td>5 : 12</td>
<td>1 : 2.4</td>
<td></td>
</tr>
<tr>
<td>end of Tx phase</td>
<td>5 : 27</td>
<td>1 : 5.4</td>
<td></td>
</tr>
</tbody>
</table>

If instead of the datable temples we take the total of
Demography

43 named temples, we have to divide them by phases between the islands. Working from Trump (1982;72), we find there are 9 for Gozo and 34 for Malta, giving a ratio of 1 : 3.77. Not all of these have been phased yet, but none for Gozo has yet been attributed to the Tx phase, while we will assume that the ratio for the total temple estimate was the same as that for the phased temples, i.e. 12 : 15, giving 15 Gg phase : 19 Tx phase temples out of the total of 34. This produces the following chart:

<table>
<thead>
<tr>
<th>Total pop; estimate</th>
<th>Temple ratio</th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gozo : Malta</td>
<td>Gozo</td>
</tr>
<tr>
<td>3000 BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>minimum</td>
<td>7,800</td>
<td>1 : 2.4</td>
</tr>
<tr>
<td>maximum</td>
<td>13,600</td>
<td>1 : 2.4</td>
</tr>
<tr>
<td>2500 BC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>minimum</td>
<td>11,000</td>
<td>1 : 5.4</td>
</tr>
<tr>
<td>maximum</td>
<td>20,000</td>
<td>1 : 5.4</td>
</tr>
</tbody>
</table>

These figures appear to represent satisfactorily the probable range of population; is there any way of checking them? Well, the basic check is against the size of the two islands, where we have the following figures:

- Gozo 67 sq kms : Malta 246 sq kms = 1 : 3.67
- Temples Gozo 9 : Malta 34 = 1 : 3.7
Demography

This confirms the temple ratio most satisfactorily, providing important support for the hypothesis that the temples played a territorial role. We see that by the end of the Gg phase, Gozo had an appreciably greater number of temples per unit area, but this difference disappeared by the end of the Tx phase, supporting the idea that the neolithic carrying-capacity had been reached.

We can now work out estimated population densities for Gozo and Malta over the two phases:

<table>
<thead>
<tr>
<th></th>
<th>Gozo</th>
<th></th>
<th>Malta</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pop. density</td>
<td></td>
<td></td>
<td>Pop. density</td>
<td></td>
</tr>
<tr>
<td>/sq km</td>
<td></td>
<td></td>
<td>/sq km</td>
<td></td>
</tr>
<tr>
<td>3000BC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>minimum</td>
<td>2,294</td>
<td>34.2</td>
<td>5,506</td>
<td>22.4</td>
</tr>
<tr>
<td>estimate</td>
<td>67</td>
<td>67</td>
<td>246</td>
<td>246</td>
</tr>
<tr>
<td>maximum</td>
<td>4,000</td>
<td>59.7</td>
<td>9,600</td>
<td>39.0</td>
</tr>
<tr>
<td>estimate</td>
<td>67</td>
<td>67</td>
<td>246</td>
<td>246</td>
</tr>
<tr>
<td>2500BC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>minimum</td>
<td>1,179</td>
<td>25.6</td>
<td>9,281</td>
<td>37.7</td>
</tr>
<tr>
<td>estimate</td>
<td>67</td>
<td>67</td>
<td>246</td>
<td>246</td>
</tr>
<tr>
<td>maximum</td>
<td>3,125</td>
<td>46.6</td>
<td>16,875</td>
<td>68.6</td>
</tr>
<tr>
<td>estimate</td>
<td>67</td>
<td>67</td>
<td>246</td>
<td>246</td>
</tr>
</tbody>
</table>

What do these figures of estimated population densities have to tell us? Firstly, there appears little doubt that Gozo experienced the problems of demographic growth earlier than Malta, and appears 1.5 times as densely populated as Malta in 3000 BC.
Secondly, that Gozo somehow found a solution to its population problem, since by the end of the Tx phase, the population of Gozo had apparently not shown any further increase, but rather an overall drop in population, perhaps of the order of 25%. Thirdly, that Malta experienced no real population problem in the Gg phase, but that duly came in the Tx phase when its population nearly doubled. Fourthly, again on either estimate, the crisis faced by Gozo in 3000 BC was similar to that of Malta in 2500 BC. Fifthly, that by c.2500 BC there was no longer an appreciable difference in population density between the two islands; their situation was essentially similar, and there was no longer available free land within the archipelago to help them resolve the substantial pressure on their limited resources.

The most interesting fact to emerge is that Gozo appears to have undergone the problems of a rising population before Malta and largely to have found an answer to them by 3000 BC. This is consistent with the following facts: 1) Gozo is the smaller island, 2) Gozo has rather higher agricultural potential: "The outcrops of blue clay are more extensive, making the land more fertile." (Blue Guide, Malta 1979; 118), 3) by 3000 BC, Gozo had one temple to roughly 7.4 sq kms while Malta had one to roughly 16.4 sq kms, and only reached the very similar figure of one temple to 7.3 sq kms late in the Tx phase when temple building ended. This does not necessarily prove that temple building began in Gozo, though this could be the case. It certainly seems clear that available land in Gozo had been parcelled out between the different temple communities by 3000 BC. The fact that easily the largest of all temples, the great building of Gg S, is placed early in the Gg phase by Evans and Trump suggests that Gozo may well have led in

- 70 -
Demography

temple construction. That Gozo controlled its demographic growth should imply either some control of the birth rate or else emigration. The issue is a complex sociological one; in interpreting the evidence we have to cross the gap between the Zb phase rock tombs and the earliest temple-shrines.

Another factor to be considered is population displacement. We have already seen that the rapid growth of population at Mnajdra and especially Tarxien around or shortly after 3000 is most easily and naturally explained by postulating a substantial though by no means total movement of people from the older sites at Hagar Qim and Kordin. Since there was clearly more land available in Malta around 3000 BC, it is perfectly acceptable to suppose that there may well have been population movement from Gozo to Malta around this time. It is not possible to prove this; yet although the sherd count resulting from the trenches cut at Ggantija in 1954 was relatively low, there is still broad resemblance to other counts (very low for Zb and Mg), and the total of 252 sherds is satisfactory statistically, though of course a sherd count from the original excavations in 1827 would have been preferable. Whether for Neolithic or later times, population displacement has been a regular human response to conditions perceived as overcrowding, though this is relative and psychological. In any case we have no evidence of intensification of farming techniques, though on a small scale these are to be expected. Since our farmers arrived in Malta and Gozo apparently looking for land, and perhaps after considerable wanderings before even arriving in Sicily, such movement was part of their own prehistoric background. (Did they have their own epic songs?) Minor movements within the archipelago seem probable, and we thus have a pattern of
Demography

displacement which may well also apply to the 'mysterious' end of the temple builders.

I have been working on the general hypothesis that the material evidence (temples, bones, sherds) would have a direct quantifiable relation to population size; the figures obtained so far appear both to justify the presupposition and to fall within the acceptable range. Since the evidence of temple furnishings and sherds prove the continued use in the Tx phase of the temples built in the Gg phase (with the apparent exception of Skorba West), and in the absence of other evidence for abandonment of temples prior to c.2500, continuity of use is acceptably established. In the context of neolithic farmers living on two small islands, it would seem most unlikely that temples would be laboriously constructed using megaliths and then abandoned by their builders, except in the case of force majeur.

We have now to examine the maximum and minimum population estimates in the light of available evidence, accepting that any result will be approximate, yet trying to reach as accurate a figure as is feasible. The lower figure of 11,000 has the support of Professor Renfrew's rather generalised estimate, while the higher figure is compatible with the Italian Neolithic evidence analysed by Barker and with Le Lannou's calculation of capacity. We have noted that both Barker and Sherratt have observed an important rise in population in Europe over this period. In southern Italy, the Tavoliere evidence supports this view (Barker, Trump and Whitehouse), and recent work by Ammerman in Calabria confirms it there too. Trump has stated that the site at Passo di Corvo must be considered a town (1966; 41). The high neolithic population densities suggested for Malta are not really so exceptional.
Demography

Yet the figures are subject to further considerations. We have been working on the established basis of 43 named temple sites, yet no-one would seriously suppose that we know all of their original sites in the two islands. The true number, including totally obliterated sites (perhaps under Mdina, Valetta, Sliema and other modern towns?) and those that are unrecognised (probably very low if any, in view of the investigations that have been carried out) or still buried, as Tarxien was, under current agricultural land (the centre of Malta is clearly indicated here) could easily have been up to 25% higher. In his catalogue of sites (1971; 240), Evans lists 6 further megalithic sites with neolithic sherds, Murray believed there was a second at BiN, the Italians found indications of a second at Tas Silg, and Trump notes another at Gnejna Bay. To these we should add another painted by Houel (original No. 416), giving a further 10 likely temple sites. Evans also lists no fewer than 17 extra megalithic sites which are not supported by sherds and could be BA, although these do not include possible circles (see below).

Appropriately the final consideration is provided by the megaliths. Apart from three of the class A temples, most temples incorporate megaliths of from 5 to 15 tons, while the largest have megaliths of between 20 and 30 tons. Using Atkinson's figures (see Checks below), the transport and erection of a 10-ton slab implies a supporting population of some 450. Since most temples have such stones, higher figures than the type village figure of 250 seem implied. Isolated temples like Bugibba and Tal Qadi have several such stones, with their largest megaliths over 15 tons. All these factors lead me to recommend a final estimated population close to the maximum estimate late in the Tx phase, of some

- 73 -
Demography

18,000, with an accuracy of perhaps ± 2,000 (10%). This figure assumes a logistic curve tailing off before reaching 20,000. We should however remember that carrying capacity is not absolute but is related to exploitation ability, clearly a factor which can increase, e.g. with exploitation territory.

Checks

To verify how accurate and how compatible this estimate is with the known facts, we need to check it against another independent source. Such an independent check, via the labour required to construct megalithic monuments, is provided in an important essay by Professor Atkinson; as he says,

"considerations of a purely mechanical type may occasionally lead to conclusions about the social or economic structure of our prehistoric communities, on which evidence of any kind is all too rare and too equivocal. ...These monuments are after all the only direct evidence that we have for the existence of prehistoric communities" (1961; 298-9.

All other artifacts, pots, tools, etc could have been created by individuals or small groups; this is clearly impossible for megalithic monuments such as the Maltese temples.

In this article, Atkinson calculated the mechanical force necessary to move and erect megaliths, examining the human muscle-power, the transmission of that power, and ways of reducing friction. One conclusion was that the method most economical in manpower would be to put the megalithic slab on a sled and, using ropes, haul it on rollers to the site. Applying this to Malta, if tree trunks were not available for use as rollers, the spherical limestone balls could have been used, given suitable terrain. For a fifty-ton slab on level
Demography

ground, the minimum hauling party necessary would be 100 men with another 100 "for shifting the rollers and steering the sled." A 10-ton stone could thus be hauled over the flat by 10 men with 20 helpers (they could work in relay). However if the ground is not even, these figures increase dramatically: a slope (up or down) of 1:6.5 (about 9°) would require 90 men with 90 helpers for a 10-ton stone. The manpower, of course, increases proportionally with the size of the stone, while the mechanical force needed for the erection of the uprights, using ropes and levers, is similar to that needed for hauling a slab over rising ground.

So, on Atkinson's calculations, a 10-ton stone would require a minimum team of about 180 to remove it from the quarry, haul it up or down a 1:6.5 slope on rollers, and erect it in its final position. Atkinson was not aware of the differential age groups of neolithic societies, and today we can apply the data from Neolithic Isbister to Neolithic Malta. The figures cited by Hedges (1984) show that 50% of such a population would be under 12, while the percentage of 'adults' who had reached 15 would constitute under 40% of the total population, and even at 15 they would not be fully grown. So, making allowance for the ill, disabled and aged, we cannot count more than 40% of the population as effective workforce. To move that 10-ton slab effectively with a team of 180, we need to postulate a village population of around 450. A smaller village of 225 would not manage a slab larger than some 5 tons. And these figures all use the minimum workforce.

These calculations provide an important and independent confirmation of the population estimates I propose. While it is true that some temples are paired or multiple, presumably representing a larger community of perhaps several villages, only 10 out of the 43 temple sites we are considering would have drawn from substantially larger local populations. We
have also to remark that the major early temples at Ggantija South and Hagar Qim were both completed in the Gg phase (the former before Gg N), and both include megaliths of 20-30 tons. So we are justified in stating that for individual temples (or the first temple in any group) the population necessary to provide a minimum workforce of 90 to transport and erect a 5-ton orthostat would be some 225 villagers. As the communities grew, larger slabs could be handled to create more imposing results - especially for facades and outer walls. 10-ton slabs, which are common enough, would imply communities of some 450, while 20-ton blocks suggest a local population of some 900. The largest megaliths of the archipelago weigh about 30 tons (Gg, HQ), and for these the population should be around 1350.

Experimental archaeology in France enables us to confirm Atkinson's calculations. In an experiment performed under Dr J-F Mohen at Bougon in 1979, it took a team of 200 to haul a 32-ton block of concrete over the flat for 40 metres. Similarly, in a successful effort to erect a Breton menhir at Plabennec, a team of 400 locals was needed to erect the 19-ton stone. (Ouest France 15.8.1985)

These population sizes are greater than what we have generally been led to expect for a neolithic population. Two demographic factors however further support their acceptance, our knowledge of neolithic demography in Italy and Europe, and also the overall Maltese demographic patterns. Barker, Trump, Whitehouse and others have commented on the large prosperous populations of Middle Neolithic Italy and Sicily, while there is similar evidence from the Varna area of Bulgaria (on the Black Sea) and also Brittany. In its littoral and marine resources, Malta has always had a significant addition to its food supplies, and even today is a demographic anomaly. Similar enriched resources were available along that great zone of megalithic construction
Demography

dubbed 'the Atlantic facade', which provides a rational explanation for megalithic territorialism - very high demographic growth made possible by the combination of the basic neolithic economy with the rich resources of coast and sea. Both Brittany and Malta have responded to major periods of demographic growth by building monuments - in modern times (churches, enclos paroissiaux) as well as megalithic. The Larousse Encyclopedia of Geography (Europe) shows that Malta today has a population which at over 1000/sq.km. is three times that of Europe's next most densely populated nation, Holland: "Malta is the most densely populated territory in Europe and the population is increasing rapidly" (1961; 443). As if to illustrate the point, the population had risen to 345,636 by 1987 (Central Office of Statistics, Malta), and the building of monumental churches continues. The fact that Malta is a demographic anomaly must be linked to its being a tiny island which contains its demographic pressures by a form of religious territorialism. Comparing Brittany with continental regions, Giot says that both the Danubian and the Chasséen Neolithic cultures buried their dead in single graves; new land was available to accomodate demographic growth, and monuments were not necessary.

A final check on relating megaliths to territorialism is provided by Renfrew (1976; 219) with three conditions, 1) that a period of several generations should elapse between the arrival of a new people and the erection of megalithic monuments, 2) that the stress should simultaneously be felt over a wide area, and 3) that the form of the monuments depends on local factors. The Maltese archipelago fulfills all three. We have the Zb and Mg phases (c.600 years) before the erection of the first stone monuments. If the total area is hardly wide, we certainly have the virtually simultaneous construction of temples over the whole area in the Gg phase. Finally the form of the monuments is uniquely Maltese, hewn from the great limestone deposits which form the islands.
THE PARISH TEMPLES

"It is a striking fact that a large number of island communities in many parts of the world have spent much time and energy in erecting extensive ceremonial and religious complexes, which they have gone on progressively elaborating and embellishing over a great many centuries."

John Evans, (1973; 519)
A - General

These temples are peculiar to Malta. Nothing resembling them has been found in the lands the immigrants came from (Sicily, S. Italy), nor were they introduced to or copied in the places with which the neolithic Maltese traded (Sicily, Pantelleria, the Lipari Islands or southern Italy). If it is the case that, for whatever reasons, they abandoned Malta around 2500 BC, they did not introduce their architectural skills or their religion as practised in Malta to any of the places they might have gone to - whether Sicily, Sardinia, or anywhere else. Neither Minoan Crete or the Aegean had anything similar. The temples were uniquely and essentially Maltese, rooted in the land from which their great limestone blocks were originally quarried.

This being so, as is accepted by all leading contemporary scholars and to the discredit of the earlier diffusionist school, we can now examine the temples as a local phenomenon, a major expression of the society and lives of the prehistoric Maltese from early in the fourth millennium to the mid-third millennium. We have to interpret them and their changes in the light of the developing Maltese context over this period, with its geographic, social, economic and religious components.

Professor Evans says that the establishment of the phases of ceramic development has

"made it possible to give a relative dating in terms of the sequence to the various buildings and portions of buildings in each complex, and so to work out a scheme of architectural development based on something more secure than the mere typology of ground-plans."
The Parish Temples

The architectural sequence thus arrived at shows a development from the small and simple to the large and complex such as might have been expected and as might have been deduced from the building remains themselves..." (1959; 84)

Accepting the temples as an indigenous Maltese creation, it was possible to establish a sequence from early to late forms. A minor problem lay in Zammit's concept of a 'degeneration in style' which I cannot accept in relation to neolithic Malta since I do not see genuine evidence of decadence in the Tarxien period. Then, as in other phases, not all the work throughout the islands was of equal standard, but the late temple Tarxien Central shows as high a degree of skills as any, and there are various other examples.

As Evans says, the task is "to give a relative dating in terms of the sequence" to all temple parts. Although much has already been achieved, much remains to be done, particularly in establishing the dating of alterations and additions to the earliest parts of the buildings. To mention but three examples, we can take Hagar Qim, whose internal structure is the most complex, Ggantija, where the outer walls are clearly far more advanced in technique than the cyclopean interior they enclose, and Ta Hagrat, which continues to pose problems. Nor is it irrelevant to ask which is the oldest Maltese temple.

As well as considering the general evolution of temple form, we have also to be aware of the developments (additions, alterations, repairs and reconstructions) to the individual temples. The active lifespan of an individual temple could cover from a millennium for the oldest Gg phase temples down to one or two centuries for the last Tx phase constructions. As Evans says,
"the larger temple-complexes of Malta grew up rather in the way that the medieval cathedrals generally did. They were not planned and built as a whole, but were altered, added to, or re-built wholly or in part over a period spanning many generations." (1959; 125)

Likewise Mayr commented:

"The history of the buildings at Hagar Kim is very uncertain, but it is obvious that the form of the buildings, as they stand at the present day, is the result of alterations and restorations extending over several centuries." (1908; 46)

This process is natural and normal; only the youngest temples do not display it, due to their early abandonment.

In studying the phenomena of Maltese temples in context, we resort to basic logic. We do not expect to find advanced techniques in the early stages, either in shaping the building blocks or in constructing them into sound and eventually fine architectural edifices. It is fairly established that the building of the temples continued over some ten centuries, and the technological progress from cyclopean to the finely shaped and fitting ashlar blocks of Tarxien accords with this time-scale. Again, we expect to find progress in scale, as technological progress brings the conquest of new architectural space closer to realisation. Here however we must accept that, if we expect the very earliest temples to have been small, different communities later on would not all need large temples, especially as there seems to have been a 'budding-off process'. We also expect to see a development of ground-plans, such as that traced by Evans and Trump from trefoil to 5- and then 4-apse form. Again it is not necessarily the case that the most complex forms fall latest in time, but in fact this sequence largely agrees with that of the pottery finds, although there are various anomalies including the
The Parish Temples

bilobed form. As Fleming says, megalithic tombs

"were undergoing a continuous process of improvement in their two-thousand year life. Megalithic designers were moving towards increased efficiency just as surely as were early flintsmiths or metal-workers." (1973; 187)

This must also be true for temples.

In the study of evolution of temple-building, the starting point is Evans' observation on the similarity between the early temple forms and the rock-tombs at Xemxiya. Trump comments,

"Professor Evans' theory that they could be copies above the ground of the rock-cut tombs of Xemxiya type below ground has much to recommend it. The similarity in plan is certainly suggestive, if not conclusive. The earliest tombs date from before, but not too far before, the earliest temples. Further support comes from the Hypogeum, a copy of a built temple carved out of the rock. But the Hypogeum is cemetery as well as temple, emphasizing a link between the two." (1972; 27)

Tomb 5 at Xemxiya, important for the theory, was made trilobed because evidently its creators considered it safer to leave a wedge of rock between chambers the better to support the overhanging roof. This itself is interesting rather than remarkable, yet clearly indicates a technical approach. Apart from the upper level of the Hypogeum, there is as yet no evidence of this plan being repeated elsewhere, yet few rock-tombs have been discovered: probably there were others. If this tomb was copied, the most likely temple-site would be Ta Hagrat, only 4.5 kms away and definitely an early site (Zb and Mg sherds). It is unlikely that people throughout the islands would have been generally aware of the shape of an obscure (family ?) tomb at Xemxiya, yet there were probably other such tombs. Xemxiya tombs 1 and 2 also had supporting struts.
The Parish Temples

It does seem strange that the plan of a tomb should have been adopted as a plan for subsequent temples. Evans says the only explanation is if the rites celebrated in the temples had to do with the dead (Evans 1959; 91), which is a very important and perceptive observation. We can note that these Maltese were shortly to prove themselves neolithic world masters at solving technical architectural problems: they demonstrably thought out the principles involved in the problems they were facing, and a subterranean solution could, and did, work at ground level too. The comparison with the Hypogeum is crucial and is basically convincing, if not conclusive.

One problem is that we do not seem to have any temple prototypes: they appear to emerge fully formed. Yet this cannot have been the reality. We cannot yet even identify with certainty the earliest of the 23 or so that remain.

I shall now proceed to examine the temples of the different communities, and for reasons which will become apparent, I shall start in Gozo with the Ggantija, south temple. To place this examination on a comparative and quantative basis I have drawn up a chart of comparative temple sizes.

This chart is essentially based on Dr Trump's Catalogue of Temples and Rock-Cut Tombs, published in Renfrew ed. 1983; 76. From the Catalogue I have omitted the rock-cut tombs and all of the temples which were too ruinous or anomalous to provide adequate basic measurements of length and breadth. I have also made a few minor adjustments in phase where they seem to be required. While Dr Trump was primarily concerned with the development of temple form, my interest has mainly been to draw up an absolute scale of size to permit direct
comparisons. I have omitted his details on orientation (I find the spread so wide as to discount any but the most general interest in the subject on the part of the ancient Maltese), and I have indicated which island contains each site. To obtain an approximate figure for internal surface area, I have simply multiplied the internal measurements for length and breadth to obtain a figure I have called 'area ratio'. Since the actual shape of the temples is not rectangular nor really oval nor composed of hemispheres, any figure would only be approximate; I calculate that my figure for the area ratio exaggerates the true area by about 10% in most cases. It certainly provides us with a scale for comparing internal sizes. Other measurements could also give valuable figures; for example, one could measure from the outside of the inner walls, or from the outside of the outer walls, or even from the outside of the external benches where these exist - these measurements would all yield figures which would be relevant to the amount of labour performed in their construction. In the absence of such figures, I offer these 'area ratios'.

see next page
The Parish Temples

Chart of Comparative Temple Sizes

<table>
<thead>
<tr>
<th>Temple</th>
<th>length x breadth</th>
<th>area ratio</th>
<th>coeff.</th>
<th>class</th>
<th>phase</th>
<th>island</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gg N</td>
<td>18.75</td>
<td>17.5</td>
<td>323</td>
<td>5.0</td>
<td>E</td>
<td>Gg</td>
</tr>
<tr>
<td>2. Gg S</td>
<td>26.25</td>
<td>23.75</td>
<td>623</td>
<td>9.6</td>
<td>F</td>
<td>Gg</td>
</tr>
<tr>
<td>3. Sta V</td>
<td>16.90</td>
<td>16.15</td>
<td>236</td>
<td>4.4</td>
<td>D</td>
<td>Gg</td>
</tr>
<tr>
<td>4. Ta Marz</td>
<td>17</td>
<td>16.8</td>
<td>286</td>
<td>4.4</td>
<td>D</td>
<td>Gg</td>
</tr>
<tr>
<td>5. T H W</td>
<td>14</td>
<td>12.55</td>
<td>176</td>
<td>2.7</td>
<td>C</td>
<td>Gg</td>
</tr>
<tr>
<td>6. T H E</td>
<td>7.25</td>
<td>8.9</td>
<td>65</td>
<td>1</td>
<td>A</td>
<td>Saf</td>
</tr>
<tr>
<td>7. Sk W</td>
<td>14.20</td>
<td>18.30</td>
<td>260</td>
<td>4</td>
<td>D</td>
<td>Gg</td>
</tr>
<tr>
<td>8. Sk E</td>
<td>16.15</td>
<td>14.20</td>
<td>229</td>
<td>3.5</td>
<td>D</td>
<td>Tx</td>
</tr>
<tr>
<td>9. Tal Q</td>
<td>10.50</td>
<td>18.30</td>
<td>192</td>
<td>3.0</td>
<td>C</td>
<td>Tx</td>
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<tr>
<td>10. Mn S</td>
<td>15.15</td>
<td>13.65</td>
<td>207</td>
<td>3.2</td>
<td>C</td>
<td>Tx</td>
</tr>
<tr>
<td>11. Mn C</td>
<td>18.05</td>
<td>16.60</td>
<td>300</td>
<td>4.6</td>
<td>D</td>
<td>Tx</td>
</tr>
<tr>
<td>12. Mn E</td>
<td>7.05</td>
<td>9.25</td>
<td>65</td>
<td>1</td>
<td>A</td>
<td>Gg</td>
</tr>
<tr>
<td>13. H Q C</td>
<td>17.10</td>
<td>20</td>
<td>342</td>
<td>5.3</td>
<td>E</td>
<td>Gg</td>
</tr>
<tr>
<td>14. H Q N</td>
<td>16</td>
<td>7.30</td>
<td>117</td>
<td>1.8</td>
<td>B</td>
<td>Tx</td>
</tr>
<tr>
<td>15. K 111 W</td>
<td>15.45</td>
<td>13.65</td>
<td>211</td>
<td>3.2</td>
<td>C</td>
<td>Gg</td>
</tr>
<tr>
<td>16. K 111 E</td>
<td>9.10</td>
<td>12.25</td>
<td>111</td>
<td>1.7</td>
<td>B</td>
<td>Gg</td>
</tr>
<tr>
<td>17. Tx W</td>
<td>22.80</td>
<td>18.30</td>
<td>417</td>
<td>6.4</td>
<td>E</td>
<td>Tx</td>
</tr>
<tr>
<td>18. Tx C</td>
<td>23.10</td>
<td>18.60</td>
<td>430</td>
<td>6.6</td>
<td>E</td>
<td>Tx</td>
</tr>
<tr>
<td>19. Tx E</td>
<td>15.60</td>
<td>12.60</td>
<td>197</td>
<td>3.0</td>
<td>C</td>
<td>Tx</td>
</tr>
<tr>
<td>20. Tx F E</td>
<td>12</td>
<td>6</td>
<td>72</td>
<td>1.1</td>
<td>A</td>
<td>Gg</td>
</tr>
<tr>
<td>21. BiN</td>
<td>8.45</td>
<td>8.45</td>
<td>71</td>
<td>1.1</td>
<td>A</td>
<td>Tx</td>
</tr>
<tr>
<td>22. Xrobb</td>
<td>13.50</td>
<td>9.10</td>
<td>123</td>
<td>1.9</td>
<td>B</td>
<td>Gg</td>
</tr>
</tbody>
</table>

Of these temple area ratios, the four smallest fall into a class of their own. To reach the next figure, which I have called the coefficient, I divided the area ratio for each temple by 65 which is that of the two smallest temples, Ta Hagar East and Mnajdra East; this produces a scale from 1 to 9.6, the largest by far being Ggantija South. The results show clustering rather than a general scatter, so I divided them into six classes A - F, each class bearing similar coefficients, in the following manner:

<table>
<thead>
<tr>
<th>Class</th>
<th>coefficient</th>
<th>n°. of temples</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1 - 1.1</td>
<td>4</td>
</tr>
<tr>
<td>B</td>
<td>1.7 - 1.9</td>
<td>3</td>
</tr>
<tr>
<td>C</td>
<td>2.6 - 3.2</td>
<td>5</td>
</tr>
<tr>
<td>D</td>
<td>3.5 - 4.6</td>
<td>5</td>
</tr>
<tr>
<td>E</td>
<td>5.0 - 6.6</td>
<td>4</td>
</tr>
<tr>
<td>F</td>
<td>7.0 and above</td>
<td>1</td>
</tr>
</tbody>
</table>

- 85 -
The Parish Temples

We thus arrive at six classes of temples with 3 to 5 temples in each class except class F. This has only one temple, Ggantija South, which is thus shown on a quantitative basis to enclose a considerably greater area than any other measurable temple.

What do these results show? Firstly, that the smallest eleven temples composing classes A, B and G are all Maltese, not Gozitan. Secondly, that Gozo's four classifiable temples are divided between the three largest classes, in which they are almost as numerous as Malta's (4 : 6). Thirdly, that four out of Malta's six largest temples (classes D, E and F; the exceptions are HQ and Sk W) were built in the Tx phase, yet smaller temples were still being built in Malta at this time. These are the initial conclusions.

However, there are further implications, and we need to remind ourselves of the context to see the point we have arrived at. These Maltese buildings have been called 'the world's first stone temples' by Professor Renfrew. Although there are earlier stone structures, in Brittany especially, these are tombs or monumental ceremonial centres, not temples, nor did their builders ever aspire to achieve courses of finely finished ashlar masonry such as were created by the neolithic Maltese with their extremely rudimentary tools. As Dr Trump has said, here in Gozo and Malta we are actually confronted by the world's first architects - and this in a society whose technology was neolithic: this is remarkable. As these are the world's first temples, there is no question of these skills having been imported from elsewhere, and, as we have seen, when we look elsewhere for comparable contemporary buildings and skills, we
The Parish Temples

look in vain. These temples are purely Maltese creations.

As we are seeking rational solutions, when faced with a phenomenon such as these temples, we examine them in order to understand their developmental phases in terms of the plans, the skills, and the problems of their builders - within context. So, considering the mechanical and engineering problems posed by the great stones used to create and organise space in an architecturally conceived manner, we look at the final products, but we also look for the developmental phases. It is logical, in this context too, to look for simple ground plans, roughly shaped materials and small size. But we are paradoxically confronted, early in the Gg phase, by the largest and most impressive of the temple series, Ggantija South. The only logical explanation is that there were other earlier temples which have not survived, and this makes it necessary to postulate that there were stone forerunners of the temples going back at least to the Mg phase.

I arrive at the following further conclusions: 1) that the large Gg phase temples in Gozo had earlier and smaller precedents in stone (on the same sites or elsewhere), 2) that temple-building on an important scale apparently started first in Gozo and subsequently spread to Malta, 3) that the developmental sequence is best shown by Malta, with its variety of smaller temples (classes A and B) mainly in the Gg phase, and with its larger temples occasionally built in the Gg phase (Sk W, HQC), but mostly built in the Tx phase, such as those at Mnajdra and Tarxien itself.

Are these results consistent with our current social and demographic knowledge of this civilisation?
We have already seen that, if there is indeed a roughly proportional relationship between temples and communities, Gozo, the smaller island, would have experienced the problems of demographic pressure on a severely restricted territory earlier than Malta. Given the major presupposition (first proposed by Giot and Powell, then by Renfrew) that megalithic monuments served a basic function of distinguishing the territories claimed by separate (though basically related) social units, it seems natural to conclude that when the growing populations on Gozo and Malta began to experience the geographical constraints of being such tiny islands, they responded by constructing temples which they associated with their deity (and also probably with their own ancestors) as an unchallengeable assertion of their right to their own land. And, since the smaller island had and still has the greater agricultural potential (due to the blue clay), the demographic pressures would have been experienced and reacted to rather earlier in Gozo than in Malta.

As well as in the size and in the ground plans, we can examine the temples for evidence of evolution in masonry styles and techniques. An analysis of stone types used in the various temples is made more difficult by the progressive weathering of the limestone (globigerina and coralline at different rates and in different ways) as well as by karst development, in which pockets of more soluble salts are progressively dissolved by the winter rains, leaving holes of varying dimensions. This on a small scale represents the karstic process as a whole over more than 3,000,000 years since the limestone was formed in the Tertiary period. This said, it is still perfectly possible to divide the building stones into four general types:
The Parish Temples

1) unshaped rocks and stones of all sizes, generally of coralline which is the uppermost layer, but sometimes also globigerina,

2) massive megaliths of coralline, from 5 - 30 tons, used for exteriors in combination with

3) smaller shaped coralline blocks of normally less than 2-3 tons, and

4) carefully-shaped and finished slabs and blocks of globigerina, generally used for doorways and interiors, normally of moderate size apart from the orthostats.

The first type must have been the oldest; these stones would normally have been broken off exposed surfaces of upper coralline (more rarely globigerina) by natural weathering and erosion. They weighed up to 1-3 tons, and were typically used in the so-called cyclopean style (as at Ġg, Plates 2, 3.1, 17.1 & HQ, 5.1), in which smaller stones of all sizes are as important as the larger boulders which gave the style its name. The second type is formed by the massive blocks rightly called megaliths, frequently between 5-10 tons, but occasionally up to 20 and even 30 tons. These are almost entirely found in the external walls and the monumental facade, and are again of coralline except at Hagar Qim; see Plates 2, 5.2, 10.1, 10.2, 14.1. They show little evidence of shaping, and were probably taken from natural horizontal slabs such as those at Ta Cenc in Gozo (Plate 1.1). By comparison, the smaller coralline blocks, such as those above the megalithic orthostats at Ggantija, were roughly shaped into rectangular form and used in courses above the megaliths (Plate 2.2, 10.2, 14.2); true courses are incompatible with cyclopean architecture. Class four consists of globigerina orthostats and blocks of varying sizes; it showed the most impressive range of masonry skills, as here we have the world's oldest ashlar masonry which can
only have come from globigerina quarries. The largest globigerina slabs are usually those used for doorway trilithons and the orthostats of the inner walls of Tx phase temples, as at Tx (Plates 4.1, 9.1, 9.2). They were shaped (and often hammer-dressed) and polished to a fine finish which is only possible with globigerina, which is the building stone used in and exported from Malta today. See Plates 5.1, 6.1, 7.1, 7.2, 13.1.

This broad classification is essentially a basic observation rather than a hypothesis; however, it does contain an important implication as regards chronology, since it is only logical to suppose that the world's first temple builders would have used unhewn stones before they developed the skills of quarrying, transporting and shaping the natural limestone into shapes most suitable for temple-building. Although coralline as the uppermost sedimentary layer would generally have been more readily available, there is no necessary implication here as to whether coralline or globigerina was the first to be quarried: it is natural to suppose that each temple community would use as its initial source the outcrop of limestone nearest to the temple site. However, it appears that, with the sole exception of Hagar Qim, this was normally a coralline source.

To check the plausibility of my interpretation, I have resorted to comparison with the origins of architecture in Egypt in the third millennium. The earliest dynasties built mastabas of mud-brick, which are the only known precursors of the Step Pyramid of Imhotep. Dr Edwards comments,

"the Step Pyramid displays many features which suggest that its builders lacked experience in the use of stone. Small blocks which could be easily handled were used instead of the massive slabs used
11 The distribution of the Maltese temples, with suggested territories. (After Renfrew 1973, with additions.) 1 Ġgantija, 2 Ghar ta’ Ghajn, 3 Xagīra tomb, 4 Santa Verna, 5 Ta Marziena, 6 Xewkija, 7 Borg il-Maramma, 8 Li Mejibiet, 9 Borg il-Gharib, 10 Armier, 11 Ghajn Zejtuna, 12 Xemxija 1-5, 13 Ta’ Lippija, 14 Ras il-Pellegrin, 15 Li Mdaunvar, 16 Ta Hagar, Mqar, 17 Li Skorba, 18 Bengemma, 19 Bugibba, 20 Tal Qadi, 21 Il-Maghtab, 22 Mnajdra, 23 Hagar Qim, 24 Sqaq il-Bal, Qrendi, 25 Debbiex, 26 It Tumbata, 27 Hal Saflieni, 28 Kordin I, 29 Kordin II, 30 Kordin III, 31 Tarxien, 32 Hal Far, 33 Borg in Nadur, 34 Hal Ginwi, 35 Ta Silg, 36 Xrobb il-Ghagin.

Map 2.
The Parish Temples

in later buildings, showing that the technique of quarrying and manipulating heavy pieces of stone had not then been mastered." (1961; 72)

The criteria used by Egyptologists in examining the origins of Egyptian architecture are largely applicable to Malta; in both cases we have a developmental sequence with a learning process and the acquisition of new skills as the prerequisite for architectural masterpieces. It is interesting to speculate on the possibility that structures in mud-brick (proved at Skorba) may have provided prototypes for the temples.

B. Gozo

The Ggantija

This famous pair of temples, especially the south one, must hold the keys to several of the secrets surrounding the Maltese temples. They were originally 'excavated' in 1827, though perhaps 'cleared' better describes the vigorous unreflecting attitude of that period; no record was ever published, and the main small contents including sherds were unceremoniously carted away and dumped. See Plate 2.1. Consequently there is no original sherd count, and we have to rely on the smaller but precise count yielded by the eight trenches dug in 1954:

Zb  22  Mg  2  Gg  145  Tx  83.
Total neolithic count: 252. Although inevitably lower than counts from excavations elsewhere, the total of 252 is satisfactory from the statistical point of view, and the pattern is much as we would expect. The Zb sherds establish, as recognised by Evans, that the site was occupied from that phase, though we cannot prove that it
was used for an earlier temple. The small Mg count probably refers to the short time-span occupied by this pottery style. The highest figure is that for the Gg phase, followed by a relative decline in the Tx phase, yet the Tx sherds from the trenches along with those from the forecourt establish solid proof for use and alterations in the Tx phase. If this proportion between Gg and Tx sherds were to be confirmed by future counts from the Ggantija, I would see it as solidly establishing a greater degree of use, and hence a higher population, in the Gg phase. The drop to 83 in the Tx phase may show a real drop in population at that time, either due to demographic decline or to displacement (as I have argued for Kordin and Hagar Qim). However, there is still another factor to be considered. We are using sherds, not radiocarbon results, and there is nothing yet to prove that the pottery style named after Ggantija may not have continued longer at Ggantija (and perhaps in Gozo) than on Malta. The Tx style could have begun in Malta (at Tarxien or elsewhere) while the Gg style was still flourishing in Gozo. There could well be overlapping of the two styles by a century; only radiocarbon or other absolute dates could really settle the issue.

The two temples are set side by side (see Plan 1); each has five apses, and they share a common exterior wall, facade, forecourt and temenos. We have seen that Gg S is easily the largest of all the temples, being about half as large again as the temples of the next class, E. Evans considers the enormous trefoil to be the earliest part, with the outer courts 1-3 being added for the requirements of an ever more complex ritual. This plan with two lateral sets of chambers is found in all later temples in Malta, but in all cases, including the north building at Ggantija itself, the front pair of
Plan 1

Ggantija Temples.
The Parish Temples

chambers is larger than the rear one." (1959; 98)
Trump also dates Gg S to early Gg phase, and thinks that it was built in one go, Gg N being added later. He points out there is definite proof that the outer wall originally only contained Gg S, as at least one orthostat (probably several) was removed or replaced subsequently when Gg N was added.

To me, two facts seem of major importance: the great size, especially of the inner trefoil, of Gg S, and the variety - arguing development in time - in the treatment of the stones. It is most remarkable that, despite its great area, height and early date, the whole inner wall is essentially cyclopean, that is, built of unshaped blocks of mixed sizes, the largest placed logically at the base, and the others being arranged on top of them. Given its height (up to 17 feet), this structure would have been most unstable were it not for two factors, firstly the care and attention that was devoted to wedging smaller stones between the larger ones, and secondly the great support provided by the generous fill between the two walls. See Plates 3.1 & 17.1; also Plan 1.

This cyclopean style contrasts sharply with the external megaliths and with the well-finished orthostats used in the passage-way leading from 1 to 4 as also those of the entry trilithon itself (Plate 4.1). The outer wall and facade are composed of great slabs of coralline limestone, rough-hewn, not finely finished. If we consider the matter, there are problems here in this contrast of styles at this dawn of architecture. The cyclopean certainly seems appropriate to the earliest stage: the rough unhewn blocks must have come from the surrounding fields, and must have been pulled, pushed, trundled and hauled into place using ropes.
The Parish Temples

perhaps of leather. But the megaliths are blocks that must have originated in the nearest convenient outcrop: they imply a quarry of sorts, the skills required to separate off and extract great slabs, and those necessary to transport them, finish them, and erect them in place. Such skills and knowledge clearly cannot have developed overnight, and even if we accept the likelihood of a smaller and cruder temple at Ggantija before the Gg phase, this may explain the confidence with which they set about enclosing such a large space, but not the contrasting nature of the stones used. Brocktorff suggested that the globigerina furnishings were added by a later race, and it is theoretically possible that the style of hewn orthostats was introduced by people who had developed the necessary skills elsewhere, but where? For me, the only acceptable explanation is that a considerable period of time, probably to be measured in centuries, had to elapse to allow for the evolution of the necessary ideas and the acquisition of the necessary skills. As the evidence stands today, I suggest we should allow a substantial period between the early cyclopean blocks at Ggantija and either the introduction of the great coralline megaliths or the first finished and tooled orthostats of globigerina.

Ggantija South is also unusual for the great thickness of fill between outer and inner walls, which as the Survey plan shows is from two to three metres around the inner trefoil, and just under two metres between the outer courts and the facade, in comparison with about 0.5 m for Gg N. Why is this? I suggest that the outer slabs, with their huge megaliths, were probably added substantially later than the internal cyclopean walls. But it is inconceivable that a structure of cyclopean walls would have been
sufficiently strong if not supported externally by a mound (the 'fill') of earth and small stones, which would also have been a prerequisite for adding the higher levels of the inner walls. So, as I read the development, there was a period of quite possibly more than a century when the stability of the building was assured by a mound, like so many megalithic tombs elsewhere. This mound probably just encased the inner trefoil initially until it was enlarged by the outer courts 1-3. This outer wall, with its great slabs set alternately broadside-on and narrow side out, in fact represents an engineering solution of considerable sophistication - one that certainly implies both considerable experience and a logical thinking-out of the problems involved. The facade does not show this alternation, so should be earlier, though the south screen does. Surely these magnificent outer walls, with all the considerable heavy labour involved, were really built to monumentalise the site, as Trump now accepts for the megaliths of the Brocktorff Circle; a grassed-over mound would not be sufficiently conspicuous to act as an effective territorial marker in islands which had so little spare space. As Dr P-R Giot observes,

"The great lesson of Barnenez, twenty years ago, was that the outer walls were built to be seen. ... It was not only the internal aspects of megalithic architecture that could be grandiose - the facades were intended to be grandiose as well." (1983; 26)

So these remarkable outer walls, built ostentatiously in massive orthostats, were probably intended to make a statement of the strength, power and resolve of the community that built them - and, as if to make doubly sure of the inviolability of their policy, this was all associated with and doubtless dedicated to the presiding Maltese deity. I deduce that they were at least a century or two later than the inner walls, and,
The Parish Temples

since the width of the fill was so great (in fact considerably wider than necessary), this too confirms the very early date for Gg S. By the time Gg N was built, the architects and builders knew that a much narrower fill would still be satisfactory, and would involve much less work; consequently, when they extended the perimeter of walls around the new building, they took them a good deal closer to the inner walls.

There is a further problem, that of the doorways. Today Gg S, like the other temples, is entered through the remains of a trilithon doorway, and this theme is repeated at the entry to the inner court 4 (Plate 4). When we analyse these doorways, we find that each is a triple trilithon, reinforced by an extra pair of slabs at the point where the inner wall meets the entrance. Now it is precisely the need for an entrance which creates a weakness in the cyclopean structure: some megalithic tombs elsewhere show the structure sealed using the same cyclopean technique - virtually dry-stone walling. However, tombs can be sealed (sometimes with the possibility of future re-openings) but temples serve a different function and must have an entry which is permanently open. The trilithon - a lintel on two uprights - is the perfect solution to the engineering and architectural problem. It is also extremely solid because of its own weight, as witnessed by the ancient unsupported trilithons of Stonehenge. Once the trilithon solution had been found, it was rapidly adopted everywhere and became the standard entry to all the temples, to their inner courts and recessed chambers (Tx C), and was even introduced into the Hypogeum where it had no structural function but was purely symbolic. We cannot be certain which was the first Maltese trilithon doorway, but at Ggantija we have this stylistically strange combination of the clearly
The Parish Temples

primitive cyclopean blocks with the finely cut and finished orthostats of the doorways.

Is it conceivable that these sophisticated megalithic doorways, using quarried and shaped orthostats, would have been created by the same individuals to whom building materials meant boulders and rocks of all sizes, as they were not yet familiar with quarrying skills? It hardly seems possible, unless they were shown the necessary techniques by others. But somewhere in Gozo or Malta their first trilithon was invented without outside assistance, and Ggantija could be the site. If I take Ggantija as my example, this is not because I feel it was definitely the earliest, but because it provides important evidence. The various considerations I am discussing here are not necessarily tied to the Ggantija, but there must have been some such evolution in styles, and indeed prototypes, whether the examples have survived or not.

The trilithon is such a perfect solution to the need for a solid temple doorway that we have to suspect that it was consciously invented in response to a specific problem. The nature of that problem becomes apparent when we try to visualise a temple without orthostats available to solve the doorway problem. Is it possible to bridge these doorways, usually two metres wide, without using orthostats? One possible way available to neolithics would be by using wood. It is generally recognised by now that the temples were roofed over, and that the major roofing material was wood. At Skorba Dr Trump found the remains of wooden beams, apparently from the roof, in olive wood, and Tx C had a conflagration so strong that it permanently discoloured the orthostats and is best explained by a fire in the roof: beams rather than brushwood would have been
necessary to reach the high temperature of this conflagration. The general lack of internal erosion of the carved globigernia blocks prior to their modern excavation also argues for roofing. At Ggantija, where the relief carvings on altar blocks were still clear to Brocktorff, the distance to be spanned in the inner trefoil is 8 metres; we are thus obliged to accept that an integral part of its roofing was wooden beams, and we expect that the roof would have been constructed when the inner walls were complete.

Now, if as is probable, wooden beams were used for the roof, it is also quite likely that wooden beams would have been used elsewhere too. Giot has drawn our attention to a major lesson taught by recent French excavations around their megalithic structures:

"At least we now know that beside them once stood an array of wooden or part-wooden-and-part-earthern structures which were perhaps just as important as - or more important than - the stone ones. Megaliths, like icebergs, always have features or characteristics hidden from view." (1983; 18)

By now the use of wooden structures before the Stone Henge and in its construction is comparatively well known. There is a clear possibility that the original doorway of Gg S contemporary with its adjoining cyclopean blocks may have incorporated wooden beams, and that these were later replaced (perhaps when they eventually collapsed) by finished orthostats when the necessary skills of quarrying, transporting and shaping had been developed. I am not aware of any efforts to investigate this matter: it is a question that could perhaps be answered by appropriate excavation involving only the temporary removal of the entry orthostats and the examination of the spaces left. It is noteworthy that at Ggantija the loss of the lintels and the slight
The Parish Temples

disengagement of the orthostats at the doorways has not caused further collapse through instability (see Plates 2.1 & 4.2). An alternative to wooden posts as the early material for the doorways is the use of columns of mudbrick, as attested for roof support at the Ghajnsielem Road hut, Gozo (see Malone, Stoddart and Trump; 1988).

Even if wooden posts were originally used for the doorways for Gg S, they would not have been sufficiently strong to support a great weight of stone above them - we are dealing with walls still over five metres in parts. Wood could also have been used in the superstructure above the trilithons, as could hides; some space could have been left open as a window. We know almost nothing about the lighting of the interior; perhaps the temple-builders were content to have a darkened, more mysterious interior, like so many early churches. No extant temple has superstructure intact above its doorway. Since wood eventually rots or decays, use of wooden beams would only have been a temporary solution to the problem. Seeing the final results of any art form, we overlook the amount of trial and error necessarily involved in the early phases of creating the form. It is not hard to imagine a serious collapse round a doorway, due to the rotting of a beam, which led to the permanent solution, the trilithon doorway, a technological triumph which became a symbol.

If I am right to believe that Gg S was built over some 2-3 centuries (a commonplace timescale for medieval churches), we could then have the following sequence:

1. The pre-Gg phase temple (accepted as likely by Evans),
The Parish Temples

2. the inner trefoil with ramp and roof, cyclopean style; Gg phase,
3. the outer courts and ramp, still cyclopean; Gg phase;
4. the facade and then the outer wall in coralline, with rough courses above huge megaliths; Gg phase;
5. the well-finished globigerina othostats of the two entry trilithons and the flagstones; Gg phase;
6. the furnishings (niches, altar blocks, etc) Tx phase;
7. the extension of the forecourt, also Tx ph.

We can note that the megalithic entry and temenos wall to the south-east, painted by Brocktorff and still visible, was closed off and filled in during the Tx phase extension of the forecourt.

This provides a logical developmental sequence for Gg S; though hard proof is not established, this can now be looked for, especially by excavating under the megaliths! Zammit found what was probably a foundation deposit under the great threshold slab (MAR, 1933-4). Nor is there any real difficulty in fitting Gg N into the sequence. All its courts are cyclopean in style, with dressed orthostats at both doorways, and facade and outer wall all largely similar to Gg S. Stylistically it seems that the solutions adopted for Gg S were repeated in the later temple. The differences are those of the ground plan, with the inner courts considerably reduced and now smaller than the outer pair, smaller megaliths outside, and an even greater reduction in the size of the main apse, 14, here not much more than a niche. These changes must, as recognised by Evans and Trump, reflect changes in ritual, with the outer courts
being available for a larger public, and the inner courts already more enclosed and withdrawn, as if reserved for priestly rites. Since the facade of Gg N, with its share of the outer wall, must have been built last, and since it was designed as a rhyming arc which balanced that of Gg S, the combination of the two styles was evidently continued as the final Ggantijan solution. Elsewhere there was further stylistic development until entire temples were constructed with courses of ashlar masonry above the orthostats (Tx), the cyclopean style disappearing completely. The Ggantija forecourt was definitely planned as an area common to both, implying a common assembly area; this significant feature is also found at the other sites of multiple temples.

We can, however, take the inherent logic of the situation one step further: the use of spherical stone rollers for moving megaliths implies the existence of quarries. For cyclopean architecture, the building units are rough unhewn stones and boulders of all shapes and sizes, and it seems evident that where cyclopean temples exist, the stones they were built of came from the immediate surrounds, left around from the process of natural erosion. Just as Malta's dry-stone walls have been built over the centuries by using rocks or stones lying around or turned up during ploughing, so the cyclopean temples must have been built of loose limestone collected locally, at the same time clearing the fields and collecting temple building material. While the field walls are the work of private families, the temples needed cooperative effort on a large scale to roll, trundle or haul the larger blocks onto site and then erect them. But loose limestone would run out, especially if constructing a large temple. If the building was to continue, extensions, facade, outer walls and all, another source was essential: this meant
tackling the limestone locked into the hills and creating the first quarries. Local outcroppings of rock, as at Ta Cenc, would be the first to be tackled, and gradually the secrets of working the Maltese limestone would be discovered. But just learning the skills necessary for quarrying efficiently would have taken time. Fortunately, if tackled in the appropriate manner, Maltese limestone can be split into large slabs by use of wedge and hammer. The wedges they used were probably wooden, while their hammers would have been of coralline limestone - examples are in the National Museum. They may well, in the manner of Cornish granite quarry workers, have driven wedges into cracks and then applied water, causing the wood to swell and crack the rock; the wedge could then be driven in further, and the process repeated, an extended but relatively simple operation. If they trimmed the orthostats roughly at the quarries, the tailor-made appearance of much construction implies a major shaping on site.

The manner of transporting the slabs is more problematic. We are dealing with distances usually between one and three or four kilometres, and weights of up to 20 or 30 tons, though slabs of between 3 and 5 tons were much commoner. Atkinson believed we can discount the use of animals; although pony bones have been discovered, the collar was not invented till the Middle Ages, and there is equally no evidence of ploughing with oxen. This leaves human muscle power with three basic possibilities: hauling the blocks over the rough land (possible, but very labour-inefficient), using rollers of logs, and using the spherical stones found plentifully at Ggantija and other sites. Wooden rollers are quite possible, though trees were not plentiful, and there is as yet no evidence. Dr Trump is doubtful about the feasibility of using the
spherical stones for other than on-site manoeuvres, yet it seems clear that the best track from quarry to site would have been well-worn and well worth the effort of clearing and flattening, and the hard dry ground conditions in the summers would have been good for the operations. The necessary traction force would have been supplied by teams hauling on ropes probably of leather, with assistants (the relief team) handling the rollers and steering. Slopes would have to be encountered, considerably increasing the numbers required, as would bends. There is an inherent natural logic in the association of quarry, slabs, rollers and temple-sites; the stone rollers clearly imply quarrying, while cyclopean architecture does not. Some experimental architecture is called for here.

Gozo had other temples besides the Ggantija pair; Trump gives a total of nine temples or temple-sites, but, as we shall see, there were others. Gozo also had its own pattern with a central cluster of monuments on the Xaghra plateau and others to the south-west, south and south-east. Ta Marziena was a 5-apse temple south-west of Victoria, but otherwise the south-west, west and north-west of the island are little known; I am not aware of any exploratory trenches in these regions. As well as these temples, it appears that there are at least two circles of megaliths, the Brocktorff Circle, under current excavation, and another. Thus there is apparently a contrast between the concentration of monuments on Xaghra and the rest of Gozo which certainly had some temples and may have had more. Mr Attard has recently found a site rich in neolithic sherds overlooking Comino.

The greatest concentration of temples was certainly around Xaghra, a central plateau with three spurs
The Parish Temples

running north. The Ggantija is remarkable for its successful survival, which is essentially due to the skill of its builders. A little to the west of Ggantija is the site of Ta Ghezu, dated by sherds to the Gg phase. It was a small temple, probably with three apses. Though the Ggantija is the only site visited regularly on Gozo, other monuments survived till fairly recently, even on Xaghra. Further west, past the Brocktorff Circle, was Santa Verna, a large 3-apse temple of the Gg phase. The trefoil form again is early, and its area makes it a class D temple, though its trefoil is not much smaller than that of Gg S. It provided the following sherd count:

Gh D 2 Zb 29 Mg 0 (3) Gg 76 Tx 450 TC 14. Active in the Zb phase, it is surprising that there is such a low sherd count for the Gg phase, while the high Tx count apparently implies a much greater activity then. Perhaps the extant remains belong to late Gg, perhaps there was displacement of population from the Gg, perhaps the trench of 1961 was not typical: our knowledge is certainly inadequate.

The recovery of what is left of the Brocktorff Circle is due to two painters, Houel and Brocktorff. It was first painted by Houel in the 1770's; an engraving (Plate 449) was reproduced in Vol. IV of his Voyage, and the original watercolour has also survived. It recently resurfaced at the exhibition 'La Sicilia di Jean Houel all'Ermitage' at Palermo, one of 264 surviving originals sold by Houel to Catherine II of Russia and loaned by the Hermitage for the exhibition (Sicilcassa, Palermo 1989; No 258). It seems that Brocktorff largely based his painting on that of Houel, even as regards the angle selected. However, Brocktorff, painting fifty years later, was able to record intriguing contents of the Circle as exposed by Bayer's excavation, thus alerting
The Parish Temples

modern archaeologists. In fact his second view shows the rear of the Ggantija in the background, thus locating the Circle. The current excavation has thus vindicated the accuracy of these painters.

The Xaghra plateau certainly seems to have been an important ceremonial centre for the Gozitans. As well as its impressive collection of temples, we have now recovered the remains of the Brocktorff Circle. The current excavation has shown that it contained a Zb phase collective tomb and some kind of hypogeum as well as other cave tombs, and that the site was monumentalised with megaliths (the circle) in the Tx phase (Trump, personal communication). Brocktorff's letter mentions a second circle in line with the first Circle and the Ggantija and "further down the hill." This should mean to the east, towards Nadur; we have lost this site. Another possible temple site is indicated to the north-east of the Ggantija by Houel on the original of his map of Malta and Gozo; it is labelled in as "Autre Edifice antique", Houel's usual term for the neolithic temples (Houel Original N° 413). If correct, its location would have been close to the present parish church of Xaghra; this would repeat the situation at Xewkiya where the parish church actually incorporates megaliths of the neolithic temple. In any case, Xaghra was a major centre, containing megalithic circles as well as temples.

Outside the Xaghra plateau there were at least four other temples. To the south-west was Ta Marziena which is classified by Trump as a 5-apse temple of Gg phase, with Gg and Tx sherds, although there is no sherd count. This is the most westerly site known at present. Xewkiya is another Gozitan site which has produced Gh D sherds and a torba floor. Evans comments:
"It seems certain that this must have been the site of an important temple complex at one time, though now too battered to be recoverable. The material found covers a long span of time, beginning with a few sherds of Ghar Dalam type." (1971; 191)

In south-east Gozo we have the ruinous temple sites at Li Mrejsbiet and Borg il Gharib, but we do not at present know of other temple sites. For Gozo we cannot say which was the earliest of the classifiable temples, though Gg S perhaps remains the strongest candidate. And even if we accept the probability that it was proceeded by an earlier, pre-Gg phase temple, there is no certainty that this would have been the earliest, since Xewkiya and Santa Verna show equal activity (going by sherds) in the Zb phase. Here indeed we become enshrouded in the mists of the millennia.

C. MALTA

While Gozo shows early yet large Gg phase temples, it is Malta that is more fruitful in yielding early and primitive temple forms. We come back again to the basic sequence first proposed by Evans (1959; 85ff.), although we have to realise that this is a typological series, not a strict chronological sequence, since our means of reading the evidence available does not yet reveal the latter, and in any case the relationship in time between Maltese and Gozitan temples is less simple than originally suspected.
The Parish Temples

Ta Hагrat

Evans proposed that we start the sequence at Mgarr, where the two Ta Hагrat temples are situated (Plan 2). In 1959 he considered the smaller building as the earlier, saying

"this extremely tatty little structure is of the greatest importance for the elucidation and meaning of the Maltese temples. ... This building, measuring about 35 feet by 25 feet overall, contains in embryo most of the main features of what was to become the main unit from which the Maltese temple-complexes were built up, the group of chambers centering about a central spine composed of courts and corridors. There is no trace of a facade." (1959; 85-6)

Most of this we can still accept, except perhaps his statement that the smaller building is "the earliest of the surviving monuments" (Ibid), which was apparently disproved by Trump's work in 1960 and 1961. Trump comments,

"The author's re-examination in 1960 on the whole supported Evans's view, but was controverted by further results in 1961. These placed the larger temple firmly in the Ggantija phase, and the smaller in the succeeding Saflieni phase, where its irregularities must be regarded as either archaistic or provincial. The pottery named after the site is certainly early, and must belong to a pre-temple occupation which has yet to be investigated by digging." (1972; 137)

In particular, Trump found Gg material under the west apse of the smaller temple. Evans was aware of Trump's results when writing his great study, and his final conclusions were 1) that neither temple could be dated pre-Gg, although they seemed very primitive, so were perhaps early Gg, and 2) reflecting on the fact that Zammit found Zb and Mg sherds which predominated in
Plan 2. Ta Hağrat Temple.

- 107a -
The Parish Temples

the smaller temple, that the situation was not clear. An appropriately cautious scholarly comment.

This is probably a key site in the evolution of the Maltese temple, and if we can accept THE as primitive and early ('provincial' hardly seems appropriate in Malta), then we have the kind of temple prototype we need. THE definitely has a more primitive feel about it, deriving from its small rough stones, a rather asymmetrical trefoil plan, and its small size, with an area ratio of 65 sq m which not only makes it (with Mn E) the smallest of Malta's temples, but also puts it roughly halfway between Xemxiya Tomb 5 (c.20 sq m) and the class B temples (c.120 sq m). The stumbling block are the finds of Trump: is any accommodation possible?

The Zb and Mg sherds definitely prove the use of the site in those periods, and since the site was certainly a religious one by early Gg phase and the sherds (from sacred vessels ?) were found by Zammit inside the smaller temple, there is a probability that it was also a religious site in the earlier periods. We have also to remember that temple alterations and additions were quite commonplace; two excellent examples are Gg S and HQ. So we could explain the presence of those sherds by postulating some reconstruction or other work on THE in the Saflieni phase, perhaps some work done on the floor or some larger scale reconstruction made necessary by a partial collapse of its cyclopean walls. Trump dated the material by the floor deposit A 5 found on floor F 5, and claims the lower floor F 7 as the original floor "unless an original floor was cut away when F 5 was laid". (Trump 1966a;18) This could be a crucial qualification, since there is no very regular pattern to the laying and relaying of temple floors, and in any case torba floors are not known to have been used before
The Parish Temples

the Gg phase. So the late sherds could well be a Saflieni phase contamination, which, allowing also for rebuilding activity, could open the way to accepting a very early date.

Another important point not so far discussed is that the Survey plan shows THE without external walls, which is both unique and surely a very early feature, suitable to a shrine rather than a temple. Other members of class A have two walls, outer as well as inner. For these reasons I feel that we could, with reserves, accept THE as the starting-point for Evans' typological sequence, provided that this is not refuted by subsequent excavation. We can also note his comment on the absence of a facade here (not a necessary feature for a shrine), with his argument that the limestone temple model found at Mgarr has a very similar plan and no facade. Trump classifies this plan as 'lobed', a useful observation.

Kordin

The much-devastated site at Kordin had four temples of the Gg phase, yet the site was occupied earlier and produced many sherds of Zb and Mg phases when Evans cut further trenches in 1954. See Plan 3. K III E is the only other temple classified as bilobed, and Evans considers it a throw-back to an earlier form. If this is so, we have also to consider an origin from an oval hut, as suggested by Cutajar (Second Malta Conference; 1988). The walls are mainly "rough blocks and boulders, though large slabs are used for corridors and portals". Otherwise the two K III temples have torba flooring, and a unique feature is the cobbled forecourt, which is shared, semicircular, and of Gg phase, as proved by Gg
Plan Kordin Temple I.

Plan Kordin Temple II.

Plan Kordin Temple III.
The Parish Temples

The small scale of the internal courts proves that the rites were for small groups at any one time, certainly not for all the villagers of Kordin. However, the temple forecourt was apparently starting to play a role for real assemblies.

Temples were probably used for certain funerary rites, they were not used for burial. So the villagers of Ta Hagarat, Skorba and Kordin buried their dead elsewhere. Xemxiya, 4 kms from Mgarr, is rather too far to be practicable for Ta Hagarat and Skorba; if they had burial caves or hypogea, these have not been discovered - a point worth investigating. The farmers of Kordin were presumably already using - for certain families - the Hypogeum at Hal Saflieni, about one km away, which they may later have shared with the first settlers at Tarxien.

Tarxien Far East

Tx FE is another small primitive temple going back to the Gg phase. Its plan is different from the earliest lobed and trefoil forms since it has five concave recesses too small to be called chambers or apses. Its length is 12 m, its width about 6 m for an area ratio of 72, placing it with the smallest temples in class A. Its remaining stones are smallish, cyclopean rather than orthostats. There is no evidence of a facade or even of an entry trilithon, although remains of the outer wall are found at the left. We cannot call these stones megaliths, and like others of class A it is better considered as a shrine than as a temple. Trump clasifies it as 5-apsed, yet it does not ever seem to have been a trefoil and does not fit easily into the typological sequence. Evans found a high ratio
The Parish Temples

of Zb sherds here, so a shrine may be indicated before the Gg building. The contrast in size with Gg S is instructive: the coefficients 1.1 to 9.6 for these very roughly contemporary 5-apse temples pit the smallest against the largest, a striking testimony to Gozo's lead over Malta at this time.

Mgarr

Either THW or Sk W was probably Malta's first monumental temple. Ta HAgrat West is intermediate in size, 14 by 12.5 m (class C), and its lower parts are rough-hewn orthostats. It has a very striking monumental facade (Plate 14.2) some 17 m across, with a central entry formed by a great trilithon (and a huge lintel) - the entry structure that became so typical of the Maltese temples once the cyclopean style had been abandoned for shaped orthostats, i.e. the genuinely megalithic style. At THW, boulders were used as well as coralline slabs, with much larger stones than at THE. Evans comments,

"The plan is that of three rooms grouped about a central rectangular court, forming a trefoil pattern ... The front of the building is formed by a massive hollow facade of huge megalithic slabs, which enclose a semicircular area in front of the monument." (1959; 92)

Trump adds,

"The temple started as an open trefoil, but as at Skorba had its central apse walled off at a later stage. The screens of the side apses probably belong to this later alteration too. The closely fitting stone pavement of the central court with its surrounding bench deserves note." (1972; 137)

Its megalithic facade is highly impressive, doubtless as intended. Do we see traces here of
The Parish Temples

competition with nearby Skorba? As one approaches from the south-east, it appears still more effective as it has a flight of four curved steps which lead up to its entrance, a feature of many Christian churches. This is architecture, and is both monumental and public. As such, it seems designed as the setting for public ceremonies and rituals, while the area in front must surely have been used for public assembly. The flight of steps up to the entry is only matched by Tal Qadi.

A kilometre to the north-east is the Skorba site with two temples, Sk W, a trefoil temple of Gg phase, and Sk E, a poorer structure of Tx phase. The site is especially important for its earlier settlement, with village huts, and also for its meticulous excavation, but the temple remains are visually disappointing. Sk W was a large class D trefoil, 14.2 by 18.3 m. Trump observes,

"The use of globigerina limestone in the construction of the doorway is noteworthy. The site stands on upper coralline ... to transport blocks estimated to weigh about 1.75 tons across a mile of open country is no mean feat. It demonstrates how much this more easily worked stone was prized at this time for any position where the finished appearance mattered, such as altars, doorways and steps." (1966a; 6)

Trump also compares the trefoil to that of Gg S "which Skorba resembles to a remarkable degree." (1961b; 248)

Mnajdra

Apart from BiN which is Tx phase, the only remaining class A temple-shrine is Mn E, a small trefoil with the central apse substantially reduced in size and subsequently screened off. It too has a unique feature
The Parish Temples

in its triple entrance, and we have to suppose that this was created specifically to accommodate a variant in ritual that was peculiar to Mnajdra. This is typical of the neolithic Maltese: each community built its temple ostensibly for worship and ritual, using the accepted Maltese form which was initially the trefoil, yet each community equally created its own variations - here a larger facade, there a flight of entry steps, elsewhere an extra pair of apses. There is no evidence of subordination to a centralised power, but rather of inter-communal borrowing and emulation: a typical parochial scene. Were the three entries at Mn E used in relation to its three apses? We cannot be sure, though it does seem sound to interpret differences in temple forms as reflecting differences in ritual. The evidence is for ritual concentrated on the twin aspects of religious cult and funerary arrangements, and evidently each community created its own minor variations in each field. Mn E is proved by sherds to belong to Gg phase, while Mn S was early Tx phase. So far there is no indication of where the Mnajdra community buried their dead, and this is also true for Hagar Qim, less than a kilometer away. This would seem to be a profitable area to search for another hypogeum.

Mn S is a class C temple (15.2 x 13.7 m, coefficient 3.2) which is classified by Trump as a 4-apse temple, though in fact its ground plan defies exact classification (Plan 4). Room 1 is an oval chamber almost 15 m across, a harmonious whole rather than a pair of apses. Room 3 is like a miniature trefoil, with smaller niches left and right, and a rather flattened terminal 'apse'. It is entered, remarkably, through a porthole slab which is set into a triple trilithon (Plate 20.2). The oval public chamber 1 has another niche and, again uniquely, two 'oracle holes' which
The Parish Temples

communicate with two secret chambers placed between outer and inner walls. Court 1 has regular, well-shaped orthostats which still bear up to four courses of regular ashlar blocks showing oversailing (Plate 7.1). Skills in architecture and masonry alike had reached an impressive level by this time.

The rugged facade is extended to the south as a free-standing screen, and, as elsewhere, it contains the largest megaliths, placing them precisely at the point where they are most conspicuous and impressive. This regular feature provides strong support for the territorial interpretation; a mound or barrow, or a wall of small stones, would be far less imposing. Gg S also has its facade extended as a screen, and to me both screens have the look of rather later additions. Surely in both cases all the extra labour (non-functional as regards the actual temples) served the goal of extending the facade in order to increase the temples' monumentality as well as defining the forecourts. With the addition of external stone benches, Mn S is particularly well designed to serve a role which could be, at times, religious, ceremonial, judiciary or even dramatic; as with the Greeks, some of these roles might have been combined. We should not attribute too much specialisation or differentiation to neolithic populations.

It seems rather strange that although the facade of Mn S was extended south, it was not also extended north to incorporate the entry to the central temple, Mn C, built rather later in Tx phase (Plate 13.2). This is particularly strange since the 3-temple complex seems deliberately planned to contain a nearly circular forecourt where it is easy to envisage village assemblies. In Mn C the regularity of the 4-apse design
The Parish Temples

and the precise cutting of slabs and blocks attains a perfection which reaches beyond the Neolithic. Its orthostats are not impressive in comparison to the megaliths of Mn S, and the ashlar courses have a precise, almost modern appearance, testimony to the expert cutting and polishing of the masons (Plate 7.2). The entry is unique, being doubled; one doorway is through a typical Maltese trilithon, but the left entry was through a large porthole slab.

Hagar Qim

In the words of Evans,

"This puzzling building, with its clear evidence of changes of plan, and its frequent reconstructions, all apparently carried out within a single chronological phase, is probably the most irregular in plan of all the major monuments. At the same time, although it is such a jumble, it is nevertheless one of the most striking pieces of architecture left by the ancient Maltese." (1959; 103)

Such is the complex nature of its ground-plan that the only adequate term to describe it is 'temple-complex', itself a salutary reminder of multiple functions. Dr Trump's measurements refer only to the north-east portion which he classifies for comparison as "4-apse, anomalous", with dimensions of 17.1 by 20 m. If we take its total internal measurements instead, we have figures close to 15 by 30 m, i.e. an area ratio of about 450, coefficient 6.92, second only to Gg S.

Virtually the whole building was completed in the Gg phase, and with the evidence of considerable change, it is highly probable that it was the parent colony from which the Mnajdra community split off. It is certain
that the Gg phase was one of major activity and expansion. There are also separate remains of the smaller temple HQN to the north; this was a 5-apse temple whose sherds place it in the Tx phase. This highly individualistic complex was built by a community who improvised a series of changes eventually harmonised by the enclosing wall. As Evans says, "The reconstructions, moreover, provide us with evidence that phase D (Gg) must have been a long one." (Evans 1959; 103) Even when compared to medieval standards, developing over many centuries, HQ represents a lot of activity, and since rates of change in neolithic times are unlikely to have been faster (if as fast), a time scale of six centuries for the Gg phase seems much more appropriate than three. Like the Ggantija, HQ must belong to the earlier Gg phase, presumably during active demographic expansion.

The anomalies of the ground-plan are obvious at first glance: see Plan 5. We find a doorway where we expect to find a terminal apse, and the second left apse (room 6) has been altered out of all recognition to cater to various new cultic developments as well as leading to an important new inner room, 10, where we would least expect to find it. Altogether, counting the two entrances to the north-east temple, the impressive outer walls are breached by five doorways, the three to the south-west each leading into a single cell rather than an apsed temple. I think that new functions for parts of the temple-complex are indicated here, as well as new developments in cult and ritual.

Evans thought that Hagar Qim reached its final form in the Gg phase, apart from the niche-recesses 7, 8 and perhaps 9 to the north. He also thought, with Mayr, that 2 and 3 were parts of an earlier construction, likewise
Plan 5. Ha'gar Qim Temples: main building.
In fact it hardly seems credible that sections 1, 2, 3 and room 11 were parts of the same original building. When we consider the outer wall, we realise that it could not have been completed before the main rooms it encloses, so at least parts of the outer wall must have been among the last work of the Gg phase. Stylistically too, with its smooth finish possible only because of the uncharacteristic use of globigerina, the wall seems as late as any part. It was clearly designed to give architectural unity to a strange assortment of chambers, as well as extra strength, and also certainly to impress. These Maltese megaliths represent a secondary phase of the builders' expertise, coming after the cyclopean style and after the acquisition of the necessary quarrying, hauling and erecting skills - which also necessarily presupposes substantial demographic strength. I calculate that the weight of the massive slab in the south-east corner can hardly be less than 25 tons, so if I am correct to apply Atkinson's figures for a slope of 1:6.5 here, the minimal labour force necessary for haulage and erection would have been around 450 able-bodied adult peasants, implying a supporting population of around 1125. It would be fascinating to be able to date it more exactly: was the great facade with its giant megaliths erected before or after the splitting-off of the Mnajdra community? Perhaps future investigation may be able to search under these great megaliths for foundation deposits or other material leading to precise dating.

It is apparently the case that the neolithic masons of the Hq community, who built rooms 2 and 3, cyclopean-style, of "very rough blocks and irregular slabs" (Plate 5.1), had mastered the art of producing both exactly-cut ashlar blocks and finely finished globigerina slabs before 3000 BC. Evans suggests that
The Parish Temples

"The final finish was probably obtained with small flint blades." (Evans 1959:108) Having mastered this particular technique rather earlier than elsewhere, they apparently wished to vaunt their skill not only inside but on the exterior of the building. Perhaps room 2 and 3 were left in their original form because of their ancient sacred character (religious conservatism). Their special way of 'honouring the deity' was by this fine combination of architectural design and aesthetics, not unusual in religion, but one of the very first examples in world history.

However, the problem posed by the ground-plan remains. Because the extant remains constitute a plan unlike any other in Malta, and because it is certain that there was a considerable amount of rebuilding already in the Gg phase, it is logical to look for an explanation by postulating earlier forms more consistent with general Maltese practices. Consequently I think we should accept Professor Evans' suggestion that room 11 was originally part of a separate temple. Whether it originally terminated in a pair of chambers with flattened apse-niche or with a full terminal apse as a trefoil seems impossible to determine at present, but it does seem clear that its original entry faced due north, which is significant. Apparently 11 was added after the northerly exist was opened in the main temple (Evans, 1971), though perhaps not long after, to judge from the similarity between its masonry and the original internal masonry of 5. Something had obviously happened to lead to the decision effectively to reverse the original southerly orientation to the north.

If the internal arrangements at HQ are not informative in answering this particular conundrum, perhaps those of the exterior can help. 12 m in front of
The Parish Temples

the right facade are remains of a structure called the 'priests' quarters'. Accessory buildings of this sort are found elsewhere, including Mnajdra and Tarxien, but this is the only case where they are situated in front of the facade: see Plate 13.1. If the forecourt had been used only for rituals and ceremonies in which small numbers of the community participated, this would not have been a serious problem, small groups could simply have avoided the obtruding buildings - and it is even possible that they played some ritual role (Burkert speaks of ritual eating halls near Greek temples). Now the free area to the north has a diameter of 30 m between HQC and HQN. That this area is ample enough and suitable for large assemblies has been demonstrated in recent years by its use for ballet performances at the Maltafest. Therefore it could have been used for neolithic assemblies. So I suggest that this idea both accounts for the surprising reversal of orientation at HQ, and provides support for the public use of forecourts. Certainly the existence of two trilithon entrances to the north matches similar paired entrances elsewhere which lead out onto an unobstructed forecourt area. Further, the orientation of HQN (184°) would have created a suitable facade bounding the assembly area to the north, and creating a uniquely secluded sacred setting for public meetings and ceremonies. This arrangement suggests assemblies of all the communities at Hagar Qim.

The great enclosing wall also has information to yield. The original entry to the south-east has an extended form, with three pairs of orthostats in line, those of the entry trilithon, those of the passage, and those which open into court 1. There are two points worth making here; firstly, the distance between the outer orthostats and the walls of 2 and 3 is
The Parish Temples

substantially greater than elsewhere, and secondly, the facade of HQ is much flatter than the others, being only very slightly concave (Plate 5.2). So it seems clear that the outer wall was only erected after the construction of 10, which, as far as we can tell, was itself only built after the reconstruction which opened up the second left apse 6. The concave facades seem a design clearly adapted to accommodate public activities, ceremonies, etc, in the forecourt area, and this flattened facade at HQ suggests that here, to the south-east, this was not required, presumably since the 'priests' quarters' had already been erected, and the alternative area to the north had been developed. It might seem strange that such a magnificent facade was considered worth erecting at this point in the Gg phase, with the assembly area elsewhere. Two considerations help explain this paradox; apparently this entry was still required for religious rites and ceremonies performed by smaller groups in front; and the typical Maltese feature of placing the greatest megaliths externally for maximum visibility to neighbouring communities.

The outer wall in the south can only have been built after the construction of room 13, which has a regular shape and was perhaps built while 11 had its original form. Room 12, on the other hand, has a cramped, unsatisfactory plan, and appears to have been built at the expense of 11, almost as an after thought, yet presumably (taking into account the laborious hours of all neolithic constructions) to answer some new practical or ritualistic requirement.

All these changes belong to the Gg phase. Only relatively minor architectural changes have been established as Tx additions. This HQ appears as both an
expression of the particular requirements and idiosyncrasies of its community, and also, since most of these anomalies belong to the Gg phase, as an early individualistic creation. In fact, due to problems of obtaining more accurate dates within the ceramic phases, it is far more difficult to speak meaningfully of 'traditional forms' in the context of the Gg phase than is commonly supposed, although by Tx phase this does seem permissible. Like the Ggantija, Hagar Qim exemplifies major features of craftsmanship from the cyclopean to highly evolved and finished forms of masonry and design, including oversailing. Evans singles out their achievement,

"The innovations at Hagar Qim are the careful dressing of the slabs and blocks and the use of regular corbelling or false vaulting in the courses of blocks." (Evans 1959; 107-8)

The careful and painstaking efforts of the HQ masons was one with ends that were as functional as aesthetic, the twin aspects of true architecture, and quite remarkable for Neolithic times. If anyone should doubt the rational powers of neolithic man, here is incontrovertible proof.
The Parish Temples

Tarxien

The final temples I shall consider form the great complex at Tarxien which consists of three distinct temples, described by Evans as "The most elaborate group of megalithic remains in the Maltese islands": see Plan 6. This site has a short history: it was unknown until its discovery and systematic excavation by Zammit from 1915 - 17, and he comments that the stone used at Tarxien was probably quarried at a considerable distance away. It is the largest site of all, calculated as 5000 sq yds (0.42 hectares), and part, if not all, of this area was walled off by a huge megalithic temenos wall the Greeks would have called a peribolos. This substantial area also included the temple forecourt formerly set out in front of the western temple (see Ceschi's reconstruction, Fig. 2), a cistern and various other 'cult' buildings especially to the north-east. There are various indications that the area originally spread beyond the modern enclosure. No satisfactory evidence has survived to determine the nature of the rectangular area 26 or the nearby rooms 27, 28 and 29. Tarxien provides clear evidence of a populous community which was decidedly large by neolithic standards. If there were remains of surrounding settlements of equivalent size, we should consider it as proto-urban; as it is, only the 'ceremonial centre' has survived. It should be borne in mind that the extant remains are those left at the end of the Tx phase after many centuries of activity at the site. There is no reason to doubt that the Tarxien community reached its zenith during the Tx phase.

The Tarxien temples constitute a document of prime importance for the study of Maltese prehistory. The circumstances of their recovery were favourable, and
Plan 6. Tarxien temples (Evans).
The Parish Temples

nowhere else has such a rich variety of furnishings been recovered. That it was recovered after it had been reclaimed for farming in the Roman period was important for its survival, as well as suggestive of the possibilities that may lie under the fields of central Malta. Even before Bronze Age immigrants reached the site, the original floor slabs had been covered by a metre of silt which served to protect the neolithic furnishings. The graffiti of ships could be of either period, though Woolner's argument that they should belong to Tx phase because of their low position on the orthostats is basically convincing. There has been considerable disagreement over the relative chronology of these three temples, which remains fairly obscure.

Dr Trump has classified the East, Central and West temples as having respectively 4, 6 and 4 apses, but this is rather arbitrary due to the difficulty involved in deciding the point at which the progressive reductions in size of the terminal apse make it into a 'niche'. At Tx C the terminal structure is clearly a flattish niche, but at Tx W this is not the case: Evans calls 6 "a true apse", and I agree - it has as much right to this term as 7. 6 was rebuilt, apparently rather late in Tx phase. This correction makes Tx W a 5-apse temple, like Tx FE, but much larger. The terminal section of Tx E falls between the two others, it is 'an apsidal niche', twice as deep as that of Tx C, but smaller and more flattened than that of Tx W. Since Evans and Trump agree that in the normal typological sequence the 5-apse temple precedes the 4-apse one (due to the reduction of the terminal apse to a niche), this point suggests that Tx W may be older than the others; in any case, whenever its terminal apse was rebuilt, it conformed to the apse-form, not the niche-form.
The Parish Temples

The smallest of the three temples is Tx E, which has an area ratio of 197, a coefficient of 3.0, and belongs to class C. Tx W and Tx C are similar in size (if we count courts 9, 10 and 12 as belonging to Tx C) and appreciably larger than Tx E; their coefficients are 6.4 and 6.6 respectively, and both belong to the second largest class, E: only Gg S is larger. What survives of Tx E shows a homogenous style with large orthostats beautifully cut (Plate 9.1); apart from the west side rebuilding, it seems to belong to a single operation. Tx C is also fairly homogenous in style, although the outer pair of courts are much larger than the two inner pairs and have larger orthostats (Plates 9.2, 15.1). Tx W, on the other hand, is much more puzzling, and the problems here are compounded by the fact that it survives in much poorer state due to later 'quarrying' activities: little survives of its original facade apart from the blocking stones. However, the ground-plan is clear, and this plan, in my opinion, shows various rebuilding activities as well as the strange fact that the inner right court 7 was selected to provide the entry to Tx C, the only such case in the archipelago. It is also unique in being poorly aligned; if we consider the terminal apse 6 in relation to the passage leading into 4, we find that the centre of the apse is about 1.5 m to the west of where it should be: presumably this is because of the unusual enlargement to 5 being completed before 6 was rebuilt. The outer courts, 1, 2 and 3, are also poorly aligned. The temple builders normally had no difficulty in obtaining a correct alignment along the long axis, and I interpret this lapse from usual standards as being due to repeated rebuilding activity which probably indicates greater age. It is true that its surviving inner walls show a poorer quality of masonry than those of the other two, but I interpret this as showing a more primitive
The Parish Temples

style (Plate 3), not as architectural 'decadence', to use Zammit's term.

It is not yet clear what the chronological relationship was between the different parts of the three temples. So far three kinds of argument have been used, based on ground-plan typology, style, and sherd evidence. Zammit thought that Tx E was the earliest of the three, and used arguments of architectural and masons' style to interpret Tx C as the second and Tx W as the final building. Ugolini reversed the order of the last two, on the grounds that the central temple must have been added last since it distorted room 13 of the western temple as well as rooms 21 and 23 of Tx E. Trump agrees with Ugolini, saying that the western temple "is a good example of the 4-apse plan, and dates to early in the Tarxien phase, by conventional C 14 dates around 2400 BC." (Trump 1972;68) He goes on to say of the central temple that "It was inserted into the gap between the South and East temples in the full Tarxien period, somewhat after 2400 BC." (Trump 1972;70) He thus discounts or ignores room 6 without saying why, though this gives the temple its fifth apse.

Evans preferred the line of Zammit, arguing that the smaller stones of Tx W are "definitely decadent". In the carved ornament he distinguished between an earlier "restrained, 'classical' style" and a later 'baroque' style. He noted that Tx W provided only one torba floor level. He said that Tx C represented the most advanced type of plan, and interpreted its outer two courts as linking up the two temples. His conclusion was that Tx W was probably later than Tx C, though "there is at present no incontrovertible proof." (Evans 1959;124)
Evans used both stylistic and sherd evidence in stating his position. Undoubtedly stylistic evidence is important once we are sure of the sequence, but the terms 'classical' and 'baroque' are not obviously appropriate to neolithic architecture, and in any case cannot be held too significant when applied to temple furnishings; rather than the essential architectural structure: as in Ggantija, they could have been added later. Other considerations include the ground-plan, homogeneity, and the type of masonry. Evans and Trump seem in essential agreement in tracing the typological sequence from three to five apses, and then four as the terminal apse is reduced to a niche. But if, with Evans, we accept 6 as an apse as we surely have to, then Tx W becomes a 5-apse temple and thus should be the earliest in the sequence. Whether we count Tx C as having 6 apses or being aberrant hardly matters; its niche is the most reduced and thus typologically should be the latest. Both Tx C and Tx E are basically homogeneous in style; elsewhere this is true of the later temples of a complex. On the other hand, Tx W only had a single torba floor whereas Tx C had two, although it alone is not cut down into the bedrock. Even the siting is puzzling; why should Tx C and Tx E have been laboriously cut into the bedrock if free space had been available in front?

Sherds constitute an invaluable aid, and their evidence appears to favour a later dating for Tx W. However, their testimony is subject to liabilities; if trenches are cut in a partial exploration and produce sherds, this may not be typical of the whole area. Secondly, contamination from ancient rebuilding activities is always possible. If floor slabs are laid down at a later date than walls, which we know occurred in courts 9, 10 and 12, previous floor levels can be interfered with or even removed. We do not know that
The Parish Temples

torba floors were always used prior to slabs. The sherd evidence recovered is not sufficient to be decisive.

Thus neither stylistic considerations nor sherd evidence solve the relative chronology at Tarxien. Even further excavation could only solve the problem if sufficient organic remains were found to permit radiocarbon dating of all parts on an absolute scale.

If we apply masonry criteria to Tarxien, we see that the only temple built of stones which were probably unhewn is Tx FE, which is confirmed by sherd evidence as the oldest temple here. Of the other three, Tx C 14-19 has perhaps the finest ashlar work, with Tx E close behind. The stonework of Tx W, seen by Zammit as the most degenerate, is probably the most primitive, i.e. the earliest, and at Tx W it is the remains of the inner trefoil that seem the least perfect. It is accepted that the inner trefoil of Gg S is the oldest part there; the same could be true at Tarxien, though obscured by rebuilding. The carved block incorporated into Tx W court 6 is proof of the rebuilding: see Plate 8.2.

The facade is a major feature of Maltese temple exteriors. It is absent from the small early temples, appearing only with the skills which permitted the laborious and ostentatious megalithic style. These facades I see as designed for ceremonies and assemblies in the large forecourts. Of all the multiple temples the facades may be doubled, but forecourts are in common, except at HQ where the entry was reversed. At Tarxien, the cramped front of Tx FE lacks a facade, Tx C has no trace of one, and Tx E has a few remaining orthostats which could imply a flattish facade of about 12 m. That of Tx W, on the other hand, is about twice as wide, is concave, and with the two 'divining blocks' has a
suitably monumental form and size for substantial assemblies (Fig.2). The possession of these features by Tx W is certainly an indication of its importance, though not necessarily of its antiquity. It certainly seems to provide the main, or only, assembly area.

Tx W also owes its unsatisfactory appearance to its poor alignment along the longitudinal axis, Survey C-D, the only such case. Why is this? Courts 5, 6 and 7 all show substantial reworking, 5 and 7 to the point that the original form is not evident, while 6 lies 1.5 m out of true. The apparent explanation is that the northerly extension to 5 involved changes to 6 and its eventual rebuilding further east. As the Survey plan shows, the outer trilithon at Tx W as well as courts 1-3 are aligned towards the centre of the actual apse 6; this supports the idea that, as at Ggantija, the outer courts were added to an inner trefoil.

With the discussion of particular features complete, we can now summarise their main characteristics with a view to proposing a chronological sequence which accommodates the facts. Starting with Tx W, we have a large class E temple whose monumental facade and organisation of forecourt make it appear as the main temple at Tarxien. Its 5-apse form is typologically early. Although it has suffered badly from later quarrying operations, enough remains to show a plan which combines poor alignment with repeated rebuilding, especially in the inner trefoil. It has the greatest wealth in furnishings or any Maltese temple, and also the major cult statue. On comparison with Mnajdra and Ggantija, where the temples accepted as the oldest show more reworking and most evidence of cult activity, I take all these as signs of its age. The building is also far from harmonious in the style of its masonry.
The Parish Temples

The smaller, class C temple Tx E has a very homogenous style in its masonry, with internal orthostats larger than most. Its smaller facade provides no evidence of adaptation to a forecourt suitable for assemblies. Internal evidence shows considerable rebuilding in a less impressive style on the western side; this was surely due to the construction of Tx C. Furnishings are mainly absent, but the 'oracle-hole' in 24 is testimony to some cultic activity. Its secret chamber could have originally been approached from the rear, like that of HQ, until the outer wall was built, when recourse was apparently made to the secret stairs.

Tx C, just the largest, has generally been treated as a 6-apse temple; Evans also regarded it as 'aberrant', and not really the final typological development. (Evans 1959; 124) It can quite as satisfactorily be seen as a late 4-apse with the addition of courts 9-12. The blocking-stone in front of 14 was evidently effective, and excluded those engaged in rites in the public courts from the inner area, reserving it for the priesthood. Given both the various developments in courts 9-12 and the fine quality of the small ashlar blocks within, it could easily be that these inner courts were the last courts to be built, leaving only the external wall to be erected before the complex reached its final form.
Assuming that the outer walls were completed (this is supported by the footing-stones outside Tx E) this would have been the last set of building operations in neolithic Tarxien, and could have included the trilithon entry through to 7 and the alternative and secret access to the inner chambers of Tx C and the oracle of Tx E.

We are now in a position to propose a chronological sequence for Tarxien, taking the accepted facts together with these new conclusions. This is naturally a

-129-
The Parish Temples

provisional sequence which can be proved or modified when further evidence becomes available. I suggest the following six stages for the Tarxien complex:

1) The site of Tx FE was evidently used back in Zb phase, and since Zb sherds were found inside the temple, there was probably an earlier shrine of sorts on the site. Then the still small 5-apse shrine Tx FE was built in the Gg phase.

2) Tx W was probably the first of the Tx phase temples. Though the proof is less than absolute, this is nevertheless the most convincing explanation available. Its masonry style suggests an early Tx phase temple, and this is confirmed by its 5-apse form, its frequent rebuilding and its rich furnishings which denote an accumulation of rites built up over a considerable period of time. Its poor alignment also supports this interpretation, and suggests that courts 1-3 were added to an original trefoil. The monumental facade and outer walls were added rather later to complete the temple.

3) Tx E was built next, its orthostats showing the considerable mastery of its masons, and its terminal apse reduced to a niche. There are few furnishings, but the 'oracle-hole' in 24 suggests a special rite.

4) As at HQ there were developments to the exterior of Tx W which included the creation of 11 and 13, and eventually the building of walls to enclose the area 9-12. This area was roofed over with wood, had a serious fire, and then had massive floor slabs laid down throughout.

5) Tx C, courts 14-19, was added as a 4-apse temple with a flat, paved terminal niche. The blocking stone strongly
suggests that it was reserved for the priesthood. Its construction impinged on the western courts of Tx E, which were modified. Its ashlar masonry is as fine as any in Malta, even looking towards the invention of the true dome, though its courts were small in accordance with its more private nature.

6) Finally the complex reached its ultimate form with the completion of the outer wall round Tx C and perhaps Tx E too, using impressive megaliths, radial blocks alternating with tangential.

This proposed sequence has several advantages and one main disadvantage. 1) It agrees with the established typological sequence by counting Tx W as having 5 apses. 2) It fits in with the rational sequence suggested for the evolution of the masonry styles. 3) The monumental facade and forecourt dispositions suggest that Tx W was the major temple; comparison with Mnajdra and Ggantija suggests that this would also be the oldest temple. 4) Again as at Mnajdra and Ggantija, Tx W should be the oldest if we may judge from the amount of rebuilding and the rich ritual activity implied by the furnishings: as Evans has observed, this is also true of the older of a pair of modern parish churches. The main disadvantage is that Tx W only had one floor level, which is strange as there was so much rebuilding.

However, given the weight of the arguments in favour of an early date for Tx W, this could be accommodated. It is not at present possible to lay down precise rules for the creation of temple floors. The first torba floors were laid down around mid-Gg phase, but earlier flooring has left no archaeological record, and we do not know that the first floor at Tarxien was actually a torba floor. Flagstones were added later to strengthen
The Parish Temples

flooring at points of heaviest use, but courts were almost never completely paved, the use of torba continuing. It would be satisfying to be able to draw general principles, of a stratigraphical nature, from the use of torba or flags, but this does not yet seem possible. The fact that both Tx C and Tx E were laboriously cut into the bedrock exemplifies the thoroughness that was also shown by deep preparation for the flags at Tx C. Perhaps this extra work was necessary precisely because Tx W had already been built.

Tarxien seems to pose problems which involve basic criteria and principles. Professor Evans drew two general conclusions from his analysis: "First, the idea, already suggested by the buildings at Mnajdra, of a certain decline in architectural skill towards the end of phase E from an apogee early in that phase, is confirmed." (Evans 1959;124) This I cannot accept because of the arguments given above, especially the masonry skills, which seem thoroughly competent at Tx E, Tx C and Mn C. Where we are not sure of the sequence, it is not satisfactory to talk of "confirmation of degeneration in skills". In fact the probability seems to be that Tx C was the last built, and its inner courts show full mastery both in design and in masonry.

Evans' second conclusion is that

"the middle temple at Tarxien does not really represent a typological development of the standard temple-unit. The addition of the third pair of chambers was not, that is, dictated by a development of the ritual, but was made necessary by the sequestration of the inner pairs for special uses, or by the desire to link up with the western temple, or both." (1959;124)
The Parish Temples

Here I am in agreement with Evans on his typological comments, though perhaps courts 9-13 came before what I see as the last of the 4-apse temples, courts 14-19. I do not accept the stylistic arguments, nor the concept of 'decadent building' as used by Zammit and Evans. Thus I agree with Ugolini and Trump on the later date for Tx C. Where I differ from almost all previous proposals is in seeing Tx W (especially its inner trefoil) as the oldest part of the complex. Only Ceschi, himself an architect, has suggested this sequence: see Plan 7. His weakness seems to have been an exaggerated elevation (which he recognises as hypothetical: see Fig. 3), and his suggestion that the temple was roofed in stone (impossible for distances much over 2 m in Maltese limestone). In my view, his architectural experience enabled him to reach the correct solution.
Plan 7. Tarxien temples (Ceschi).
"This must be the most remarkable prehistoric monument in the Mediterranean, in Europe, perhaps in the world, but we remain almost totally ignorant of what went on inside it, or the other temples."

David Trump (1980, 143)
The Hypogeum

The unique Hypogeum at Hal Saflieni was carved out of the living bedrock over many centuries; sherds attest use in all phases of the temple-builders. They eventually created a great labyrinth of interconnected chambers and corridors in three levels, extending over some 1600 sq ft (c.150 sq m). The limestone is the upper globigerina which has been forming a karst system over the millennia since its Miocene origins; there are still natural caves, like that under rooms 24-25, which have not been opened. It is located some 700 m from the Tarxien temples and some 1300 m from those of Kordin, apparently the earlier site. Grand Harbour lies below Kordin to the north, Tarxien lies due east, and Hagar Qim may have been visible some 7 kms to the south-west. Excavation under Magri and then Zammit established that its primary function was burial, the bone-heaps forming unequivocal evidence. This fact with the existence elsewhere of various rock-cut tombs creates a strong probability that other undiscovered hypogea did exist — Evans and Trump concur. Apparently it served the Tarxien and probably also the Kordin communities, so it appears likely that other communities would have had their own burial centres.

It apparently began at a natural outcropping of the limestone where natural caves were enlarged for burial purposes; later it was progressively extended and deepened to create a second level some 5 m below the surface, and then a third about 10 m down (Plan 8). Evans describes the neolithic technique as follows:

Plan 8. The Hypogeum, upper level.
"The whole of this vast underground labyrinth was excavated in the soft rock (globigerina limestone) by means of wedges or picks of horn or antler. These were first driven into the rock with the aid of stone mallets (two of which were found in the Hypogeum), of which pieces, thus weakened, were then split away. When the desired dimensions had been attained, the walls of the chamber were smoothed with small flint instruments, or, less probably, with small adzes. In some places where for some reason the finishing process has not taken place, the holes made by the picks can be clearly seen." (1959; 132-3)

The entry was originally marked by some sort of megalithic structure which Evans calls "a building" and Trump "probably a temple", though judging from the stumpy blocks remaining, I suspect a simpler structure, probably of the type of the altar Brocktorff saw in front of the entry to Bayer's Pit, and perhaps also a megalithic circle. Zammit found several porthole slabs near the entry; these are best known from Tx, HQ and Mn, and are important in confirming the link, presumably in ritual, between the Hypogeum and the temples. Evans says that while the modern building programme was under way, some rock-cut tombs with skeletons were discovered; although these were not properly examined, they were "probably Neolithic". If so, they could have been contemporary with the earliest cave-tombs of the Hypogeum itself: it is to be remembered that 36 of the sherds found there were of the Zb, 21 of the Mg phase. Whatever the ancient megalithic form given to the entry, there are solid reasons for believing that the first rock-cut tombs at Hal Saflieni go back to the Zb phase, and that the process of extending the great catacomb and burying the dead there continued throughout the Gg and Tx phases.

The original entry was through a smallish rock-chamber which seems to have been given a trilithon subsequently: the indications are of an ancient site for rock-tombs starting in the Zb phase, and later being
The Hypogeum

given a monumental entry as befitting the remarkable developments in the interior. A good idea of these earliest caves can still be gleaned by visiting the upper level, where the entry area 1 has three excavated caves 2,3 and 4 leading off it. The wedge of original rock left between 2 and 3 reminds us of the technique used at Xemxiya. There is a U-shaped hole (for tethering?) outside 2. Though quite empty today, these caves help to establish the developmental sequence here from its beginnings.

Also of note is the deep well-like structure of which Trump says,

"a circular cistern was cut to provide the site with its water supply. It is 8 metres deep and roughly bell-shaped. Three ribs are left in the walls, as if supporting a corbelled dome, and these, together with the free use of ochre on its walls, confirm that it is contemporary with the monument." (1972; 59-60)

Its effective depth is about 7 m, and I calculate its cubic capacity as about 33,000 litres. Judging from the style of its excavation and the fine standard of its finish, Evans considered it to be "a late addition to this part of the Hypogeum." (1971; 47)

To the east and the north-west, room 1 leads to a group of larger caves, 5-8. Trump comments,

"The roughness now is such that one cannot be sure which rooms are natural caves in the rock, which are artificially enlarged, and which entirely man-made. What is certain, not only from logic but from the archaeological evidence, is that this is the oldest part of the site. Only when this area was found inadequate did the builders open up the chambers which form the middle stage." (1972; 60)

Evans, judging again on finish, thought that the rough outer caves belong to the Zb and Mg phases, while the
The Hypogeum

inner ones he assigned to the Gg phase. There is also a constructed trilithon here, presumably a rather later addition; this is one of several trilithons here which all serve to accentuate the link between the Hypogeum and the temples. In the temples, the trilithons have an important structural role as well as the symbolic one of asserting the sanctity of the area one is about to enter. In the Hypogeum, all the trilithons, whether free-standing or mock (carved out of the bedrock), are purely symbolic.

It was in 5 that in 1909 Zammit found the only intact skeleton recovered from the Hypogeum. He found, under half a metre of earth, an "adult male lying on the right side in a contracted position" with the head on the right arm. This could have been the last individual buried in the Hypogeum, so it is particularly lamentable that the skeleton was not retained by the Museum Department: a radiocarbon date from it would have been most valuable. All other skeletons had apparently been subjected to secondary reburial. It is particularly important to note that he was buried without grave goods, which is in accordance with the very limited grave goods found in other chambers: this fact casts grave doubts on the theory of a "chieftain society".

To reach the middle level, we pass through another trilithon and down a modern flight of steps to 9, which is intermediate in level and has various chambers and diverticula leading off it (Plan 9). This must represent the decision to extend the area of burial caves by creating a new, lower level. Rooms 9-14 are all at this upper sub-level of the middle section, and from the similarity of their plan to that of the lower sub-level, 15-27, it appears that funerary ritual was beginning its elaboration here.
Plan 9. The Hypogeum, middle and lower levels.
The Hypogeum

Chambers 5 and 10 both contain part of the original deposit which was deliberately left for the future. It now seems to be the appropriate moment to obtain radiocarbon dates from an adequate fraction of this material. The fraction should leave a fair amount still in reserve, so that some will again be left for scientists using the more sophisticated technology of a century or two into the future. On the other hand it should be large enough to produce a statistically valid picture of the dates when a representative sample of the 7000 met their deaths. This should help to verify the period over which the Hypogeum was used: so far we have to go by the pottery sequence, with an inadequate number of radiocarbon dates from elsewhere.

It was in the upper and middle levels that the bones and bone fragments were found, and although it was fortunate that Zammit was able to participate at all, it is most regrettable that we have no record of what Magri found in its context and associations, especially since it was the middle level that produced most of the finds that proved that the primary function of the Hypogeum was burial. In the temples there was no evidence of burial which was evidently tabu there.

Eleven virtually intact dolichocephalic skulls remain (Plate 12.1), but the rest were a disorganised jumble of disarticulated skeletons, bones, bone fragments and red earth. This contrasts with the neat, intact, flexed skeleton found by Zammit, certainly a primary burial. There is an obvious explanation for this disposition. Secondary burial is an established neolithic procedure, so it seems highly probable that, after a certain period, the primary burials would have filled the smaller side chambers. Presumably the 'secondary burial' occurred when these side chambers were
required for new burials, and although we are free to picture some ritual acts, the considerable dismemberment and fragmentation does not show anything beyond a rather vigorous manhandling of the material which was piled into the larger ossuary areas. In fact the neolithic 'clearing-out' had much in common with that of our own century. However, Zammit was able to perform an important service:

"Zammit calculated from a careful count of the human bones in one surviving area that between 6,000 and 7,000 individuals, together with a wealth of personal ornaments, amulets and pottery offerings, had been buried down here. They lay principally in the side niches, and although some had spilled into the central chambers, these could be considered a late and accidental encroachment into the 'cemetery chapel.'"

(Trump 1972; 64)

This was neither a guess nor a rough estimate, but a careful though inevitably approximate calculation by a fully trained and qualified medical doctor. It remains one of the most important statistics for Neolithic Malta.

To reach the lower sub-level of the middle section, we have to leave 9 by some modern steps to reach 15, as this section is about a metre lower, and apparently represents a decision to create a new section with a specific ritual and ceremonial function. These are the largest and most important halls in the Hypogeum; it is clear from the points of view of design, time and labour that they received far more attention. There need be little doubt that this was the ritual heart of the Hypogeum.

However, while going down the only passage from the upper sub-level, there is a unique feature: a stone column or pier which was left from the original rock when this section was cut out. This column is generally
The Hypogeum

overlooked, but is placed directly on the main axis of the entrance to 15 (and then 22) and must have had some symbolic reference since it is no more functional than the trilithons in the Hypogeum. Evans calls it

"a pillar of rock set on a plinth or pediment 0.55 metres high. This pillar is set at about the middle of the long axis of area 15, and from the top of it appear to spring two arches, carved out of the rock of the ceiling, which run east and west. The breadth and width of this pillar are 0.60 m and 0.50 m, and, as Zammit remarks, it was intended rather as an ornamental figure than for any structural purpose."

(1971; 49)

Since its non-functional arches could easily represent branches, and since a Tree of Life is painted in red ochre in an adjoining chamber, the most natural explanation is that the column itself also represents such a tree. To me it seems that this column really does divide the lower sub-level into two zones which can be distinguished by the degree and the nature of their finish. The western zone, rooms 16-22, has three main halls which are relatively roughly finished, but were painted with curvilinear designs in red ochre. The eastern zone, 24-27, has an exceptionally fine finish, and was conceived architecturally by analogy to the temples.

The main chambers or halls in this section have received names as well as numbers, although there is no completely satisfactory system. Dr Trump dubs 15 'the lobby', appropriately enough as it communicates directly with 16, 17 and 24, as well as with the upper part of the middle section and the passage which leads to the modern entry. Apart from its unique column, it has no other major features. 17 also has few architectural features, although an unfinished section of wall is instructive in displaying the neolithic techniques used in excavating
The Hypogeum

limestone. However, this room must have had a special function since its roof was painted in red ochre in a design which included some 14 red discs; discs or circles are extremely rare outside the Hypogeum. Some cultic activity is surely indicated here, yet it seems impossible to say what this might have been. No libation or sacrifice is indicated. However, it is not likely that the ancient Maltese suddenly decided that this cave needed a bit of interior decorating - a thoroughly anachronistic idea. In the sacred context of the Hypogeum, reinforced by passing through trilithon portals (how many man-hours of work here?), it is clear that the act of painting in red ochre was a symbolic act, equivalent to the Palaeolithic cave-paintings, and the form of the painting must be symbolic.

Room 18 is commonly called the Oracle Room. Approximately rectangular (though no carved walls here or elsewhere are straight), it has two subordinate chambers off it, and originally had a third, according to Evans, since the far end was closed off with concrete. 18 was finished extremely carefully, with flint blades or small stone adzes, and then painted with a design of curving vine-like lines and discs again in red ochre. For once Trump's comment seems inept: "we may be looking at the first doodlings of wall decoration." (Trump 1972; 61); the most serious study of these designs is that of Mr Ridley.

The most famous feature of this room is the so-called 'Oracle Hole'. This is an oval recess carved at head-height, measuring 0.65 by 0.60 m, and 0.55 m deep. It is certainly man-made, and its interior was painted with three discs in red ochre, so some form of cultic activity is hardly to be doubted. However, whether this was oracular is dubious, since the disposition is quite
The Hypogeum

different from the putative oracle holes in the temples. Both Zammit and Evans thought that the niche may originally have held a cult statuette, such as one of the carved figurines S/S 36 & 37 which were found by Magri. This is a perfectly acceptable argument, and there are other spots elsewhere which could also have held a statuette.

However, it cannot be denied that there is a remarkable acoustic effect produced by a deep voice speaking into the niche. Since it is highly likely that a cult figurine would have been addressed directly, it would be remarkable if the neolithics had not noticed this effect. In fact the resonant qualities of the rock are such that entire sentences can be clearly transmitted to 20. Consequently I suggest that its original use was to contain a cult figure, while the acoustic qualities would have been discovered and exploited quite soon by the priesthood. The exact use cannot be determined now, though presumably the reverberative qualities of the rock were used to carry the voice of an unseen speaker, adding the overtones of a boom, through to an audience in 20. This could have had the nature of oracular divination or any other form of consultation, as well as the transmission of tribal lore in initiation (puberty?) rites.

Room 20 is known as the Decorated Hall, though Ridley calls it the Room of the Hexagons; it is a large interesting hall with a number of features - painted walls and ceiling, a circular pit, two pillars, and the earlier steps leading to the third level. It has two windows opening through to the Main Hall 24, and also communicated round the back with 26. The circular pit, 22, is located in the floor and was cut deliberately as a 2-m deep pit with absolutely no provision for entering or
The Hypogeum

leaving. Its shape, including the sloping shelf, resembles that of a wide-necked jar. Zammit believed that the axe-form pendants, amulets and other personal ornaments were found here, together with the famous terracotta figurine known as the Sleeping Lady and the companion piece, though Trump assigns these to the Main Hall (Trump 1972;60). Why was a circular pit cut out of the floor here? It seems quite different from the side-chambers used for burials. Could it have been used for grain storage, perhaps the seed-corn? This is a possible hypothesis we shall shortly examine in detail. Retaining this possibility, it also seems possible that it could have been used for cultic purposes.

This interpretation is supported by two small vertical pillars carved out of the bedrock, both bearing "pitted and ochred decoration". There is no evident practical function, so they may have served some ritual purpose. Upright columns (betyls), both natural (stalagmites) and man-made, are features commonly found in ritual and religious contexts in Crete and elsewhere, and appear in Malta associated with various temples by the Tarxien phase.

Room 20 also has, on the wall facing the pit, the apparent outline of a right hand held vertically and bearing a thumb and five other fingers, which Ridley and others have considered a natural phenomenon. "It appears to be completely accidental, although it remains possible that the surface has been pecked away, however this is highly unlikely. No pigment can be seen." (Ridley 1976; 61) For a long time I too was of this opinion. However, there are three points which indicate another interpretation. Firstly, there is a headless terracotta statuette which also has 6 fingers on each hand. Six-fingeredness is still a relatively common medical
The Hypogeum

abnormality (the sixth finger is now generally removed early in infancy) and is transmitted genetically; in prehistoric times such a phenomenon must have been regarded with awe and superstition. Secondly, the hand motif is a common feature in Palaeolithic cave art, as in the Grotte de Gargus, Haute Pyrénées, where some twenty negative hands, mostly vertical were imprinted onto an interior wall by blow-spraying. Thirdly, there is no doubt that the general context, both of the Room of the Hexagons and of the middle level as a whole, is one of ritual or cultic activity. Random coincidences presumably do occur, but there is a point beyond which a healthy scientific scepticism becomes an irrational nihilism. Since context does play an important role in archaeological matters, we should accept a fair likelihood that this 'hand' is an artifact. We should also note that its height above the floor is exactly appropriate for some ritual act, possibly oath-taking.

We come now to the main painted designs of the Hypogeum, for which the criteria of context and art history form the relevant approach. I cannot accept the suggestion that these are "the first doodlings of wall decoration." There is no reason to doubt that these paintings are neolithic, so in the context of the sacred burial centre, the idea of "doodling" seems particularly inappropriate. The choice of red ochre, the sacred pigment par excellence, associated with burials from Palaeolithic times, leaves little doubt that, in this context, the paintings had a sacred, i.e. symbolic function. Although the concept of decoration is permissible for neolithic body ornaments, it seems quite inappropriate for a neolithic religious context. Neither the experts of Palaeolithic cave art, such as Leroi-Gourhan, nor art historians have described the impressive corpus of Palaeolithic paintings as primarily decorative,
The Hypogeum

though their aesthetic quality is evident. In fact the art of the Hypogeum poses some similar questions to those posed by Palaeolithic cave art. Although the neolithics usually concentrated on different forms of sacred art, there seems no good reason to treat the paintings of the Hypogeum as other than sacred art. Consequently we have to accept these inexpert but significant paintings as an integral part of their context, the Hypogeum, and to accept them as sacred art. This means interpreting the art forms as symbols.

The major contribution in describing and interpreting the painting in the Hypogeum, as also of Maltese Neolithic art generally, has been made by Michael Ridley. His book, The Megalithic Art of the Maltese Islands, is primarily a study of the carvings, reliefs, and other sculptural forms, to which we shall be returning. He also analysed the paintings, which were executed in red ochre, the blood-coloured pigment associated with burials from Upper Palaeolithic times. Although it is hardly possible to show any link between the Hypogeum itself and Palaeolithic caves, there is no serious doubt that the association of red ochre and burials, well attested in Malta, continued a most ancient tradition, nor need it be doubted that blood libations shared the same symbolism as red ochre burials.
The Hypogeum

We come next to the eastern half of the middle level, the Main Hall (24), the 'Holy of Holies' (26), room 27 and the connecting corridor to 20. 24 and 26 especially show a degree in mastery of planning, working and finishing which is almost unique for Neolithic times, and demonstrates the importance of this part of the Hypogeum. See Plates 11 and Fig. 4.

"The Main Hall here is the most remarkable room left us by the ancient Maltese. Like the rest of the Hypogeum it has been carved out of the living globigerina limestone, yet unlike all the other rooms it does not have the feeling of a cave. This is because a concave temple facade of noble and harmonious proportions has been carved out of the rock, and this combines with three long lintels which introduce the features of a corbelled vault. This is architecture: the combination of an external temple facade with internal 'corbelling' is most admirable and ingenious, and with the high polish of the stone endows this 'chapel' with an air of great serenity and solemnity." (Ferguson 1986; 155)

Trump also agrees that it was a funerary chapel (1980;143). This Main Hall was apparently entered through a trilithon of orthostats brought in from outside.

To interpret this hall, we must first rid ourselves of any idea of congregational worship: the scale (some 16 sq m) precludes the assembly being larger than, say, an extended family. It is far too small for a whole village, and congregational worship is a Christian anachronism. It is important to observe that the main ritual for the mourners was clearly designed to take place in 24, 'outside' the simulated temple facade. This area corresponds to the temple forecourts, but on a reduced scale. This arrangement confirms the continuing links between temple and burial, and implies that some
The Hypogeum

ceremonial activities held in 24 facing the facade were related to some of those held outside the temples. It also implies reciprocally that any ceremonial for the dead which might have been associated with the dead was essentially held outside; this supports the total absence of burials inside the temples or even in the temenoi. It does seem that we are facing a religious tabu probably concerning 'pollution'.

The Main Hall has a variety of features arousing speculation. Evans states that the whole interior was originally painted in red ochre except for the western wall; the colour symbolism is obvious. It has an elegant facade with a central doorway, and there is a small platform in front of it, as if to provide a raised stage for certain ritual acts. There are three subordinate chambers off the east side, each being roughly 4 sq m. Then there are three windows, which apparently enabled onlookers in the passage or in 20 to witness the ceremonies. Two architectural features have been used to create a sense of unity and harmony, the circular false corbels which run round the roof, and the trilithon principle, here applied as pilasters with architrave. A relief trilithon frames each window and each entrance to a sub-chamber on three sides, leaving the bottom open (see Plate 11.2, and Fig.4.1).

There can be no doubt that the trilithon had a major symbolic value as well as its important functional role. The Maltese temples are entered through trilithons, the passage from outer to inner courts is through trilithons, and many subordinate chambers, especially at Tarxien, are also provided with trilithons. Within the Hypogeum the trilithon is the major 'motif', and some trilithons were erected from stones brought in from outside. Here there is no question of physical function, the role being
entirely symbolic, to mark entry into a sacred space. As a symbol, its essential elements are the three units, two verticals which are rooted in the earth, and a horizontal which lies across their tops. Architecturally this arrangement defines the entry space, but this combination is also regularly applied to the carved blocks and altars found inside the temples, where it appears as a border which runs along three sides, but is conspicuously absent from the fourth, which in each case is the bottom side, that closest to the earth. There can be little doubt that in Neolithic Malta the trilithon was the major religious symbol.

The so-called 'windows' (Plate 11.2) also call for explanation. Since they are not just irregular holes but have a definite shape and are framed in a trilithon, it appears that they did function as windows. As they are relatively high in the walls, it seems that they were created for looking down onto events occurring inside the hall, not the reverse. Their existence implies the presence of onlookers who were not direct participants. As the principal events inside the Main Hall were probably funerals, we can interpret these windows as devices for acquainting children (i.e. non-adults) with the rites and beliefs practised on the occasion of a death in that part of the Tarxien community that were buried here. It is also quite likely that other ceremonies were performed here, and in such circumstances the windows would have served to separate the participants from a group of uninitiated novices, yet simultaneously to reveal the ceremonies to them.

For an interpretation of the claimed association of the subordinate chambers of 20 with the rite of incubation, see my article "New views of Tarxien and the Hypogeum" (Bonanno (ed) 1986).
The Hypogeum

It is remarkable that the left side of the facade was deliberately damaged in antiquity, not to say vandalised (Fig. 5.1). This has sometimes been attributed to further enlargements allegedly under way when the Maltese Neolithic civilisation ended. This is unconvincing: sub-chamber 25 was already in place, with 27 not much further away, and there was plenty of scope for enlargement elsewhere. This damage appears to be a deliberate act on a selected target. Nor is there any reason to believe that Bronze Age people entered this part of the Hypogeum. In the circumstances I can only find one satisfactory explanation, that this was an act of deliberate desacralisation, not one of wanton vandalism, but rather a ritual desecration of a sacred place that was to be used no more. This is a conclusion that has significant implications about the end of the civilisation; I see no satisfactory alternative.

Another important room is 26, the 'Holy of Holies' (Plate 11.1), which immediately adjoins 24, is entered through it, and continues the identical architectural style. It too repeats the theme of a neolithic temple facade on its south-eastern wall. Both facades have a central doorway between two pilasters, to the right and left of which are 'blind windows' or niches. There are differences, however. The central doorway of 26 contains an apparent porthole slab through which one enters 27; there are two conical holes in front to the left, and the floor is virtually flat, there being no raised platform. To the left this room connects with a neolithic flight of steps leading down to the third level, and also with 24. It has been claimed that there is a representation of a bull on the south wall facing the steps (Trump 1972; 63), but I remain sceptical, as is Ridley. Frankly I cannot see the bull, and the two lines, one of which bends at right angles, do not seem to represent any animal: this
with the absence of pigment I take to be conclusive. Long before Rorsnack, Leonardo da Vinci had examined his power to fantasize about the forms left by old stains on walls. At best, this 'bull' is 'non proven'.

An important question to raise about 26 is whether it was cut at the same time as 24, or subsequently. It is very strange to be presented with a second 'facade' immediately behind the first, but it does not necessarily follow that the second was part of the original design - it could have been a later addition. In most of the temples, from the Ggantija onwards, there is clear evidence of withdrawal of certain rites from the public areas into the inner courts or niches which were partly sealed off: this could well have been the case here. Even though the architectural style is extremely close, there are sufficient differences to support a slightly later date for 26, and there is also 27 which is very different, evidently later. It could be that a sacrifice was initially performed on the platform of 24, while this act was later withdrawn to 26.

There is little reason to doubt that both sacrifice and libation formed part of the ritual here. The two holes in front of the facade, originally provided with stone plugs, are some 30 cms deep: this is more than is needed to tether a sacrificial goat, so a libation of blood is implied. Two goats' horns were found inside the holes. There are no hearths inside the Hypogeum as a fire would have made the air impossibly smoky, so on available evidence we have to infer that the sacrifice and a blood libation would have supplemented the actual burial, woven into a suitable ritual of ceremony and prayer. There seems no real justification for the name 'Holy of Holies' except that the arrangement does seem to separate certain rites from the gaze of the public in 24.
The Hypogeum

In fact the outer facade performs a role similar to the iconostasis of Orthodox churches.

The final room of this level, 27, is entered down some steps leading from near the central doorway of the inner facade. This is a small dark room even today, with a raised ledge opposite the entry; this, as Evans points out, would have been suitable for holding an icon, and as this when illuminated would be visible from the south-west corner of 24, it is quite plausible to suggest that a restricted glimpse of one of the figurines could have been incorporated into some suitable ceremonial. Again as Evans pointed out, there is a perforated lip of stone above the ledge, suitable for the passage of a thin rope. Since most of the stone statuettes were provided with separate heads, and since one such standing statuette (S/S40, some 40 cms high) and even two limestone heads (S/S 38 and 39) were recovered from the Hypogeum, it seems highly probable that we have here some form of ritual consultation of the goddess, whose head could have been moved by a string controlled by a concealed operator. This too is a room with considerable resonance, though no other function is evident.

The third and deepest level of the Hypogeum is entered down a flight of steps which were apparently cut in the Tx phase. Room 20 was the earlier entry to some lower rooms which may have begun when the top of a natural chamber in the karst collapsed, the steps being added later. The most surprising thing about this level is that it was found empty when excavated by Zammit, in sharp contrast to the rest of the Hypogeum; this in itself indicates a difference in function. It has no genuine halls nor even large chambers, but has instead the elusive quality of a labyrinthine passage which is more than just a passage as it is wider and deeper, and
The Hypogeum

is partly divided into sections by septal walls. The modern walkway is a metre above the actual floors. Most of the work here is not finely finished, although there is abundant evidence of a red ochre wash. The deepest section seems to have been designed as a well, similar to but smaller than that of the upper level; I calculate its capacity as c.7000 litres. The section incorporating rooms 30-33 seems suitable neither for burial nor ritual, but rather for storage. Trump comments, "It strongly suggests storage, perhaps, in view of those high dividing walls, of something which could be walked on, such as grain." (Trump 1972:64) This is the most perceptive suggestion so far - in fact the only really acceptable explanation. The pattern here, apart from the unusual final chamber 33, is different from elsewhere; burial does not seem to be indicated, and in fact this section was devoid of bones, soil or ornaments. Since its excavation certainly involved a considerable number of man-hours, it must have been formed to a pre-conceived plan, and since in a neolithic community the most valuable commodity to store would have been agricultural produce, this is what seems to be indicated.

The theory of grain storage has the advantage of explaining the depth of the corridor, actually an asset if used for storing grain, which would be in a cool safe underground store, well away from possible thieves. It can explain that flight of stone steps which amazingly end directly in a pit nearly two metres deep; this too could have been filled with grain. It also explains why the lowest level was found empty - the bulk of the grain would have been used, and any remains, being uncarbonised (no fires), would have rotted away leaving no trace. A possible objection to the grain theory is that the Hypogeum is too damp and humid for storing grain, and it is certainly true that today water accumulates in the
The Hypogeum

lower parts of this level. The Hypogeum is cut into globigerina limestone which to a limited extent is both porous and soluble; water presumably enters and collects more readily today through cracks and fissures in the karst, gradually enlarging over the millennia. But even if true, there is a counter to this objection which completely overcomes our difficulty: this is to suppose that the Hypogeum was used, not as a granary bank throughout the year (one possibility), but as a temporary store for the seed corn. In this area, wheat and barley are ready to be harvested in early June, sometimes in late May, and if this corn (perhaps a tenth or 'tithe') were taken to be stored in the Hypogeum until the autumn sowing around November, this would correspond to Malta's dry period, so there would be no danger of water seepage and grain rotting at that period. The seed grain would simply be taken out and sown at the time of the onset of the rains. Probably in practice the arrival of the rains was the climatic signal used to determine sowing time. There is nothing difficult about accepting an association of seed corn with religion and burial: classical Greece provides literary testimony to a similar seed storage practice probably neolithic in origin. (See also Ferguson, New Views, 1986)

The terminal chamber, 33, with its four sub-chambers, does seem to have an arrangement suitable for further burials, though found empty. The water that collects here today would not necessarily have collected then: the basic geophysical situation is of karst formation in the limestone, forming over some three million years as pockets of more soluble salts are reached and dissolved. The limestone becomes increasingly porous.

-154-
The Hypogeum

Functions

We now come to analyse the functions of the Hypogeum under the headings burial, cult and storage. There seems no reasonable doubt that the initial and main function was burial. It seems probable, from the remains, that we can distinguish between primary and secondary forms. Primary burials, as represented by the intact skeleton found by Zammit, were probably simple burials within subordinate chambers, placing the deceased in a flexed position with perhaps a single ornament such as a necklace or a jadeite pendant, then covering the body with red earth brought in from outside. This probability should alert us to the potential value of even the remaining soil left in the samples. Has this soil undergone a modern micro-examination for seeds and even pollen grains? If the alkalinity which favours the preservation of bones has destroyed all palynological evidence, then the absence of water which could have helped preserve such evidence presumably shows that the Hypogeum was dry enough to store grain.

It is clear that burial was at least frequently associated with the traditional use of red ochre, probably continuing a Palaeolithic symbolism. No form of shroud or burial container has survived. Apparently primary burial was eventually followed by transferring the remains to the larger bone chambers 'of the ancestors'. It is not clear whether this was viewed as a second burial, since the main ossuary areas contained masses of bones and bone fragments in total disarray: this act may have been viewed more basically as a clearing operation to make way for further burials. However, given the limitations of neolithic equipment and the probability that, like burials in most contexts, the women played the major role, it would be reasonable to
The Hypogeum

suppose that some simple rites would have been observed before beginning the manual labour of clearing the smaller chambers and transferring their contents to the major ancestral bone heaps. It is possible, given the context, that the ritual could have become more complex: Chapman and Randsborg have recently followed Binford's idea that "with increases in social complexity, the dimensions of social position and affiliation often assume greater importance in mortuary practices" (1981:7). They also accept that certain artifacts symbolising authority indicate some form of ranking. We do not know the qualifications for burial inside the Hypogeum, but a certain age (possibly adulthood) may be supposed, while the probability that the total was of the order of some 10 % of deaths in Kordin-Tarxien indicates the burial of a selected group, perhaps members of the cult (see Discussion below). It is quite possible that burial patterns in the Rabat area, especially the catacombs, affords a useful analogy; there, burial ritual and location went by religious cult (Phoenician, Jewish, Christian).

We can confidently state that the second function was cultic, and in fact several rites seem indicated. The main halls of the middle level are not areas of unarticulated space, but each has its own form, sometimes conceived architecturally, with secondary features cut out into the rock, and designs painted in red ochre. We can fairly designate 24 as a kind of funerary chapel in which the relatives of the deceased attended the last rites. The holes and horns in 26 presumably testify to animal sacrifice and libation of blood to chthonic powers. Since no burials were found inside the temples, presumably because a decaying body was viewed, as elsewhere, as constituting a 'pollution', we can conclude that the bodies were not buried within 26 (behind the
The Hypogeum

facade), although it is possible that the deceased may have been ritually carried through the most sacred areas as part of his 'rite de passage' to become an ancestor. There are many sub-chambers off the main halls which were used for primary burials, including perhaps those off 24, although these are very close to the simulated temple facade.

Other rites are more hypothetical, yet the art and other remains indicate various other activities best described as rites or cults. There is the so-called oracle-room, although the consultation of some form of oracle is much more problematic than in the temples. The rite of incubation has been deduced from the figurine the Sleeping Lady (Fig.4.2c): this is reasonable but archaeologically unprovable, and the nature of such an act cannot now be determined, though the context indicates certain interpretations. I am of the opinion that the rooms on the right (17,18 and 20) with their symbolic art also had a ritual role, perhaps involving initiation. As the finds included two limestone heads and a headless statuette which have parallels from the temples, the religious nature of the Hypogeum and its particular association with female figurines is further consolidated. The use of red ochre in funerary contexts is traditional, of Palaeolithic origins. Finally there is a group of 56 conical objects commonly described as 'slingstones'. I find this term quite inappropriate: their size (too large), form (often perforated at one end) and context suggest ritual use, not hunting.

Finally we come to a group of practical functions best described as storage. We are confident that various objects, both religious paraphernalia and practical objects (mallets, spindle-whorls, stone rubbers) as well as horns, skins, etc, were safely and conveniently stored...
The Hypogeum

within this capacious labyrinth. However, two more important storage functions are indicated, for water and grain. It is generally accepted (Evans, etc) that at least the large cistern (33,000 litres) at the entry is best interpreted as a water reserve, and it is possible that the smaller one (7,000 litres) in level three also served this purpose. Their late date suggests that the growing population reached a period when its normal water supplies were no longer adequate for the dry summers. There is no difficulty in accepting this, though we do not know how far this represents a growing population and how far a climatic change. The storage of grain is more hypothetical since there was no chance of finding carbonised grains where fires were effectively precluded. The argument depends on structural adaptations, the context of an agricultural community that did grow (and thus store) grain and lentils, the total absence in these areas of soil or bones, and finally the total lack of any other remotely satisfactory explanation. Although winter humidity (unproved) might have rendered the Hypogeum unsuitable for the storage of corn or lentils during the winter months, this objection does not apply to its use for storing seed corn, since the Hypogeum would be dry at the precise period the seed corn needed storing. The considerable number of man-hours involved in the original excavation of the third level, together with its form - quite distinct from other areas - requires an explanation other than burial, since no bones, bodies or soil were ever found there. Since the major form of wealth in a neolithic farming community would have been agricultural produce (cf. the granaries of pharaonic Egypt), storage of agricultural produce is our best explanation.

It is evident from structural criteria as well as logic that the lowest level was the last, and it is also interesting to observe that there are two other areas
The Hypogeum

that could have been used for storing limited amounts of seed corn. The middle-level pit 22 has no normal access; this would not have been a problem if it were full of seed. Then the deep pit of 28 could have been used similarly, its earlier way of access was from right beside 22; this also provides the most logical explanation for a flight of steps which end in a pit. So it may be suggested that the process was of gradual enlargement to cater for increasing storage requirements, needed for a growing community. This is hypothetical, but seems the best available explanation.

Discussion

Perhaps the most important question about the Hypogeum, at least for understanding Maltese neolithic society and for future archaeologists, is whether or not the Hypogeum was unique. At the time of writing, nothing comparable in size or significance is known, but if another collective tomb should be discovered and excavated using current scientific techniques, a huge amount of information would be acquired which could be compared to findings from Isbister and elsewhere. Dr Trump has started to excavate Bayer's Pit, another potential hypogeum, and has mentioned the possibility that "there could be as many as fourteen other Hypogeums up and down the islands awaiting discovery." (Trump 1972; 65) Our technology for locating such time-capsules in the Maltese karst is quite inadequate: the site at Hal Saflieni was only discovered by the fortuitous chance that the building plans for the surface property included a well at a crucial position. There must be a probability that, just as the temples represent a territorially patterned activity, the same communities
The Hypogeum

would also require their own collective tombs. If the pattern of karst formation was peculiar to Hal Saflieni, there is no doubt that it was a phenomenon found throughout the archipelago, and indeed much further afield.

The initial point here is that the neolithic Maltese had a definite tendency to bury some of their dead in rock-cut tombs, though there is no proof that this laborious form of burial was the commonest. Whatever the actual population, with an average life expectancy of 30, it would be replaced three times in a single century, while with an expectancy of 25 it would be replaced four times. The chances of survival and discovery of neolithic corpses can ever only produce a small number of the total deaths, even in alkaline conditions. Using Renfrew's population figure of about 2000 per "hypothetical chiefdom territory", but increasing this particular one to allow for the unusually high concentration of temples in Kordin and Tarxien, we might have a population rising to 3000 by the late Tx phase. Taking an average population figure of some 2000 over the ten centuries spanned by the Gg and Tx phases, we have some 60,000 deaths over the millennium. Accepting Zammit's estimate of 7000 (which includes a few Zb and Mg deaths), these would represent only 11.7% of total deaths, while if we allow four generations per century (more likely for neolithic conditions), the figure falls to 8.8% of total deaths over the period. Although neither figure can be considered very accurate, they surely represent an order of magnitude which is acceptable and useful: we can restate this by saying that only about 10% of the total population living in the Tarxien-Kordin area were eventually buried inside the Hypogeum. This fits in with a related calculation by Evans that with "a death rate of 2% per annum, the group
which had the right of burial in the Hypogeum need not have comprised more than 350 people at any one time."
(Evans 1973; 213)

However, although it seems more natural to suppose that the dead buried at Hal Saflieni were locals, this is not the only possible model. An alternative model might suggest that the Hypogeum was unique and represented the prestige burial centre for the élite of all Malta and perhaps Gozo too, somewhat as the nearby Mater Dolorosa cemetery is used today. This élitist model, suitable for a chieftain society, would mean that the burials would represent under 5% of the total population.

Firstly, perhaps crucially, there is no evident attempt to represent status by suitable grave goods; the main grave goods recovered are shown in Plate 12.2. Elsewhere chiefs display their status by clothing and symbols of authority while alive, and when dead they are given distinguished burials: Bulgarian necropoleis show this even in the Neolithic. In Malta there is apparently an equality of status among the known burials, there being men, women and children at Xemxiya, with no grave goods more distinctive than a simple necklace or a miniature jadeite axe-amulet. Nor are there other evident symbols of authority, to be expected in ranked or stratified societies. As Evans says,

"Their collective tombs and ancestral cult suggest that they produced no powerful chiefs or kings, but lived rather in extended family or clan groupings."
((1959; 166-7)

Secondly, 7,000 seems an excessively high number of chieftains. Thirdly, elsewhere in Neolithic Europe large megaliths were used to construct conspicuous burial tumuli interpreted as territorial markers. In Malta
The Hypogeum

however, it is the megalithic temples which demarcated territories, and they were not used for burials. A rock-cut tomb, individual or collective, is essentially a concealed structure, quite different from the great megalithic tombs and tumuli, the English henges and the Maltese temples.

So, while the foregoing considerations do not categorically disprove the chieftain theory, we can say that the large number of egalitarian burials within a hidden collective rock-tomb probably never seen by the majority of prehistoric Maltese does establish an extremely strong probability which cannot easily be countered from extant available evidence. We can thus accept what appears to be the natural raison d'être of the Hypogeum as an essentially local collective tomb, territorially associated with Kordin-Tarxien.

This conclusion permits us to reach three others. Firstly, the estimated figure of around 10% of the deaths in Kordin-Tarxien over the millennium concurs with the fact that different burial rites were practised within a single community here. Evidence from contemporary Malagasy societies recorded by John Mach, and other anthropological sources, shows this to be a normal situation. Procelli (1988) makes the interesting point that different tomb types probably show differentiation of family groups. Rather than implying the burial of an élite who wielded political authority, I would interpret this as the burial chamber of a special religious group, an important minority who largely ran the priesthood – just as the Early Christian catacombs of Rabat were used for deceased cult members, while pagans, Jews, etc, practised their own rites in their own burial areas. In fact it is quite possible that the tradition of burial catacombs in Rabat and elsewhere goes right
The Hypogeum

back to the neolithic practice, that of a cult distinguished by its religious views, ceremonies and burial practices.

The second conclusion I draw is that if the Hypogeum was the special burial centre of an important group in Kordin-Tarxien who were also responsible for running the temples (the double reproduction of a temple facade in 24 and 26 is surely decisive), it follows that similar groups who also ran temple ritual in other communities are also likely to have had their own burial centres. Trump's suggestion that there may be some fourteen other hypogea is therefore endorsed, although clearly the number is rather arbitrary. The problem is to find them, a task for which our modern technology does not yet have the necessary techniques. It is certain that the Neolithic Maltese used more than one burial form: they had small rock-cut tombs suitable for one or several individuals, they used caves, and they also had collective catacombs (the Hypogeum at Hal Saflieni is probably the largest neolithic catacomb found anywhere), but they must also have buried the majority of their dead in other ways, probably local burial in a simple earth grave. There is no evidence for supposing that they were actively excluded from burial inside the Hypogeum. Perhaps, like the non-Christians of Roman Rabat, they were simply not active members of the religious cult.

Thirdly, the latest information from the Brocktorff Circle excavation, originally a Zb burial site eventually monumentalised in the Tx phase, raises the important question as to whether this process may not have had parallels at Hal Saflieni and elsewhere. At Hal Saflieni too there were rock-cut tombs of the Zb phase before the karst system was opened and developed, and there was definite use of megaliths externally, so we may believe,
The Hypogeum

if not prove, that the development was similar. It is also quite possible, even likely, that other megalithic circles elsewhere in the islands were also T3 phase efforts to monumentalise older funerary areas. The survival rate of circles is probably lower than that of temples, but the possibility that megalithic circles do indicate neolithic burial centres is of considerable importance to archaeology and our developing knowledge of these people. Evans has suggested that It Tumbata may have been a circle rather than a temple, and in his Catalogue of Sites (Evans 1971) suggests further possible circles at Mellieha, Ta Zammitellu (Mgarr) and Bir id-Deheb (Zeitun). To these we may add the second circle noticed by Brocktorff "further down the Hill" and in line with the Brocktorff Circle and the Ggantija (Evans 1971; 181, citing Brocktorff's original letter). Whether the Houel original No. 416 represents a circle, a temple or something else is not clear. (Fig 12).
TEMPLE FUNCTIONS

"The repetition of specific architectural solutions to ritual requirements implies the primary existence of certain prescribed rituals forming part of a set of funeral ceremonies, themselves embodied in some form of religion with a fairly well organised structure."

Stuart Piggott (1956 ; 177)
It was in 1956 that Prof. Piggott, addressing the Royal Institute of British Architects, suggested a new approach to the study of megalithic monuments, one in which the buildings would be treated in terms of function rather than the traditional preoccupation with the morphology of their ground plans. Likewise Fleming has astutely observed in an important article,

"It has become traditional to concentrate on the morphology of ceremonial monuments, establishing relations based on similarity and discussing the causes of these patterns in terms of invasions or waves of influences. If one may be permitted to borrow an analogy from physical anthropology, to do this is to treat the phenotype as if it were the genotype. In fact these two factors should be sharply distinguished. ... With ceremonial monuments, the search for the basic design ideas, whether seen as sets of spatial requirements or as diachronic sequences, is essentially an attempt to see beyond the phenotype; it must be continued." (1973; 190)

Despite occasional attempts by researchers like Fleming, this stolid, rather stereotyped approach still predominates, yet surely here too we have to try to move beyond mere description and classification towards interpretation. To help in this task, there are useful parallels to be drawn (cautiously, as suggestions) from both early historical societies and contemporary anthropology. As Piggott said:

"all architecture, however primitive, is essentially related to function, and is a durable three-dimensional setting for some human activity. ...first... we are dealing with a form of primitive architecture directed by human motives differing in degree rather than kind from those known in historically documented societies, and secondly, (that) this architecture was designed, consciously or semi-consciously, as the monumental setting for
certain ritual performances, which themselves must have controlled the formal planning and spatial relationships of the component elements in the composition. (Pigott 1956; 176)

To this insight I would only add the rider that here too we have to try to envisage a diachronic process: that the temples themselves underwent an evolution of at least a millennium, from simple to complex and sophisticated forms, and that accordingly we should try to see function developing pari passu with developments in rituals and ceremonies.

Before examining the temple interiors, it is essential to form as accurate a picture as possible of their exterior arrangements. It seems generally to be the case that each temple or temple-complex stood in its own grounds separated off from outlying land by a wall usually constructed of megaliths. Zammit says, "They all have a semi-circular forecourt and were originally confined by a high wall of monoliths that in many cases have survived to our days." (Zammit 1929, 1980; 8), and he found the remains of "a huge temenos wall" of several courses at Tarxien. There are similar remains at many other temples, including Mnajdra and Ggantija (Plate 15.2), while there are still the remains of a megalithic wall immediately adjoining HQN (Plate 15.1). Even where the walls still stand, they remain undated. We would not expect shrines, the temple-prototypes, to have their own grounds, and these temenos walls were probably added later, perhaps, like the megaliths of the Brocktorff Circle, in the Tarxien phase. Yet the arrangement at Ggantija where the forecourt was extended and built up in the Tx phase, closing the megalithic entry painted by Brocktorff (see Plate 15.2), suggests that the ceremonial entry there could have been Gg phase. These walls, equivalent to the Greek temples periboloi, served to cut
off sacred territory from the secular, and the use of megaliths again suggests that they had the second function of defining the group territory. We are unlikely ever to know if other temples had a ceremonial entry to rival that of the Ggantija. As in the case of Greek temples and medieval churches, the sacred ground may have carried the right to sanctuary. We may suppose that the whole temenos lay at the heart of each local (clan?) territory. In many cases (Tx, HQ, Mn) we know that the temenos contained lesser buildings, often referred to as 'priests' houses'. I prefer to apply Burkert's idea of the banqueting houses of Greek temenoi, though there is no proof.

The forecourts themselves were probably almost as important as the temples (see Plates 2.1, 13.1 and 13.2). This importance explains the concave temple facades. In fact they are really more circular or elliptical, extending from the temple facade right up to the temenos wall if the occasion demanded it. At Ggantija and again at Sk W, the forecourt was built up by moving soil from other areas. These forecourts normally had torba flooring near the temple, and this at Mnajdra extended 7 metres to outlying bedrock (Evans 1971) and then another 40 metres without torba to the wall. The temple facades must have formed the backdrops to important rites and ceremonies: Ceschi's reconstruction of Tx W (Fig.2) gives some idea of their impressive monumentality.

It is difficult to prove the exact nature of the forecourt functions. Forecourt size itself is a solid indication of considerable assemblies, and seems suitable for whole temple-communities. Eliade says, "les vastes terrasses elliptiques qui s'étendaient devant ou entre les sanctuaires, servaient certainement pour les processions et la chorégraphie rituelle." (Eliade 1987;
Although we cannot prove, it is equally difficult to doubt that they were used for a variety of ceremonies and assemblies: among these I suggest major religious ceremonies, assemblies equivalent to folk-moots for general decision-making and the hearing of cases, and festivals including music and dance which all peoples share. Some evidence for sacrifice is proved by the great perforated 'tethering-blocks', surely most suitable for cattle, and libation is another established rite. The 'divining-blocks' at Tarxien provide further enigmatic suggestions. As Trump says, "the monuments presumably served as foci for the ceremonies which marked off tribe from tribe." (Trump 1983; 72-3) This must be the reason for the differentiation in ritual unambiguously attested in the archaeological record. While there is no 'hard' proof for these suggested functions, that the various communities did have their own customary laws, religious festivals and ceremonies can hardly be doubted, and the deliberate, repeated design of facade and forecourt surely provides their most probable setting.

The accepted developmental sequence of the temples themselves is that traced by Evans and Trump from an initial small trefoil to a 5-apse plan (gained by adding a pair of apses in front of the trefoil), and subsequently reducing this in the Tx phase to a 4-apse form with a niche, representing the final or terminal apse. This sequence does apparently satisfy the mainline development of most of the temples. However it appears that there was also a minor sequence involving bilobed temples. The main architectural experience inside the Maltese temples is of being inside an oval or oblong court which has a central axis and two symmetrical wings, and which communicates with interior and exterior through trilithon doorways which are just under two metres across. There are many such paired courts - at HQ, Mn,
even Gg S, and especially Tx C, where an oval court seems to constitute the major architectural sub-unit: its plan shows the repetition of three such units. Only at HQ C is an apparent effort made to close off one or both of the wings. This bilobed plan could perhaps have evolved from temples such as that represented by the small bilobed model temple found at Mgarr. This minor sequence apparently runs parallel to the accepted major sequence developed from the trefoil. It could, as suggested by Cutajar (1988) have evolved from an oval hut-shrine.

Inside trefoil structures there is no sense of progression; we may suppose a differentiation of function between right and left side apses, although to precise its nature is difficult. Gg S, in its trefoil period, must have been unique in allowing a sense of movement, though not of progression beyond the sense of progressing from one ritual to another. Trefoils such as THW with its area ratio of 176 sq m. show the typical provisions for smaller groups; its three 'apses' are similar in size, the terminal one has an actual area of about 20 sq m., and could not have contained a larger group than an extended family. We are probably correct to envisage a ritual procession from one apse to another, though we cannot here determine the nature of the rites, nor indeed whether the body of the deceased would have been present in the case of funerary ritual. Gg S has easily the largest individual apses with real areas of between 50 and 70 sq m., and thus could have accommodated proportionally larger groups: this surely represents the greater size of the Gg community, though perhaps not proportionally. In any case it is not a question of congregational worship: this anachronistic idea is precluded by the scale.
Temple Functions

With the addition of an outer pair of chambers, a real sense of progression along the main axis was made possible. The shortest axial length is 7.5 m at Mn E, and the longest axes are those of Tx W and Tx C at 23 m and Gg S at 26 m. In Tx C any idea of processional is precluded by the blocking stone with its oculi motif. Support paving slabs lie along the long axis, as at HQ, Tx W, Gg S and THW. Axial length depends on the width of the lateral courts and on the length of the terminal apse, but also included the lengths of the passageways through the entry trilithons. However, any idea of processional along the main axis and into the terminal apse has to be discounted, for the Tx phase, by the introduction of stone screens in front of that apse, and sometimes by its reduction to a niche. It is also negated by the apparently 'normal' development of placing the outer pair of apses for larger groups next to the entrance, and, at Tx W, by the presence of a central hearth in court 1. Gg S is unique in having its larger pair of apses internally, so here it is really possible to envisage processions up to the terminal apse 7, though this was screened off by the Tx phase.

However, although in many cases we must discount the possibility of processional groups moving up to the terminal apse, there is nothing to prevent our accepting the idea of relatively small groups collecting in the forecourt and passing (walking or dancing) in procession through the entry trilithon at least into the outer pair of courts, and in some cases into the inner trefoil. Giulia Sorlini was the first to mention the ethnographic studies of the Fang By R.W. Fernandez in relation to the prehistoric temples of Malta. Though such interesting ethnological comparisons cannot either be proved or disproved in archaeological and scientific terms, we have here passed into the field of comparative religion with
its own discipline. We can hardly suppose that such major collective enterprises as the Maltese temples were undertaken without their having in mind specific collective activities inside: we have therefore to suppose some such activity as described for the Fang. The details necessarily elude us, but here we are studying human religious behaviour, and suitable analogies are helpful, not in supplying details lost forever, but in portraying the kind of activity we may reasonably expect.

The major axis of each temple is its longitudinal axis, but there are also the transverse axes to be considered. Breadths range from 6 or 7 metres (TxE, HQN) up to 18 metres (Sk W, T Q, TxW, TxC) with the maximum again at Gg S, with almost 24 metres once again the largest are between 3 and 4 times the size of the smallest. Evidence of paving along transverse axes is frequently lacking, and is certainly not common: examples are found in Tx W and Tx C, and perhaps in Mn S and Gg S. The busy outer courts of Tx W were probably completely paved in antiquity, although the arrangements of 2 with its huge cult statue are not completely clear. Complete paving survives in Tx C 9, 10 and 12, and this supports the probability I raise that both the apsidal trilithons were open earlier until the north-west trilithon was closed with a single large orthostat. The south-east trilithon was evidently left open as an alternative entry. The presence of hearths on top of the paving slabs implies continued use, presumably public, while the great thickness of those slabs implies that a long future was planned for them. The blocking-stone which forbids entry to 14 is accepted by Evans and Trump as implying the reservation of the inner courts for the priesthood who may have entered via the secret staircase between 12 and 21.

-172-
The next point to study is how typological development helps us to interpret use, i.e. changes and development in ritual. Compared to the bilobed form, the trefoil form seems rather more specialized, with the terminal apse opposite the entry giving it a more self-conscious appearance. In comparing the disposition in different apses, it is important to note whether the apses are relatively closed in form (like a broken circle) or open (like a semi-circle or a section through an oval). Of two original Gg phase trefoils, the terminal apse of Gg S has the open, and that of T H W the closed form. The closed form of the apse implies ritual activities that were relevant only to the celebrants, withdrawn into the immediacy of the rite, while in the open apse there is less sense of mystery and secretness, more sense of the dramatic, of displaying to others the performed rite. Again, scale makes a difference: both the great size of Gg S and its internal furnishings make it possible that different groups could have been active simultaneously in a single apse, which is not feasible for T H W. A terminal apse between two courts gives a certain centralisation to the structure: it is easy to think of members of the priesthood turning to face a group and perform rituals in a dramatic manner in Gg S.

Yet evidently this potential did not develop. The next phase saw the addition of a pair of outer courts which normally, as at Gg N and Tx W, were larger than the inner courts and thus presumably designed for larger public groups. This apparently had the effect of providing a larger area for the various rites, which were normally performed by groups varying from a mere handful up to a size equivalent to that of an extended family. At the same time, the inner courts became smaller (compare Gg N to Gg S), and the terminal apse was progressively reduced to the size of a flattened niche, while screens
were introduced into the older more open courts. A similar development was the use of porthole slabs, seen most typically at Mnajdra and Hagar Qim, which were frequently the only means of entering inner or subordinate chambers. Greater detail on the ritual aspect follows in the section on temple furnishings, yet we may already note that we seem to be examining a development with two aspects. Firstly there is an apparent increase in specialisation of ritual, between the outer courts with their more public functions, and the inner courts which are increasingly closed off to the general public, and apparently controlled by the priesthood for less popular, more developed and introverted ritual. Secondly there is a deliberate withdrawal of these rites from public gaze. The central apse does not develop into a focus suitable for congregational worship like the adyton of classical temples, but instead its importance is steadily reduced until it is little more than an appendage required more for architectural necessity than for liturgical or religious requirements. Its former role (as at Gg S) seems to be taken over by the two inner courts which are not normally visible from the outer courts. By the Tx phase it seems that many of the rites were not held on, but instead perpendicular to the main axis.

The final architectural feature which can help us is the doorways. The standard entry to a Maltese temple is through a trilithon composed of two uprights about 2 m apart and a lintel. The lintels are large, sometimes massive, slabs with at least two dressed and flat surfaces; although many are no longer in situ, some (as THW, Plate 14.1) seem almost ostentatiously impressive, while others harmonize better with the upper courses. It appears to be the case that the lintel, as standard practice, was easily the largest orthostat raised off the
Temple Functions

ground (presumably by hauling and levering it up an external mound of earth); thus these lintels can be measured and their weights calculated to give an idea of the numbers of people required to provide the necessary mechanical force.

We have seen that the earliest building style is Cyclopean, but as this style could not have solved the problem of the doorways, it seems likely that in the early stages (Gg S) the builders must have had recourse to wooden timbers for the doorways. Skorba and Tx C provide evidence of the use of wood for the roofs (a logical requirement, given the heavy winter rainfall in Malta), but apart from roofing I am not aware that the use of wood has been considered - for the obvious reason of its much shorter survival time. It is possible to construct small doorways to shrines using smaller stones; the girnas prove this to a point, though in a different and later style, but they too require lintels of larger stones trimmed flat. As the temples developed in size, unhewn stone would become quite inadequate. We do not know the time-lag between the first Cyclopean shrines and the first use of trimmed othostats, but, since shaped orthostats necessarily require the development of the knowledge and skills required for quarrying and transport, it hardly seems possible to accept a period shorter than a couple of centuries. Gg S, as we have seen, shows both styles and the size that could present real problems round the doorways. To me it seems probable that the slabs that form the entry to the inner trefoil (two metres across) were added later, to replace a more primitive and unsatisfactory structure perhaps employing wood or mud-brick pillars. In any case, the trilithon represents the perfect solution to the architectural problem and is the first major engineering innovation of the Maltese. Stability requires three rectilinear
orhostats with the two uprights solidly based. With the lintel in place, the form has great stability (see Stonehenge) due to the weight and strength of the stones, and building can safely proceed above the lintel (in Tarxien the facade was probably about 10 metres in height). Once the trilithon solution had been created (a stroke of neolithic engineering genius), it was rapidly adopted throughout both islands as the standard form. Nothing shows better how closely the neolithic Maltese were in touch with each other and in touch with the practical problems they faced.

With the exception of the porthole-entries to Mnajdra, the trilithon was thenceforth used for all main doorways. When the outer pair of courts were added at Gg, they were naturally given their trilithon at the new main entry, and, as frequently elsewhere too, the passage was extended by having three trilithons in series. This was partly required by the thickness of the wall with its backing fill, but was also sometimes preferred where the wall was thinner, as at Tarxien. This probably shows an adaptation of the formula for religious reasons: the temples were undoubtedly regarded as sacred space, the doorway must have been regarded as the portal into a sacred area. This is proved conclusively by the use of trilithons in the Hypogeum where they have no structural role. An extended doorway into the darker interior would increase the religious atmosphere (like the porches and vestibules of churches), and this would be further increased for those who went on into the inner trilithon. Accepting that there was roofing, the interiors must have been relatively dark, quite unlike their present situation. It also became standard practice to pave these passageways with flooring slabs which were regularly continued along the long axis of the courts, even when the courts themselves were left with torba. As a general
rule, the outer public courts were more likely to be paved than the interior ones (see Gg S, Tx C).

I shall next examine the furnishings and contents of the Maltese temples. Since we cannot remain at the descriptive phase of temple morphology, I shall attempt to develop an interpretation of attested ritual activities by means of selected analogies.
B. The Evidence of the Temple Contents

The temple furnishings give the most important aid in interpreting temple functions: indeed without them, especially the various statues and figurines, we would be relatively uncertain that these buildings were actually temples. The furnishings are almost entirely of limestone, although it could well be the case that wood originally played its part, while the thousands of sherds testify to the regular use of ceramics inside the temples. The major furnishings are described as hearths, altars, niches, figurines, portholes, betyls, screens, etc, though their modern names are not always a safe guide to their functions. The doorways often have smaller holes in their orthostats which are interpreted as rope-holes as well as larger opposed ones: these were probably all concerned with closing the entry at times with some form of door or leather curtain. Various horizontal slabs have holes perhaps for libation or tethering animals, while holes carved through or between large orthostats have been interpreted as 'oracle holes'. Other rather smaller vertical slabs, generally around 1 - 1.5 m in height, are the so-called portholes, all of which lead inwards to a smaller court, recess or niche.

Generally there is no particular regularity in the distribution of these features among the different temples, though many of the differences must be due to the differing circumstances of their discovery and excavation. We can be sure that most of the major features at Tarxien (except any in wood) survived to be excavated by Zammit, and equally sure that we do not have the full picture for HQ or Gg. Ta Silg must also be incomplete because of its many alterations and its
Temple Functions

continued use into the historic period. Nonetheless, enough evidence has survived to demonstrate considerable local variety, without any particular centralized control. It appears likely that each temple had its own special features, with its own form of ritual and ceremony developing around the furnishings. Yet, as with the architectural forms, the contents are clearly Maltese; the picture is one of local variations on certain major themes shared by the different communities. It is the total contents that form the major proof that these buildings were temples; the apparently continuing use of Ta Silg as a temple into the historic period provides some supporting testimony.

a) The Hearths.

Here we are on firm ground, certainly as to function. Fire causes reddening of Maltese limestone through the oxidation of iron compounds, so where we have reddened circular stone structures at ground level, these are certainly hearths. The best example is in Tx C (Plate 17.2), where, interestingly, it is placed in the central area 9, in front of the blocking stone carved with oculi: there is the clear implication of making an offering. In Tx W there is a red-stained circular depression in one of the central flagstones, also presumably a hearth. Another example is in Gg S 5, showing very well in the Brocktorff print. There seem no good grounds for doubting that these fires had a major role in sacrificial ceremony; after the animals had been ritually killed, they would have been roasted, entire or after dismemberment, over these hearths, and the meat distributed among the rather small groups attending the ceremony: presumably those making the offering and members of the priesthood. Charred animals bones from Tarxien provide solid confirmation. Placed in the inner right court, that of Gg S could go
Temple Functions

back to the earliest trefoil stage of the temple, while that at Tx C seems, in its central position, to have been placed after the paving and the blocking-off of the inner courts. These hearths, it seems, represent more public rites, and it is likely that others existed, perhaps outside the actual temples to avoid the hazard of fire. Probably no temple was without its hearth.

b) The Altars and carved blocks.

These have been found in almost all of the temples, and can for convenience be divided into two groups, those built into the temple walls, and those found standing free in various positions in the courts. The Concise Oxford English Dictionary provides the following useful definition of altar: "a flat-topped block for offerings to deity; Communion Table." Such blocks can have various heights and be used for various forms of offerings; in the context of an agricultural community, the natural offerings would be of their domesticated animals and their crops. Since deities do not themselves consume the offerings, the common meal of the worshippers naturally follows the initial offering. Doubtless the Christian communion has its roots in such ancient practices, further proof of extreme religious conservatism. Certain portions would be traditionally selected to offer to the deity, not necessarily the most 'honourable' portions: the Greeks burnt various inedible parts (including intestines) and described the ensuing smoke as an offering rising to the Olympians. Not all of the offerings were necessarily edible, though this was frequently the case: the offering led to the communal meal. Offerings were both solid and liquid; the communion wine described as blood shows substitution for actual blood. Sociologically, the key feature is the common action, the communal meal, serving to consolidate social
Temple Functions

bonds. In Malta the limited size of the courts precludes large assemblies of villagers inside the temples; congregational worship is a later feature. The external buildings called 'priests' houses' could, as suggested Burkert, be houses for communal meals.

By far the richest collection of flat-topped stone blocks comes from Tarxien (Plates 8.1, 16.2, 18.1, fig.4). In Tx W, blocks Beta and Gamma to the right and left of the entry to the inner trefoil are described as altars by Evans, and can be confidently accepted as such. Both are about one metre high with flat upper surface and vertical faces beautifully carved with spiral relief carvings of the Tx phase. The testimony of the charred animal bones and the obsidian knife found by Zammit in the secret compartment of Beta establishes their association with animal sacrifices, while the carving is mature Tarxien style; unfortunately movable blocks cannot be used to determine the dates of the courts. Altar Beta is placed directly in front of a rather specialized niche set between two orthostats, and is formed of two outer sets of slabs arranged as trilithons which frame an inner slab which is a miniature porthole. Whether this ever contained an icon cannot be known, but it seems very probable that offerings to the deity were put there. The repetition of the trilithon theme on this reduced scale is evidence of its symbolic importance. Although Tx W is the richest in carved blocks, their use is not generally clear. However, the presence of the great cult statue of the goddess in 2 makes it likely that the carved slabs in its immediate vicinity were used for placing offerings. Here the context leaves little doubt of the sacrificial interpretation.

Of the other carved blocks in Tx W we cannot be so confident, though here too a sacrificial context of some
sort is possible. Perhaps different kinds of offerings were placed on the different blocks. The friezes of animals in particular suggests either a sacrificial interpretation, or else that the temple may, as in contemporary Sumeria, have owned its own flocks; indeed these interpretations are not incompatible. The animals represented are the domesticated animals of these peasant-farmers: goats, sheep and one pig (Plate 16.2). Since Zammit discovered in the temple niches horns which closely resemble those on the friezes, the sacrificial rite is securely established. However, cattle were not represented on these friezes though actual horns were found. The absence of a differential animal bone count is most regrettable.

A final remarkable frieze from Tx W is the largest of all, being about 3 metres long, and carved with a double row of running spirals in the mature Tarxien style (Plate 8.1). Its position is particularly interesting: it lies right across the entrance to the often rebuilt terminal apse, protruding well into 4, and effectively cutting the apse off from the public much like the communion rails in Christian churches. Though there can be no proof that it was used for making or receiving offerings, it apparently divides the area into an outer public zone and an inner one for the priesthood. The substitute now in its place has weathered badly in half a century, further evidence for the original presence of roofs. The central niche of apse 6 would have been composed of two pairs of slab trilithons, one inside the other. Either or both of the horizontal slabs could well have been used for making offerings to the deity.

The excavation of Tarxien also produced three upright stone objects, described as querns, now in the Tarxien Temple Museum (Plate 23.2, 24.2). Two have

-181-
Temple Functions

concave sides, with an outline very similar to the seven objects carved on the plinth of the Goddess (see Ferguson, 1986), while the third is more like a convex pillar with a base and a capital; all have a slightly concave upper surface which could have been used for grinding corn, and these surfaces do appear to have been used for grinding. But if they were really used as querns, they were very specialised, since the upright form is far too unstable to be practical for the vigorous action required to grind substantial amounts of flour; neolithic querns were usually placed on the ground and were flat or flattish, several examples from Neolithic Malta are preserved (often of lava). Since they came from the Tarxien precincts, I conclude that their unusual form implies a specific use, and since the plinth of the statue shows seven such objects, we have a Neolithic association between the cult statue and these upright querns. It would be inappropriate to remain seated while making an offering, so the conclusion has to be that these querns were specifically made so that the corn could be ground into flour while standing. This would be a ritual offering only used for small quantities of corn and flour, and thus we should see these objects as much as altars as querns. Their form, though not elaborate, is similar to that of the floral altar at Hagar Qim, so it appears that the Tarxien community based their ritual on wheat and barley; the existence of a quern with seven compartments integrated into the temple at Kordin III (Plate 23.1) implies similar concerns in this nearby (possibly parental) community. Trump comments,

"To me the implication seems clear that it was the community's grain being brought into the temple to be ground under the immediate protection of the community's deity. There was almost certainly a strong social element in this communal grinding of the daily flour." (1983; 73)
Temple Functions

Hagar Qim also offers an interesting set of altars. Most familiar is 'the floral altar' found in court 1 (Plate 20.1). The theme of a plant growing up from a pot, repeated on all four sides, is surely significant: presumably the plant was considered sacred (medicinal, hallucinogenic or aromatic properties?) and possibly placed as an offering on the concave upper surface. The two 'mushroom altars' (Trump calls them table altars) are also interesting, though not an exact pair. The more elaborately cut top of the left one does support use as an altar (a fluid, possibly blood, is certainly implied). There are differences in their stems which likewise imply some difference in ritual use.

H Q also has a unique structure set in its outer wall, 15, (see Plate 21.2) best explained as an altar as it is recessed into the wall by two pairs of orthostats, and approached over two substantial slabs as if used regularly. The focal point of this 'room' is occupied by two stones, at the rear a cylindrical stone about two metres high (originally higher) and in the front a smaller block about one metre high which tapers downward. Its flat upper surface would be suitable for offerings. The whole structure is apparently a shrine of the Tx period, and the combination of betyl and downward-tapering stone suggests some fertility cult ritual. It is exceptional for a shrine to be built into the outer walls, as if to separate it from the activities inside.

Mnajdra too is rich in stone blocks whose size, situation and form suggest that they were altars. Mn S contains some interesting combinations of upright cylindrical stones placed between two horizontal slabs (Plate 20.2). Their size and situation, as in 2 and 3, is appropriate to use as altars, although here the distinction between altar and niche is hardly valid. It
Temple Functions

would also be possible to interpret them as some kind of pillar cult, though even their Tx date is too early to permit any suggestion of Minoan influence. I prefer to see them as local Mn variants on the basic religious need for an offering table.

The Ggantija temples are like those of H Q and Mn in having been 'cleared' rather than excavated, so this presumably accounts for the loss of some of their original furnishings. The Brocktorff drawings are our best and earliest evidence, and show some blocks now missing and others whose carvings (Tx style) are now badly weathered. Here the classification of altars and niches breaks down completely: the series of three in Gg S with their flat horizontal slabs at the end of the huge apse 6 seem quite appropriate for offerings (Plate 17.1) although Evans refers to them as 'slab niches', and they are paralleled by another group of three in Gg N (Brocktorff), implying the same rite. Lower flat blocks, especially in 5 and in front of 7, drilled in the honeycomb style, can also be interpreted as altars, although some evidently serve to separate off room 7, and the number of altars required must have been limited. Yet it is quite likely that the presentation to the temple of a beautifully hand-carved block would itself be seen as meritorious. As in Tx W, it is the outer courts that had the most carved blocks, and it is reasonable to expect larger groups to require more space for their offerings, though unlike Tx W it is the inner courts that are the largest. There is a difference in the ornamentation of the blocks, some have the drilled 'honeycomb' style, while others show the fully developing curvilinear style associated with the mature Tx phase. This is not necessarily just a question of artistic styles, as it could indicate a differentiation of functions, though it seems impossible to say what: it is likely that new rites
Temple Functions

did develop in the Tx phase. Judging from its many furnishings, Evans thought court 2 was the most important of all, and certainly there is evidence of considerable ritual activity; however the modern emptiness of others such as 7 could be due to a variety of circumstances.

It is clear that we cannot always be confident which blocks were indeed altars: siting is probably the most reliable criterion, though form is also significant - the table slabs, for example, do seem specifically designed for offerings. Carved blocks are much more ambiguous, and often, as in the Ggantija, appear to demarcate sub-zones from one another. At Tx W, however, the close relationship of certain carved blocks to niches and even the cult image makes their use as offering tables decidedly probable. There is nothing particularly difficult, problematic or 'mysterious' about the concept of making offerings: the act is a well-known religious phenomenon, with the clearly implied request (sometimes stated explicitly) of a 'quid pro quo' from the deity.

c) Niches

These have already been introduced as there is no absolute distinction between niches and altars, at least in the case of the smaller trilithon slabs. The word 'niche' is also used to designate the space of a much reduced terminal apse, which is an architectural feature, not part of the furnishings, and it is again used for recesses of varying sizes, normally concave or rectangular in section. As part of the furnishings, niches are frequently directly associated with altars and indeed their most common form is the trilithon arrangement of three flat slabs. In many of the cases the horizontal slab was probably used to receive the offerings, while the space enclosed below it, the niche
Temple Functions

proper, was frequently used as a kind of cupboard to store objects associated with the ritual. Although Evans calls the structures in Gg S 6 'slab niches', I would prefer to call them altars as their central position in an open court indicates an orientation towards them (Plate 17.1). Tx and Mn S are particularly rich in niches, and at Tarxien Zammit was able to demonstrate their direct association with sacrifice by his discovery of the horns and bones of domesticated animals. Some niches are in concealed areas, others are in public courts: the latter could have had leather curtains concealing their contents. We have also to remember that there must have been a considerable use of ceramics in association with ritual activity, certainly for rites associated with liquids and perhaps also grains, etc. These vessels must have been stored in such places, just as Christian chalices have been for nearly 2000 years.

The contents Zammit commonly found inside the 'cupboard-niches' of Tarxien were frequently animal remains, mainly horns and bones. These temples must have witnessed thousands of animal sacrifices over their centuries: although a great part of the inedible remains must have been discarded immediately, certain horns and bones were evidently selected for 'storage' in these niches. It is a great pity that those found by Zammit were not retained, since radiocarbon techniques could have determined the dates over which the sacrifices occurred: at least selected samples could have been kept. It is also likely that niches would have been used for storing other items associated with religious rituals, such as special clothing, but nothing of this has survived.
d) Cult Statues and Figurines

Here there is one outstanding piece of evidence, the colossal statue found in Tx W 2, described by Evans as follows:

"The figure must have been about two metres high when intact, but has been quarried away. The traces of the wedges used can be clearly seen. The feet are broken off in front, but there is a well-marked instep on what remains. The figure was undoubtedly portrayed as seated. Some of the statuettes found at Tarxien give a good idea of what this figure must have been like when complete." (Evans 1971; 120)

This (see Plate 18.1) was a crucial find. It establishes beyond any reasonable doubt that the Tarxien buildings were indeed temples, and also that these people had reached the anthropomorphic stage in their religious development; Zammit called the statue an idol. The dating of this statue is far from exact, nor can we say whether it was carved in situ or elsewhere. The original must have weighed a ton or more, which was certainly a weight they could have handled, and similarly it is likely that it could have passed through the doorway. With all the problems of relative chronology at Tarxien, one can only say that an estimation of mid-Tarxien phase is acceptable. In any case, it is one of the very earliest pieces of monumental sculpture in the world, and was probably unique for its size in Malta, though we cannot discount prototypes in wood (xoana). I have suggested that she would have been known by some title like 'Our Lady of Tarxien.'

The next step is to discover more of the characteristics of the remains. Evans is surely correct to link it with the smaller stone statuettes found in Tarxien and other temples, especially Hagar Qim (see
Plate 19). I shall proceed by distinguishing the whole surviving series of stone figures from those made of clay. Clay was a commonly available material, easily worked and relatively fragile, while carving in stone was more laborious and produced a more permanent result. Typologically too, there seems a clear distinction between the formal, rather hieratic postures of the figures carved in stone and the freer, more natural poses of the clay figurines. In classical Greece too, this distinction was observed between the use of marble for religious monuments, and clay, which was typically chosen for ex-votos or such charming domestic terracottas as those from Tanagra. Yet it seems clear that in Greece wooden xoana preceded statues in stone or marble. In Malta, I suggest that stone was used to portray deities, clay for mortals, at least as a general rule.

The most detailed analysis of the 'Maltese Goddess Figures' to date is that of Dr C. Biaggi, the title showing her conclusions about sexuality:

"About thirty of these figures ranging in size from 20 cm to about 3 metres have been found in the late Maltese temples and in the Hypogeum. Most of them were carved from Globigerina limestone and then painted with red ochre. They seem to be a product of local development, for there is nothing quite like them in the Mediterranean." "There are basically two varieties of figures: nude and clothed. The nude figures share certain characteristics. They are all represented as being enormously fat, with huge buttocks, bulbous thighs, legs, arms, and forearms, a corpulent chest and tiny hands and feet. A further feature is that they lack all sexual characteristics, either male or female. They appear in various positions and stylized poses. There are standing figures, and squatting or seated figures with legs folded to the left or right.

The seated figures average 22 cm in height. Hands are placed gracefully either at the sides or on the folded legs. Some figures lack heads but have a hollow socket between the shoulders for a separate head." (1986; 131 - 2)
Temple Functions

The problem of their sexuality is also reviewed by Biaggi. "There are diverging opinions concerning the sexuality of the Goddess figures, for they lack primary sexual characteristics. The nude figures do not have apparent breasts nor evident vulvas... Furthermore, the vulvas of the figures are not visible in the seated or standing figures because they are obfuscated by the fat." (1986; 135 - 6) To which one should add, and by their position.

In this matter we must accept standard medical practice of distinguishing between primary and secondary sexual characteristics, both sexes possessing both. The absence of male genitals precludes any positive identification of these figures as male, as does the absence of beards, a secondary characteristic. Indeed, throughout the whole Neolithic period, the percentage of male figures is minute in comparison with those positively identifiable as female. On contextual grounds in the Neolithic, we expect to find females. However, in the stone series, in contrast to the terracotta figurines, there is also an absence of identifiable breasts, nor is the pubic triangle displayed as in the earlier figurines from Skorba. This has led Kininmonth to claim the figures as eunuchs, while E. Manni, though accepting the figures as related to "la dea steatopigica", also relates them to hermaphroditic cults, which seems anachronistic and unjustifiable.

Manni must be held correct in accepting them as portraying a "dea Steatopigica": medical authorities (see B. Houssay, Human Physiology,1953) accept steatopygy of the thighs as a secondary female characteristic, while male obesity typically first develops round the paunch. It is the normal practice of anatomists to distinguish
Temple Functions

between the sexes on the evidence of the bones of the pelvis, and it is precisely the obesity of the pelvis and thighs that is displayed here. Sociologically too, the position of the knees of the seated figures is characteristically female: the knees are always kept together, frequently to the left or right. Secondary male sexual characteristics are the typical beard, not seen on a single Maltese figurine, and a narrower pelvis, the exact converse of what we have here. The lack of beards, the very broad pelvises and the typical knee position all point unambiguously to their representing the female form.

Why then are breasts not shown, as in the terracottas? The answer, I suggest, lies partly in the age of the females concerned, coupled with a lack of concern with sexuality, and an evident desire not to portray the nursing, nourishing functions of younger mothers. Even Dr Biaggi has not considered their age, which I consider a feature which reveals important sociological characteristics of this early Maltese society. There is a clear distinction between the human types represented by the terracotta Venus of Malta (a young woman) and these figures whose obesity and hieratic poses represent senior members of their community, women of status and responsibility. We cannot age them very accurately, but none of them seem to be under thirty, and some perhaps forty or more; they evidently represent women who have borne children and put on weight with the years. Again we lack adequate osteological information for life-expectancy in Neolithic Malta, but, from what is known of other neolithic communities, it is most unlikely that a substantial percentage of women would have survived to be forty, while the number reaching fifty would have been very low: the problems of child-bearing and general neolithic hygiene makes this virtually

-190-
certain. So, women of the type portrayed would be senior members of their society, 'elders' whose experience and knowledge of tribal traditions and customs would have been as important in the respect they gained as their earlier fertility. These Maltese Goddess figurines represent mature and wiser women who had survived the vicissitudes of early adult life, sex and reproduction, and had reached an age which by Neolithic standards would be relatively advanced. There is no evidence on whether the menopause was often reached in Neolithic societies, nor whether it occurred at the same general age as today; the reduced breasts could represent the changed hormonal balance, though this could equally be a sculptor's convention: in either case an older and wiser woman removed from the sexual passions is presented. The general archetype represented is satisfactorily clear.

It does not seem constructive to try to type these religious figurines according to names used elsewhere, and in any case we are not looking for a religious conformity hardly achieved before the great empires, let alone any kind of monotheism. Terms like 'Great Mother' or 'Earth Mother' generate more heat than light when used out of a strict context, yet although we are assured that a 'universal Great Earth Mother' has been disproved, nevertheless there is no disputing the evidence that female figurines account for over 90% of neolithic anthropomorphic figurines. A satisfactory term used by Biaggi is the 'Maltese Goddess Figures', which can sometimes be made still more local as in my own suggestion, 'Our Lady of Tarxien.' Some such term as 'Our Lady' was probably sufficient for Neolithic people, and is supported by early Minoan and Greek terms 'potnia theron' and 'potni' Athenae'.

-191-
I discussed the Tarxien statue in Bonanno ed., 1986. The evidence of the plinth with its relief work points to a goddess associated with cereals and ritual querns of the type excavated at Tarxien. This has a close parallel with Trump's interpretation of the communal quern at Kordin as used for grinding daily flour; again we see the closeness of Kordin and Tarxien in ritual. The implication is of a goddess associated with cereals and the fertility of the tilled earth, a proto-Demeter. Demeter, we should remember, is described in the Homeric Hymn as being past child-bearing. There are other strong hints in Malta of agricultural religion and ritual that have Greek homologues in Demeter and the Eleusinian Mysteries (these must have neolithic roots). As in the study of comparative religion as a whole, this is not a discipline in which a positivist scientific approach has proved either fruitful or appropriate.

Biaggi states, "The lack of sexual characteristics might represent the result of a process of evolution from figures whose power as sacred images lay in well defined sexual characteristics, to figures whose power lay in their opulence. The sex of the figures may have been deliberately left out to concentrate on the most important thing - the fatness and therefore the opulence and sanctity of the figures." (1986; 137) Though agreeing with the trend of this interpretation, I find that there is no real Maltese evidence to suggest an evolution from fully sexual forms. It is perfectly possible, as with the Greeks, that the stone statues were proceeded by wooden xoana; though there is no evidence to support this, we must remain aware that the amount of perishable material was great. Perhaps their fatness does represent their opulence, but where Biaggi claims it shows sanctity as well, I would prefer to say that this Maltese obesity, the mark of well-nourished individuals and perhaps a
Temple Functions

well-fed society, was probably taken as characteristic of older and wiser women who had high status in their society, and that the transference of these characteristics to the Maltese deity was an expression of their power. Deity has to be seen here as associated with the conception of a power expressed by fertility and opulence. Biaggi also says, "She could represent the Goddess as queen, sitting properly gowned and adorned on her earthly throne." (1986; 133) This is a clear anachronism, as it is hardly appropriate or justified to speak of queens in Neolithic society: Biaggi appears to have reversed the probable development.

The Italian scholar, Prof. E. Manni, writes, "Qui troviamo tracce di culto della dea steatopigica..." (Manni, Fra Malta e Sicilia, in Kokalos 22 - 23; 127.) This article makes clear that he basically accepts that these Maltese stone figures do represent a goddess which he relates to similar forms in the Mediterranean Neolithic and later, especially in Crete. However, he feels an ambiguity in these figurines: "...si potrebbe postulare una fase di transizione al culto della dea, di cui appunto queste figurine asessuate sarebbero un precedente logico anziche una specie de astrazione." (Ibid, 128), and he goes on to postulate a possible relationship with hermaphroditic forms. But the known hermaphroditic divinities were considerably later, and, as in the medically abnormal humans of whom they were largely projections, possessed both female breasts and male genitals. His argument about 'asexual figurines', which do not necessarily include abstraction, would in my opinion be better seen as relating to the desexualizing process associated with the final hormonal balance achieved after menopause. It is worth pointing out that the Greek evidence of the Homeric Hymn to Demeter and our knowledge of the Eleusinian Mysteries portrays Demeter
Temple Functions

specifically as a woman past child-bearing, a nurse who was not a wet nurse, and explicit ritual (repeated in the Mysteries) has her remaining seated on the ground. Similarly her followers, though married women, had to maintain ritual purity by abstaining from sex during her festival. The two cases are too similar to be explained away as 'coincidence': the seated figurines from Hagar Qim, however we try to read them, would certainly have been seen by the Greeks as representing Demeter in this characteristic position of hers, seated on the earth.

The similarity is further strengthened by the associations of Demeter and the Maltese goddess with grain. My interpretation of the reliefs on the plinth of the Goddess at Tarxien would seem subjective if querns of the same outline had not been discovered at Tarxien itself, and this precise context, in an agricultural society, means that the oval forms on the plinth are best interpreted as grains. This association is further supported by the stone 'trough' from Kordin III, first seen by Ashby as a quern for grinding corn. Are we to accept as 'coincidental' the seven compartments at Kordin and the seven outlined querns at Tarxien, or are we dealing with a lunar calendar? As we have seen, Trump accepts the Kordin trough as a quern, but he also adds the rider that the case would be strengthened if each temple or territory could be shown to have its public quern. For me this begs the issue by assuming that the Maltese temples and rites should have been uniform, whereas the evidence is against uniformity. (The slightly later Harappan civilization in the Indus Valley does demonstrate real conformity.) Apart from the overall similarity of the temples and the goddess figurines, the variety in Malta is quite as evident as the similarity: the furnishings indicate that while each temple is recognisably Maltese, there was normally and
characteristically a differentiation of rites from temple to temple. We have already seen the strong, probably filial relation between Kordin and Tarxien, and it seems likely that the ritual association of temple and grain was developed in Tarxien from Kordin origins.

The other temples show no real evidence of an association of cereals and worship. If it is possible that grain could have been offered on the floral altar at H Q, this seems to be belied by the floral motif. In fact any altar block could have been used for offerings of grain or almost any other product. However, the agricultural context of neolithic farmers who had both wheat and barley is certainly appropriate to this interpretation. Further, the role of Demeter and Ceres as 'corn-goddesses' has been well known for over two and a half millennia. Though Greece and Crete are relatively far from Malta, a neolithic origin for Demeter as for Ceres is clearly indicated (Pausanias refers to secret rites to Demeter inside a circle of unhewn stones, which must be neolithic in origin), and though influence from Malta on other regions would be very hard to establish for the prehistoric period, Sicily does represent a major area where such connections could be sought. Influence or no, the Maltese Goddess certainly has a homologous role to her Greek and Roman counterparts, and may perhaps be seen as a proto-Demeter. However, such names raise as many problems as they solve, both linguistically and semantically; the important factor is the function they filled in the human society which created them and developed their rites. In fact literary evidence referring to Greek prehistory establishes reasonably clearly a period reaching well into the second millennium when the process of religious anthropomorphism had not yet reached the stage where deities received personal names.
Temple Functions

e) Portholes

This term is used to designate slabs of a metre or so in height which have been skillfully cut to provide them with a "window" which is large enough for a stooping adult to pass through. These slabs are characteristically found in the south-west of Malta, especially at H Q, Mn and Tx. They are normally found in the interiors, marking the transit from an outer chamber to an inner one. This passage was deliberately made difficult, and may sometimes have been closed by a curtain to keep the general public out of an inner area reserved, as it were, for the priesthood. At Mn C there is a unique arrangement with a large porthole forming an alternative entry beside the regular trilithon. H Q perhaps has the earliest examples with portholes, of which some probably go back to the Gg phase; they are found in courts 2, 3, 5, 7, 10, and 13. Those in 2 and 3 appear to date from the alteration associated with the reversal of the main axis, and 6, 10 and 13 also represent late Gg phase alterations according to Evans; the phenomenon here probably dates to the final two centuries of the fourth millennium. With the exception of 13, all these portholes lead to inner reserved areas.

This too is typical of Mn S which has two true portholes, of which that leading to 3 is rightly famous for its fine construction and honeycomb finish (Plate 20.2). Here chamber 1 evidently represents the public area, while 3 could represent a miniature trefoil. 5 also represents a secret chamber where it seems unlikely that the public were admitted. In all of these examples, the portholes seem part of the process of screening-off and reserving special inner areas for more private, even secret rites. While the trilithon represents the normal entry open to the general public, the porthole appears to
Temple Functions

inhibit entry, restricting it to a minority, presumably
the priesthood. Room 5, as well as having its own altar,
communicates with 1 through an 'oracle hole', so
evidently the adviser or specialist used this sub-
chamber, whatever the actual nature of the communication.
This could have been medical, to judge from the ex-votos.

The Tx phase Mn C has a unique dual entry, one
the trilithon, the other the large porthole, both leading
to court 3, the 'public area'(Plate 13.2). Here it seems
certain that some ritual peculiar to Mn C is indicated,
and this feature is further proof of the individuality of
the different temples. It does not seem appropriate to
postulate a more difficult access to the temple for the
priesthood. Here, at least, another solution is required;
the suggestion has been made that the porthole slabs were
associated with the dead. This suggestion is supported
archaeologically by the porthole slabs found by Zammit
near the original entry to the Hypogeum; it is also
supported by the links in funerary ritual between tombs
and temples. While there was evidently a tabu on burying
the dead within the temples, to be associated with ideas
of physical and religious 'pollution', this in no way
precludes a funerary rite in which the deceased was taken
by his family for the last time into the local temple,
into the presence of the deity. Early societies typically
possess special rituals to mark the 'rites of passage' at
the main events of life: birth, the attainment of
adulthood (usually at puberty), marriage and death. While
the worship of the Goddess was a characteristic of the
living, on death began the passage to the afterlife and
the status of ancestor, and this was no longer associated
with the temples, but with the collective rock-cut tombs.
This is not presented as archaeological proof, but as
sociological probability. The traumatic event of death,
the psychological readjustment of the survivors, and the
Temple Functions

difficult process of rebirth into the next world could thus have been symbolized by a rare passage through such a porthole, accompanied by suitable ritual. There would be no real problem either in the regular passage of the priests through these portholes if the ancient testimony of Hinduism is relevant. Their Brahmins are traditionally described as 'the twice-born', and actually undergo a rebirth ceremony.

Two other porthole slabs are in Tx W, both in court 7, one leading through to 8. These follow the same pattern, and it seems that 8 had important links with the sacrifices. Evans comments:

"Zammit records that when room 8 was excavated a deposit of 'animal bones' and 'neolithic' pottery about 0.30 m deep was found all over the area, above which came a level containing Bronze Age remains connected with the cremation cemetery. The recesses were also packed with bones, especially horn-cores, but contained also some stone mortars and cones, and two triangular stone objects.... In Prehistoric Malta he adds the detail that the bones found here were all 'half-charred' (1930, p 21) so no doubt the remains of sacrifices." (Evans, 71; 125)

In Tx C, court 13, which contains the unique animal friezes (Plate 16.1), shows a variant; two orthostats have had stone 'windows' carved out at ground level. One of these communicates with the exterior, the other with 8. They are quite atypical in that the hole is down at ground level. Here again there was considerable evidence of sacrifices, especially horn-cores and bones. Zammit thought these holes could have been associated with piglets, linking them to the animal frieze. This is an interesting possibility: in fact the deliberate dissociation of Christian churches with animals should in no way be taken to mean that neolithic temples, like those of India, might not have been regularly associated with living animals which were considered sacred.
This name has been adapted from Semitic contexts, especially associated with the Phoenicians and the Hebrews; etymologically it derives from "bait-El", i.e. House of God. In fact these cylindrical or conical stones are well known in a variety of contexts, and the archaeologist could hardly distinguish them from the Hindu stone lingams still venerated today; nor should they be dissociated from Greek herms. Symbolically these stones denote an erect phallus: 'ligam' means phallus, while herms frequently are ithyphallic. 'Betyl' is a less denotative term, though the symbolism is not less evident. Yet in no case is the symbolism purely denotative, it has connotative associations of which the most important is male power. The use of this term in the Maltese context can be criticized, yet, though such cylindrical stones do not have other material evidence for their interpretation, their contextual association with temples is established, as is their role, so analogies with similar structures of other peoples is likely to be helpful. The appropriateness of male virility to late neolithic fertility cults and 'husbandry' in general is evident. Yet, in a religious context, their role transcends sexuality, and has important social implications.

It is not possible to date Maltese betyls with any precision. All known examples, with a possible exception from Mnajdra, rank as movable furnishings, yet at H Q the betyl of the external court 15 (Plate 21.2) is associated with the 'late reconstruction' of court 5 and the oracle recess (see Evans). Since this is the only example really integrated into a temple structure and is late, there is a strong suggestion that the rites associated with betyls are of the Tx phase. For the archaeologist there is
considerable difficulty in deciding which such stone structures are to be termed 'betyls', since few Maltese examples have survived intact, but most have been broken off at some point on their shaft: we may suppose that the top was normally rounded off.

One of the oldest Maltese betyls could be that from Gg S, now in Rabat Museum (Plate 22.1), although it too may have been associated with Tx phase furnishings. It may have come from court 2, Evans says: "La Marmora believed that the conic stone (G/S.1), which the excavators found with the two limestone heads (G/S.2) lying at the foot of this niche, originally stood in it. ... It was distinctive between the other stones for its smooth form and good preservation." (Evans, 71; 174)

H Q has the broken betyl in 15, already described, while the lower part of another, 1.45 m high, is in 10 and is described by Evans as "a cylindrical column" (Plate 21.1). The term 'column' is better applied to the weight-bearing architectural form; there is no evidence for such columns in Neolithic Malta. The Hypogeum does have the stone shaft at the entrance to the middle level, but there is no evident relationship. Tx C has the base of another betyl placed on a flat stone in 12, next to entry to 13; its phallic symbolism would have been completely appropriate to the fertility cult which has been suggested for 13.

Two main points appear to link all these Maltese betyls, they are associated with public chambers and they are probably of Tx phase. The betyl of H Q 15 is unique as an external altar, as though the cult was open to the public but not yet completely assimilated into recognised temple ritual. That of Gg S was probably in the outer court, as is that of Tx C, where it was specifically not
Temple Functions

shut away in the inner chambers. Only H 0 10 appears different, though it is not obvious that this court was private; it could have been built to accommodate this cult, especially if Evans is correct in supposing that its present position, at the focal point of the chamber, was its original position. A similar cone-shaped object 1.4 m long was noticed by La Marmora in 1836, probably either here or in 2. In any case, and whenever the betyls were erected, an active cult is suggested, especially at Hagar Qim.

In 1968 Italian excavators found a large betyl, 1.30 m high, some 30 m to the left and slightly in front of the Tx phase temple at Tas Silg (Fig.7). It was directly associated with a large monolithic basin some 5 m long. Azevedo noted that in later times "the planimetry and the general situation of the area was respected" despite major alterations (in MaiaM 6, 1969; 118 trans. Fales). Suspecting a symmetrical arrangement in the forecourt, the Italians looked for and in 1970 found another betyl in the equivalent position to the right of the forecourt. Azevedo comments:

"The baetylus was not only preserved out of respect for its antiquity and for its connection with the most sacred cultual edifice; it was also considered a cultual object in itself. On this point the evidence proceeding from the excavation is very clear. ... (this) is proved both by fragments of votive baetyli, moulded into a cylindrical shape, found in the area, and by the effigy of a baetylus on the fronton of an aedicula." (Ibid; 119)

This important evidence from Tas Silg, involving forecourt design and planimetry, establishes unambiguously a betyl cult: this is further confirmed at Tarxien by Zammit's finds which included the base of a betyl in Tx C, court 12, and various fragments of
Temple Functions

modelled phalli (Plate 22.2), two of them actually tripled. What is their significance?

Working from the base of anthropological evidence provided by Frazer, Malinowski, and others, I have suggested that a knowledge of the male role in procreation cannot be assumed for prehistory (Ferguson 1986); this is also the view of Gimbutas, and had been mentioned by Childe in 1951:

"As neither male personages nor phalli were thus represented in Palaeolithic and early Neolithic cultures, it may be assumed that, as among some contemporary tribes, the part of the father in reproduction had not yet been appreciated." (Childe 1963, 67)

A major diachronic study (from prehistory on) has recently been published by the French scholar Prof. J. Dupuis, Au nom du père, 1937. Using archaeology, mythology and early written sources from hieroglyphs to Sanskrit, Dupuis has given much greater detail while reaching the same conclusions. He has also provided a wealth of anthropological supporting evidence ranging from Asia and Africa through Europe to the Americas and Pacific. His conclusion is essentially that the concept of paternity was first discovered in the Neolithic of the V millennium B.C. (Egypt, Indo-Europeans, China), and gradually spread outwards, being associated in its progress with a major sociological development, that of monogamy and the patrilinear family, by the Bronze Age. Here we have the study of an ideological phenomenon linked to a well-known early anthropological feature; does this relate to Neolithic Malta?

If such an ideological and social transformation were to leave evidence in the archaeological record, it is surely in religion and cult that it is to be sought.

-202-
Here in Neolithic Malta, at around 3000 BC when the first principles of stock-breeding were well-established, we have the appearance in many temples on both islands of a cult centred on the phallus. Since we expect early neolithic societies to have been matrilinear and, very probably, matrifocal since most ancient times, we may well wonder whether the appearance of this new cult does not relate to something deeper than a 'fertility cult'. I suggest that these phallic 'betyls' were in fact the symbolism of a new ideology originating in the recognition (probably deriving from stock-breeding) of the male role in procreation, and becoming the symbol of a new and more important role for males, duly leading to the male dominance typical of the Bronze Age patriarchal societies. While 'hard' formal proof may be impossible to establish, nevertheless we do have the appearance in Malta of a cult, which elsewhere lasted into the historical period, and at a time lying significantly between the matrilinear societies of the Neolithic and the emerging patriarchies of the Bronze Age. According to Dupuis, with whom I agree, this was a global process, traceable among Chinese and Semites as well as Indo-Europeans. I see the Maltese betyl cult as indicating the beginnings of a new social order in Malta, leading eventually to a new role for males.

To date the only serious critic of interpreting these cylindrical stones as betyls has been E. Manni, but he tries to interpret them as a Minoan-Mycenaean-type pillar cult, which calibration now virtually rules out. So we fall back on his other alternative, "Se si trattasse veramente di betili ... saremmo di fronte ad un fenomeno di eccezionale interesse" (Manni in Kokalos 22-3, 1976-7; 128).
Temple Functions

g) 'Oracles'

An intriguing feature of several temples is an architectural arrangement referred to as consultation of an 'oracle'. Such arrangements are found in HQ 5 (Plate 6.1), Mn S 1, Mn C (Plate 7.2) and Tx E 20. Mn S 1 shows two particularly fine examples (Plate 7.1). In each case we have a small rectangular hole cut right through the lower part of the large inner orthostats, giving a limited means of communication with an apparently secret cell hidden or concealed between inner and outer walls. This arrangement is precisely suitable for some act of communication (such as consultation, conferring or confessing) between a member of the public and a member of the priesthood hidden from view and thus impersonal, a device to conceal the personality and preserve anonymity. However these structures are to be interpreted, there is no doubt of their importance, integrated as they are into the temple structure itself.

Although built into temple structure, there is no proof that any of these 'oracles' is earlier than Tx phase; even at HQ the changes associated with 5 and its link to 16 probably belong here, though this does not preclude an earlier practice. Tx E has an example with a rectangular hole cut low into two orthostats. The access to the secret rear chamber was apparently via the staircase between 12 and 21, and therefore belongs in this form, to the reconstruction of the temple's west walls. Since Tx E was found virtually devoid of furnishings, it seems probable that the 'oracle' was its main function, latterly at least. However it is Mn S that shows the greatest development. To the right of 1, a porthole slab leads to a large sub-chamber 5, which
contains a niche with altar as well as having the opening for the larger 'oracle hole'. Here, both holes were cut through an orthostat and show on their court 1 surfaces an additional rectangular recess apparently cut to contain a stone which concealed the hole. The second hole communicates with 6, which is a small recess entered through a rear trilithon between the two temples, so it appears to have been planned no later than the construction of the outer walls. The second hole may imply a development in the cult.

The Hypogeum has also been associated with an oracle, though the disposition of 20 is completely different, and in fact the niche which transmits deep voices could have started as a niche for an icon: the one does not preclude the other. It is simplistic to suppose that the neolithics were unaware of this effect, but it could have been used for various ends, and I suspect that this region of the middle level could have served for initiations. Nor is there any necessary connection between this room and the Sleeping Lady, probably found in 22. I have argued elsewhere for a different interpretation of this figurine, though an association with dreams and their interpretation is equally possible.

Mnajdra may provide the best lead to interpreting these 'oracles' in the terracotta figurines found there. Whether Zammit is correct in seeing these as pathological conditions or whether Gimbutas is right in seeing them as figures representing pregnant women near full term is not as important here as the fact that both see them as medical conditions which in all societies require advice and consultation. Mnajdra therefore suggests the possibility that the consultation suggested by the architectural disposition could be for medical reasons, with members of the public consulting a 'medicine-man' or
Temple Functions

a 'sage femme' through the hole, under the auspices of the deity. However, Mnajdra is the only temple to have provided such (votive?) figurines, and since it has two 'oracle' holes, we could be justified in interpreting one as a specialisation in medical advice and treatment, and the other as having a less specialised role. This could be advice about general problems and concerns, including perhaps such matters as charms, curses and love-potions, or it could be concern about the future, the wish to know more about it and to influence it. The terracotta figurines from the Hypogeum could also be ex-votos; their general context makes this quite likely. If so, they could represent ritual incubation, or they could represent the problem of infertile women as I have suggested elsewhere. But the two are not necessarily incompatible: barrenness could be a reason for resorting to ritual dreaming, and so could anxieties over the future. Probably in such an early society we should not seek too much specialisation of function.

h) Blocking-stones and Screens

These are typically flat thin slabs placed vertically in selected positions, and are frequently adorned with carvings. Many apparently belong to the Tx phase, and seem to be adjustments to existing furnishings as required by developments in ritual. Unadorned examples are seen at Ggantija, where they appear to cut off the terminal apse, just as altar rails (or the high iconostasis of Orthodox churches) serve to separate or shut out the general public from an inner area of greater sanctity. They are also found at H Q 2, 3 and 5 where they screen off an inner area which is reached through a porthole. In fact, as at Mnajdra, a porthole should probably be seen as a type of blocking-stone which excludes all but a special minority.
Temple Functions

At Mnajdra the porthole slabs are decorated with 'honeycomb' drilling, an early form of ornamentation, but the others referred to so far are undecorated. The final stage of screening-off certain areas from the public is shown at Tarxien C, where a carved vertical slab deters entry into the two pairs of inner courts (Fig.5): that this stone was successful in its function is suggested by the lack of wear in comparison with its modern replacement, and also supported by the flooring - torba inside, flagstones outside. The stone is carved with a pair of antithetical 4-turn spirals that suggest eyes (Plate 25.1). Evans refers to them as prophylactic eyes, which seems appropriate to their appearance and situation: everything points to a religious tabu on crossing that point. Since the inner courts are rather late Tarxien and were rebuilt with some use in mind, we are obliged to suppose that the priesthood gained entry elsewhere, presumably taking advantage of the staircase between 12 and 21. A similar stone with double oculus motif was found at Bugibba, where it may have had an equivalent role.

The final development of the carved screens is represented by the extremely fine pair of screens from Tx C 14 which extend the entry without more than limiting the access to the side chambers and restricting the view of actions in the interior (Plate 25.2). They have the usual border round three sides, and show spiral curves on a background of small drilled holes originally filled with red ochre. In each case there is a central disc (very rare in Maltese art) with one pair of 4-turn antithetical spirals above and another pair below it: these would all have originally been off-white. They are not identical as one has three pairs of triangles at the sides, the other one pair centrally top and bottom, and two pair of 'horns' in opposed central positions. Their
Temple Functions

fine design and finish, with their refined composition, implies an elaborate symbolism so far unread. It has been suggested that they double the oculus motif, two pairs of eyes, two goddesses who witness every action performed within. This is acceptable, and implies a great degree of ritual purity for those allowed inside; beyond this we cannot yet penetrate their mystery further. Formerly other such slabs existed.

i) The Monolithic Bowl

This unique bowl was originally near the western apse (Plate 17.2) in court 14, near a hearth where burnt sacrifices were offered, repeating the public hearth of 9 in this secluded chamber: fire certainly remained a key element symbolically. But Zammit found no clear evidence to indicate its function, which remains obscure. Most skillfully carved only a few centimetres thick, it is almost one metre high, has four bosses, and repeats on this larger scale the Tarxien carinated bowls. It was obviously designed to contain liquid, but whether this was water (another element important symbolically) or perhaps a fermented drink such as mead or a barley beer is quite uncertain. In the context of an agricultural people's temple at Tarxien, probably dedicated to a goddess associated with cereals, a barley beer is more likely. In the ancient Near East and Egypt, the brewing of beer was practised in temples, and large quantities were consumed at the great festivals. It is possible that we have an early example here. Perhaps micro-analysis of deposits from the interior may eventually provide an answer.
Temple Functions

Conclusion

Because of their mastery especially of globigerina limestone, the temple-builders created a rare and precious document which, if we can interpret it correctly, can provide unusual detail of certain aspects of their communal existence. This document is formed by the temples themselves, with their contents and furnishings, many of which have survived because they are made of stone. Did the Neolithic Maltese choose stone for its durability? The smaller remains in stone are chiefly the cult statues, the altar blocks and the hearths. They were associated with bones and horns (sometimes charred) of sacrificed domestic animals, and at Tarxien even the sacrificial knife. These finds, with the dimensions of the public courts, indicate sacrificial offerings, ostensibly to the goddess, by small groups as opposed to the truly communal activities among which we can include the building of the temples themselves, and the ceremonies and assemblies for which the concave facades and forecourts were clearly designed. These larger group activities surely also had the function of establishing group solidarity by the creation of rituals and ceremonies which, if sharing a general similarity, also served to distinguish one temple-community from another through particular variations.

Another type of material remains is constituted by ceramics, especially 'vases' and containers of a variety of shapes and sizes. Our techniques for reading their uses are still primitive, though Sherratt has observed that Maltese ceramic types do not seem to indicate the 'secondary products revolution'. Nevertheless, we have such an impressive range of quality vessels that Evans has postulated a specialised production by 'temple potters'. The size as well as the quality of some of
Temple Functions

these vessels is remarkable for pottery made without the wheel, and surely indicates use for appreciable numbers within the temples or their precincts (Plate 24.2). At present it is impossible to say what their contents were, whether liquid or solid (grain?). For the largest container, the monolithic bowl, I suggest as possible use the preparation of an alcoholic drink such as a beer or mead for ceremonial consumption. They were surely containers for some form of comestibles which, in their temple context, were aimed at communal consumption. Among smaller vessel types is a carinated bowl or cup with handle, found in large numbers and in most temples, and always broken. Evans considers this the ritual breaking of a vessel made for use at a single ceremonial occasion and subsequently broken to prevent desecration by profane use.

The temple precincts were separated from secular land, generally by a megalithic wall or peribolos, with one or more temples placed centrally in the enclosure: this shows the reservation of land for 'sacred' (i.e. group) ceremonies for which the precincts were clearly designed. Rituals would have included processions, whether dancing or walking. The common, perhaps normal, presence of a precinct wall of megaliths served to separate sacred ground from profane as in Greek and Roman practice: Greek walls separated the temenos from profane land, and the etymology of the Latin 'templum' meant 'to cut off, separate'. The existence of an area consciously designed for large assemblies is shown both by the concave facades and the elliptical forecourts which were often partly provided with a torba floor, and at Ggantija extended to the temenos wall. The central position of the temples could well be an adaptation for the common religious rite of ceremonial perambulation, which at Tarxien could have passed between
Temple Functions

Tx W and Tx C until the closure of the western trilithon of courts 9-12. Piggott says, "Dancing had an importance in all forms of primitive religious ceremonies and the two forms of the dance were the processional and the circular." (Piggott 1956; 181) No attempt has yet been made to examine the temple surroundings in the temenoi for earth compacted by dancing; archaeologists generally see mainly the kind of thing they are looking for. Larger group activities surely had the function of reinforcing group solidarity by the creation of rituals and ceremonies which, if sharing a general similarity, also served to distinguish members of one temple-community from another. It seems likely that the religious aspect with cult figures of the goddess reflects the ideological element.

Perhaps the major value the temples provide is their evidence for the existence of real communities and their collective actions, both in the act of building and in the subsequent daily use. Atkinson observed that megalithic monuments like Stonehenge

"do, in a sense, provide evidence for that self-conscious awareness of social unity which, in the absence of contemporary documents, is otherwise lacking from the purely material remains of the prehistoric past." (Atkinson 1956; 141-2)

While the enormous scale of Stonehenge implies pan-tribal organisation and activity, the number, the much smaller scale and the 'cellular' nature of the Maltese temples implies local creation and functions, much as the parish churches do today. Both the weight of the largest megaliths and the size of the forecourts (where clear) give important indications of real communal activities, while the interior temple courts provide a scale for the smaller units making sacrifices and engaged in other activities there. There is no known structure which
implies pan-tribal functions: the surviving evidence is for much smaller local units differentiated from each other by locality, rites and ceremonies, but sharing a common general culture and ideology.
"The temple-culture is seemingly at the very apex of its development when it disappears, sinking in the stream of time like a stone and leaving no trace. Its successor has completely different traditions, technical, religious, aesthetic."

John Evans (1953,168)
The Alternatives

A major problem surrounding the culture of the temple-builders has been its end. While temples were built throughout the Ggantija and Tarxien phases, this activity apparently came to a 'sudden' end around 2500 BC. We have 17 temples datable to the Gg, 15 (all in Malta) for the Tx phase, and none thereafter. While 'suddenness' is open to dispute, there is no doubt that we have found no temple datable to after c.2500 BC, and subsequently that the islands were in the hands of a different race (with bronze or copper technology), one which did not construct temples, though at times they used the Eneolithic temples (Tx, TS, BN), but perhaps only Ta Silg for religious purposes. The nature of the problem becomes more apparent when we remember that the existing evidence points to a high population in the Tx phase, well above what was normal for the late Neolithic. Immigration has to be accepted as the means of the initial peopling of the archipelago, and a corresponding emigration has been postulated at the end of temple building. Here the problem is that no stone temples of Maltese type have been found anywhere else, and that other indications of Maltese emigrants (pottery, etc) are extremely scanty. A major source of difficulty is that we still have far too few radio-carbon dates for both the late Tx and the TC phases; this lack is equally true for Sicily and S. Italy, the most obvious place for emigrants.

Even the literature is slight, reflecting the scarcity of real information. Since the BA newcomers possessed some arms, Zammit argued for war (1930) which was inconsistent with his earlier theory of a long period.
between the end of the temple-builders and the arrival of the TC people. Evans entertained other possibilities, while retaining a certain preference for war: more consistently, he argued (1971) for a short period between the two peoples. These two attitudes display the true nature of the situation, that hard evidence is extremely scarce; consequently hypotheses have flourished.

The most detailed overview to date is Trump's in 'The Collapse of the Maltese Temples':

"Summing up the factual evidence as it stands at present, we see an advanced culture, producing remarkably sophisticated architecture and sculpture for religious purposes at a remarkably early date, collapsing with what looks like catastrophic suddenness. It was succeeded by an immigrant culture, brought by a new people who absorbed nothing from their predecessors on the island. A few sites were re-used, but for new purposes. The break in tradition was absolute, with only a single minor exception, that both people had contacts with the makers of the Thermi bowls, wherever they lived. This extraordinary state of affairs cries out for explanation, if prehistory is to be anything more than a simple catalogue of changes in material culture. Many explanations have been offered, based on political, social, economic or religious changes. All are possible: unfortunately at this stage none is provable" (1976a; 606).

Trump's use of words like "nothing" and "absolute" seems inaccurate in light of the evidence discussed below, and the "catastrophic suddenness" is debatable.

It is also Trump who has provided the most complete analysis of the different explanations proffered about the 'collapse', the possibility of war with its variant of social instability, disease, economic factors, ecological factors, and the religious factor sometimes described as 'religious hysteria', but seen by Trump as a revered prophet leading an influential priesthood. Taking war first, Trump comments:
"Zammit preferred war, and Evans inclined the same way, while mentioning other possibilities. The cemetery people were revealed as foreigners, and armed, so the interpretation followed naturally. There is no other evidence of warfare until several centuries later..." (1976a; 606)

Even if possession of Malta had been gained through war, it seems difficult, as Trump points out, to believe that a policy of racial extermination was then possible, or even desirable. We might expect at least some ceramics, perhaps the Pellegrin ware, of the temple-builders to have continued: none has been found in the few known TC level sites. Given the (current) total lack of material evidence for warfare, this hypothesis should be set aside.

Trump next considers the variant of "social instability, leading perhaps to insurrection and civil war, the cemetery people appearing on the scene only after internal strife had cleared the way. Evidence has been adduced from developments in the temple architecture for an increasingly restrictive priesthood (Trump 1966;51). The evidence is, frankly, slight, and there is nothing to support the view that the tendency, even if it existed, was resented. A revolt against an entrenched theocracy there, disastrous to both sides and followed by renewed immigration, is certainly a possibility, but virtually unprovable." (1976a; 607)

Even Trump's reference to a 'theocracy' is doubtful in the light of updated views on theocracies in Mesopotamia which weaken the whole theocracy concept. As the temple evidence at Gg goes back to the Gg phase, and
in the total absence of evidence that the priesthood was resented, this hypothesis too can be laid aside.

Trump equally shows the reason for discounting disease and epidemics: a major epidemic like the Black Death in medieval England would leave little or no archaeological record, but that only killed one in three - the civilisation continued. He goes on to review economic factors, deforestation, failure of the regular rains, and the religious factor. I shall now examine these together in proposing an ecological solution. But Trump himself leaves the issue wide open, whereas I think there is sufficient data, including some of Trump's own considerations, to propose a solution.

If we examine man's relationship to his Maltese environment, there are certain inescapable conclusions. Prof. Fedele suggested (2nd Malta Conference, 1988) that there was already stress on the environment in the Skorba phases. I do not accept this, since demographic evidence for that time indicates far too slight a population. As stated in the section on Demography, it is difficult to support a Skorba phase population of much above 1000; even if we accepted a figure of 2000, this only gives a density of 6.25 per sq km, which would not have put stress on land and environment. This can be stated quite confidently, both by relation to other regions, and in light of the subsequent demographic pattern in Malta in the IVth millennium. The total evidence points to a far greater population by the Gg phase, and, judging again by sherds and new temples, a population peaking in the Tx phase. This then is where any ecological crisis would lie.

Trump too sees the indigenous Maltese population as being the key to economic factors:
"Economic factors offer a whole new range of possible interpretations. The number and size of the temples in their latest, Tarxien, phase necessitated a large labour force and so a substantial population. A necessary implication in a small island like Malta is an extensive use of land for food production. It is worth repeating that the evidence is strongly against a labour force recruited from outside the island, or even external economic support. (Trump 1966a; 51) Overseas contacts at this period, while certainly existing, were slight." (1976a; 607)

An important environmental factor discussed by Trump is deforestation. There is no reason to suppose that, at 5000 BC, Malta would not have had its own tree cover, developed during the post-glacial Boreal period. Trump says,

"Another resource in heavy demand for the programme of temple building was timber, primarily for roofing. The identity of charcoal samples from the burnt roof of the eastern temple at Skorba as olive could argue that there was already a serious scarcity of other timbers; but there may of course have been some religious sanction for the use of olive (Trump 1966: Appendix V). In either case, timber in great quantities was being used for roofing the temples." (1976a; 607).

I accept the use of wooden roofing, but we should not exaggerate the amount of wood required. The largest courts, at Gg S, measure some 8 m wide and 10 m long at ground level, so, if roofed with beams 1 ft thick, 4 beams of 9 m in length would span each inner court leaving gaps of 2 m between each beam; the next layer could then have been made of lighter material. 12 9-m beams would span the three courts of the inner trefoil, a further 4 would span court 4, and 7 beams of 7 m would be
needed for the smaller outer courts. Total: 23 beams of between 7-9 m long. Gg S is easily the largest temple, category F. By contrast a category A temple such as Mn S would need only 3 - 4 beams 7 m long to span its roof; temples of intermediate size would fall in between. This gives a minimum average of 27/2 or 14 beams per temple. Multiplying this by 43, the number of temples, we only arrive at a figure of 602 7-m beams for all the temples. If we double this to have beams every metre, the requirement becomes some 1200 beams. This, if spread over eight centuries, would not seem excessive for moderately wooded islands totalling 320 sq; kms, even if we make allowance for replacing wooden roofs from time to time. It is of course equally possible that they made more lavish use of their timber resources, nor indeed can we discount the possibility of trips over to Sicily to cut down trees whose trunks could be floated over to Malta bound together as rafts. Further, it is not obvious that the neolithic olive would provide sufficient beams 7 m long. Even the ancient and venerable olive trees of the Ghajn Rihana valley, perhaps of prehistoric stock, would not do, "Their trunks, which are rather stumpy, are only some 10', except for one old monster... of about 20"" (Harrison Lewis, 1977; 73). This in no way discounts some use of olive wood at upper levels, but does make unlikely its use for the basic beams of large courts. Carob would have similar limitations though holm oak would not.

In fact there is a stronger argument than supplying building timber to support the deforestation idea. Quite apart from the possible use of wood in building houses, canoes, rafts or other boats (this could have been imported; alternatively leather hide craft could have been used), the prime resource which must have come under greatest pressure is clearly land itself. The neolithic Maltese must eventually have required all the available
land suitable for either cultivation or pasture. However, if tree-felling had been an important activity, we would surely have recovered more than the 3 polished axes recorded to date (Trump), and even for temple carpentry this number is not impressive.

While accepting the inevitable felling of moderate tree cover and the subsequent increase in soil erosion, the argument for over-exploitation of the land seems more promising to explain major collapse. Trump asks:

"If deforestation, together with over-exploitation of Malta's scanty soil cover, led to an ecological crisis, compounded of soil exhaustion and erosion, then the whole economist basis of the temple culture would be destroyed. Collapse would be the inevitable result. But once more, would that collapse be total?" (1976; 607)

But, though the pressure on land would have grown with the population and is visibly demonstrated by temples serving also as territorial markers, in fact we know little enough about the subsistence basis, and almost nothing about its changes between 4000 and 2500 BC. We do of course know the basic neolithic pattern as manifested in Malta, the domestic animals and the main cultivated crops, but we have no idea how often they ate meat, about their hunting (deer and rabbit?), their fowling, or what was the role of collecting wild herbs, etc, or whether they had kitchen gardens of some kind, or how important fish was in their diet. The evidence for the standard neolithic pattern needs to be supplemented by their specific adaptation to the ecological range of Malta.

In fact, while we may suggest that, on arrival, their subsistence pattern was fairly typically neolithic
as regards livestock and staple crops, their situation would have changed with the increasing demands of a growing population, and these changes must have been orientated towards an increasingly closer integration into the Maltese ecosystem (Diamond's local adaptation phase). As regards livestock, which represents the least efficient use of land in terms of protein and calorie yield per acre, it is obvious that, while there would have been plenty of available pasture when the population was only a thousand, the situation would have been very different when the population was ten thousand. At this point the richer grazing required for cattle must have been strictly limited, while even the rough browsing for sheep and goats would have become more restricted in order to have sufficient arable land. I consider it likely that the development of sacrificial ritual, with the ceremonial killing of domestic animals represents a controlling adaptation to a period when barbeques and meat-eating were no longer daily events. Pigs however could have shown a different pattern, as they are omnivorous and can do well on scraps and human refuse. Only differential bone counts could supply precise information. Pike's study of bones from the Xemxiya tombs showed that sheep and goat bone predominated, but showed no evidence of seasonal slaughtering, while cattle bone was small and much less common. This contrasts with Trump's evidence from Skorba; perhaps sexual dimorphism is the answer. Since some system of fallow land would presumably have been necessary, we may suspect an increasing tendency to herd goats and sheep on the fallow, thus benefitting from their manure. Apart from this, and perhaps some marginal improvements in plant and animal stock, there is simply no evidence pointing towards intensification of farming practices. It is possible, but unproved, that sheep and goats were increasingly farmed for their milk, wool and hides,
Sherratt's secondary products revolution. Sherratt comments, "Milking is a highly efficient mode of exploitation, giving four or five times the amount of protein and energy from the same amount of feed as would exploitation for meat." (Sherratt 1981: 284). Although the same forces were at work here as elsewhere, the number of spindle whorls from Malta remains low at this time, though the sculpted figurines of women show clear use of woollen skirts and blankets.

A major resource with effectively unlimited potential would have been the sea. Malta's island situation would have increased the potential exploitation territory enormously; we know that the people arrived in 'boats' and continued to use them for trading voyages, so it seems extremely improbable that they would not have increased their use of this resource when the need arose. If we accept that boat-building would have undergone its own improvements, then Woolner's interpretation of the Tarxien ship graffitis may well be right. It is quite likely that the discovery of Pantelleria would have occurred during some fishing expedition. For a population of 10,000, the sea would have provided a virtually inexhaustible harvest. Coastal resources are finite; they include the usual varieties of shellfish, cephalopods, edible seaweed, and crustacea and shallow water fish. But then, as today, the big prizes were to be won by venturing into deeper waters where tunny and swordfish could be taken in season, as well as the usual smaller fish from anchovies and sardine up to mullet, cod and lampuki. It is worth comparing Malta with the Aegean first Saliagos:

"Here in the Neolithic stood a fishing-village with an enclosure wall, dating to the early fifth millennium. It has been calculated from the carefully collected and analysed bone remains that 88% of the inhabitants' meat came from tunny, though they did
have some domestic animals, especially sheep. Numerous tanged points of obsidian were found, together with pottery..." (Trump, 1980; 74).

Renfrew comments on the association of tunny fishing with obsidian points:

"The relatively small size of the tunny fish vertebrae, which contributed only a very small fraction of the osteological material recovered, entirely masked the high proportion of the meat which they represent. With this unexpected result, the marine location of the site, and of others of the same culture, takes on a new significance. The appearance of the tanged point of obsidian can also be reinterpreted... interpreted as the prong of a fishing spear or leinster, it suggests the great importance of the seasonal tunny slaughter which, as elsewhere in the Mediterranean today, must have been the major economic event of the year during the lifetime of the settlement." (Renfrew 1979; 30-31)

This is not proof for the Maltese situation, but we are largely ignorant of their villages, and expeditions to Pantelleria could easily have been timed to combine obsidian collection with tunny fishing. With a population problem, the need would certainly have existed, and the Saliagos and South France evidence proves that this adaptive change would have been well within the capacity of the third millennium Maltese. It certainly indicates evidence to look for should settlements come to light.

So the sea represented a major reserve in their adaptation to increasing pressure on their means of subsistence, probably emphasizing the role of males. On land there would have been little room for development, perhaps heavier seasonal hunting of birds, though hardly of deer and rabbits. Collecting could have been made more efficient, trying a wider range including wild herbs, bulbs and seaweed. Equally 'market gardening' could have been developed to form an important percentage of
foodstuffs. These adaptations, while logical, remain speculative and serve mainly to underline the need to discover further settlements, and the lines to explore when they are found. In summary, the increasingly heavy demands on their means of subsistence could mainly have been met by recourse to products from the sea; this could have been matched to a lesser extent by intensified use of land resources and by lower meat consumption. The evidence is not yet available, and the extent to which the increased population would have strained or exhausted the fertility of the land remains unmeasurable.

In human demographic studies, it is unusual for the growth to follow an exponential pattern: as the carrying-point of a particular area is approached, the rate of growth slows down and eventually stabilises. This produces a characteristic logistic curve for growth. Whatever the exact carrying capacity for prehistoric Malta, the growth curve would probably have been logistic; this implies a longish period while approaching saturation point. This has an important bearing on Trump's next and most astute observation on climatic variation:

"Recent meteorological records show that there is so much variation in precipitation from year to year that the average rainfall figures quoted are virtually meaningless (Bowen-Jones et al. 1961). One year of near-drought would cause little more than inconvenience. Such years come on average once in every ten years or so, and are randomly distributed. Every few centuries it would be possible to have perhaps as many as five successive years of drought, the effects of which would be more serious than five separate years. Principles of water conservation at the period under discussion, and indeed until very recent times, were rudimentary." (1976a;607)
Here Trump has surely put his finger on the major point of weakness in the subsistence system of the temple-builders. If we are correct in envisaging a logistic curve at or near carrying-point for a century or more, an extended drought would, statistically, have considerable chance of happening with critical consequences. However, we may again pose Trump's own question, Would the collapse be total?

Trump's final factor is the religious dimension:

"Given the evidence of a strong religious driving force and an influential priesthood, a revered 'prophet', by playing on the religious fervour of the people, could have persuaded them to abandon their homeland, leaving it completely deserted. He would have found this even easier if he could quote signs of divine disfavour, such as some of those already suggested - hostile attack, crop failure, drought, disease." (Trump, 1976a; 608)

While we may grant the involvement of the priesthood in any form of crisis, economic or otherwise, this scenario is rather too melodramatic, especially in the context of a primarily chthonic neolithic religion. In fact one could as easily argue for a rationalist decision taken against the views of an entrenched and conservative priesthood.

Trump finally left the choice between the different factors quite open: "Indeed, any one can be given the major emphasis, with greater or lesser support from any one or more of the others." (Trump, 1976a; 608). However, applying the demographic pattern to the ecological considerations and climate, it is possible to create a model which fits the established facts and carries a more convincing and positive explanation of the collapse, though necessarily remaining hypothetical.
In any interpretative model in these conditions, the critical factor is the rate of change, as Trump recognised: "Any interpretation of the collapse of the temple culture and its replacement by that of the Bronze Age cemeteries depends heavily on the rapidity of the change." (Trump 1976, 609) In fact, though both Trump and Evans claim that "The remarkable civilisation ... finally disappears with great suddenness" (Evans 1954, 168), there is not nearly sufficient evidence to support this claim. Evans, commenting on Zammit's view of the end of the Tx phase and the beginning of the TC phase, says that Zammit "thought that there was a long interval between the two events, and we now know that this was not the case." (Evans 1959, 168) But Evans was writing before the calibration of radiocarbon, and the longer timescale thus created means that a long interval is perfectly acceptable. The total evidence rests on a precariously small number of calibrated radiocarbon dates coming from the extremely small number of TC sites, together with a few other facts such as Zammit's metre of silt in Tx W - and this hardly supports the argument. Again, though the islands are certainly small, there has been no attempt to look for more gradual change, differentiating in time between the different sites. Did the collapse take 5, 20 or 100 years? How complete was it?

Let us consider Tarxien first, as it has provided the earliest figure to date for the TC people, 1930 ± 150 BC (BM 141), correcting to c.2350 BC calibrated. That metre of silt could certainly indicate a period of more than a century if seen as wind-blown loess, but this is not necessarily the case. We do not know either the thickness or the full composition of the roofing.
The End of Temple Building

material; perhaps half of that metre could be accounted for by the decomposition of wood and other organic materials in the roofing plus a certain amount of clay used as proofing. Even so, the total collapse of the original roof requires a certain period, and the accumulation of a full metre of silt could hardly be accommodated in less than a century, perhaps requiring several. Tarxien provides evidence against an armed take-over, and positive evidence suggesting an interval of no less than a century. Now the Tarxien-Kordin area almost certainly represents the area of greatest population density, i.e. the area where the effects of prolonged drought would first be felt. We could also claim that its water cisterns are adaptive changes to water shortage, though we have no dates. It is also more likely that the damage to the Main Hall of the Hypogeum represents a deliberate desacralisation than a wanton act of vandalism, possibly at the time of abandoning the site. So we could certainly posit that the Tarxien and Kordin communities would have been the first to experience an ecological crisis, and, if there was indeed emigration, would have been the first to leave Malta. Since there is no evidence for centralisation, but a considerable amount to support the idea of local independent territories, we may accordingly posit that the Tarxien community could have been the first to feel the pressures, accentuated by famine and disease, and to react by emigration. An example of abandoning the island would thus have been set, to be followed by other (not necessarily all) temple-communities as the crisis developed.

This would give us a model in which those temple-communities experiencing maximum pressure would be the first to react to the crisis, presumably debating it in assembly in the temple forecourts, and would ultimately
The End of Temple Building

be forced to select the only real solution available, that of emigration. Smaller communities could afford to react more slowly to the crisis. Crises do produce mass reactions, and the multiplication of altars for offerings in Tarxien's public courts (see Fig.4) could certainly be interpreted as showing increasingly frequent sacrifices at a period of crisis, but there is no need to evoke revered prophets or religious hysteria. The timescale would depend on the nature of the crisis; if it were primarily due to drought, we would expect a short period, perhaps as little as the five years suggested by Trump, but if ecological factors predominated, with only partial drought, the crisis would be more chronic, lasting perhaps a generation, a century, or even more. Given the demographic saturation and the vulnerability of their ecological system especially to drought, emigration would have been the only rational solution. Whether led by priests or secular leaders is relatively unimportant, though we may certainly expect that in such debates and decisions the role of the males would have been decisive, as alternative homelands would normally be better known to the males, with their probable fishing and trading roles, than to their womenfolk.

Here then is a perfectly plausible mechanism which could account for the abandonment of the islands. While hard proof is lacking, this could now be looked for in future excavations, especially in a differentiated radiocarbon dating of the different temple communities. What is left open is the extent of the collapse: was it indeed complete? and if so, after how long a period? Looking once more at the ecological balance, it is clear that different communities would have experienced the crisis from somewhat different viewpoints. Smaller communities in the west of Malta, with their better supplies of natural water, might well have been able to
The End of Temple Building

survive conditions which were quite incompatible with the continuation of the great communities of Tarxien, Hagar Qim, Mnajdra and the Ggantija group over in Gozo. So far there is no evidence that abandonment would have been unanimous or total.

Continuity: Tas Silg

Before discussing continuity in Malta, it is first necessary to define a term which has meant different things to different writers. J.van der Waals has defined three types of continuity / discontinuity as follows: 1) continuity of 'culture' in the archaeological sense, 2) continuity of human occupation, usually seen as ethnic continuity, 3) discontinuity of the human adaptive system, implying continuity of the human group. He also says, "Archaeological continuity and discontinuity are concepts of inequal demonstrability" - due to the uneven and uncontrolled nature of documentation in time and archaeological recovery (in de Laet (ed) 1976; 257).

In Malta, Evans and Trump have argued for a complete break; Evans described the TC people as of "a completely alien tradition, both as to material culture and religion" (1953; 65). Likewise Trump has stated that "The evidence is so far unanimous in suggesting that there was a complete replacement of culture and race, between the period when the temples flourished and the period when their ruins were re-used for other purposes." (Trump 1976a; 605) On the other hand, Renfrew asked in 1970 "Are we sure that a new people wiped out the old and started afresh, bringing with them metallurgy and a different form of burial? May not the latter, at least, have developed locally?" (1970; 208) Some form of continuity was found by the Italian excavators of Tas Silg in the sixties (see below). Brea accepted "un
The End of Temple Building

cambiamento drastico di tutti gli elementi della cultura materiale", but found Trump's position too dramatic, arguing that "una frequentazione degli antichi santuari ha continuato ad aver luogo" (Brea, in Kokalos 1976-7; 69-70).

Tarxien itself became "still by far the richest and most important" centre we can associate with the TC people, some 200 crematory urns being found there (Evans 1979; 21). There seems little doubt that the metre of silt Zammit found between the TC level and the Tx phase floor deposit establishes a total break of perhaps at least a century - for this site. What is the evidence elsewhere?

So, how about smaller temple communities such as Tas Silg and Tal Qadi? Only Tas Silg has provided detailed material evidence, its excavators uncovering a unique situation. They found a Phoenician sanctuary dedicated to Astarte and Tanit, which later became the famous Roman fanum Iunonis, and even served later as an early Christian church, but it had been used in the Bronze Age, and had at its core a megalithic temple of the Tarxien period. Religious conservatism and the continued use of sacred sites are well-known, but here is an outstanding example; its excavators claim: "there is evidence at Tas Silg of a continuity of religious life from neolithic till late Roman times at least, devoted essentially to a feminine deity." (Maiam II 1965; 193). If the Italians are correct, since religious continuity is hardly possible without some ethnic and cultural continuity, we would here have evidence of at least one temple community which did not abandon the island at the crisis.

The evidence from Tas Silg falls under three main headings, architecture, furnishings and pottery. There
was also a burial, which was probably not the only one, as fragments of other sarcophagi were found. But there is no indication of the period of the burial, nor any radiocarbon dating; presumably it was Bronze Age or later. The pottery remains also were not given full attention, and we have no sherd count by phase. Yet we are told, "It is only certain that Tarxien pottery is found mixed with that of Tarxien Cemetery, of Borg in-Nadur and of Bahriya, a fact which suggests a continuity in the various phases of the life of the place." (MaiaM IV, 1967; 126) This could give the impression of poor excavation techniques, but may be explained by another factor. Whereas at Tarxien Zammit found 1 m of silt between Neolithic and BA occupational levels, the situation at Tas Silg was quite different, with only a minimum deposit of silt ("un minimo accumulo di terra" MaaM II, 1965; 180) which is most naturally explained, with the Italians, as due to the undeniable later use - which here could have been continuous. Despite the absence of an internal stratigraphic deposit, it seems established that, before the site was occupied, by the Phoenicians, the main BA group was that of BN, "ceramica preistorica (in prevalenza della fase di Borg in-Nadur" (MaaM VI, 1969; 32), so it would be most interesting to have the full sherd counts from Tx, TC, BN, Ba and the Phoenician periods. Bonanno has also remarked that three Punic sanctuaries or temples are mentioned in a Punic inscription of the second century BC (Kokalos 1976-7).
The End of Temple Building

While the sherd evidence is incomplete, the evidence of stone furnishings is considerably stronger. In the 1964 campaign was unearthed a limestone figure 1.14 m high, on a plinth carved with the running Tarxien spirals, clearly belonging to the temple-bulders' civilisation. The figure was found "near the temple entrance", about 1/3 m down, with its upper half damaged apparently by a plough (Plate 19.2). Mallia judged that the figure was "apparently not intended to be free-standing... but to form part of some constructional arrangement as a built-in unit" (MaiaM, II 1965; 75), like the Tarxien goddess. Its conspicuous position after so many centuries certainly supports the continuity argument. Other formal arrangements add further support, including two betyls and a monolithic basin in the forecourt (Fig.7). The Italian team were very sensitive to the architectural arrangements, and these help support continuity. Their sensitivity was impressively demonstrated when Azevedo predicted in 1969 the existence of a complementary baetyl which was duly unearthed the following year. It also gave the TS forecourt a formal symmetry comparable to that of Tarxien with its two 'divining-blocks'. As Azevedo says, the monolithic basin S 2 clearly implies a former rite of ablution, a rite whose continuity is witnessed by the later addition of a cistern (VI C BC ?) which still later was used as a "dump for votive offerings". "When the area of the prehistoric basin was isolated room 52 was deliberately included in it due to its nature as basin for ablutions." (MaiaM VI, 1969;119)

Thus the extant evidence on associated furnishings, though itself not conclusive for all periods, goes a considerable way to support the evidence for continuity. If there is any evidence to confirm or disprove
continuity, it should be the architectural features. Here we have a megalithic Tx phase temple described by Trump as anomalous and with an orientation of 106°, though neither of these points is solid, and Davico agrees, "The internal organisation of the cella cannot yet be defined." (MaiaM IV; 38) Due to subsequent rebuilding, the original form is not completely clear; the earlier evidence pointed to a trefoil temple (A. Davico, 1967), but later Azevedo stated "The interior of the temple was polylobate, with four apses facing in pairs; the foundations leave no doubt as to this." (MaiaM V, 1968; 108) There seems no doubt about the outer walls, built of megalithic orthostats in typical horseshoe plan, though whether the interior was trefoil, 4-apse or anomalous is not clear (see Plan 11). But perhaps Trump considered it anomalous in its orientation. It is quite clear that the major axis ran roughly East-West, from 106° - 286°, but the orientation is not clear - if we discount the facade. The confusion arises from the combination of a westerly orientation for the concave facade and a stone block built into the convex curve at ground level to the east. This stone is a horizontal slab on the longitudinal axis and pierced by three conical holes. Such horizontal slabs are common features in other temples like Skorba where they lie at the entries. So, either Tas Silg had an easterly entry (possibly in addition to a westerly one, as at HQ) or this stone represents an external cult of libation. Further, there was another horizontal stone with a similar conical hole placed on the long axis and in front of the original facade. Azevedo correctly comments that there is no decisive proof either for or against a very early date, though the established Neolithic practice of libation, its alignment, and its being embedded in the rock support an early date: the same considerations apply to structure 45. However, the subsequent adoption of a western forecourt and
The End of Temple Building

planimetry implies this was the major entry. The major axis is quite clear and was respected in the Phoenician, Hellenistic and later alterations, an important point. A. Davico, in his structural notes, says,

"Il rispetto per questo asse primitivo a avuto una rigida applicazione nelle fasi costruttive che si sono succedute nel templet; in fatti ... appare possibile precisare che... fu sempre assunto come centro, come perno, il punto corrispondente all'asse dell'ingresso del tempio primitivo." (MaiaM V, 1968; 42)

Although continued use of the long axis does not itself prove continued temple use, this has to be seen in relation to two other facts: 1) that there is no evidence of another Maltese megalithic temple having a religious life in later centuries, 2) that as Azevedo says,

"It must be noticed that the megalithic temple of Tas Silg does not show any traces of occupation or violent alterations; in fact the presence of both Borg in-Nadur and Tarxien ceramics suggests quite the reverse. The Borg in-Nadur phase ... forms the last link up to the Phoenician occupation, as is evidenced by the votive offerings and especially the small columns." (MaiaM IV, 1967; 126-7)

It is quite clear, as Azevedo points out, that this particular temple was never used for domestic or military purposes; this is different from Borg in-Nadur and Skorba. However, we should also note that there was probably a second temple south of the present road which was destroyed in the BN phase (see footing stones, Fig. 8). At both BiN and TS (only 2.5 kms apart) it is evident that the BN occupation was much more intensive than the TC occupation, and in both sites substantial rebuilding occurred.

To summarise, though neither the architecture nor the furnishings provides complete proof of continuity,
The End of Temple Building

taken together they provide a strong case. Though there is no sherd count yet, the ceramic evidence shows sherds from all periods - we might expect a higher count from BN than TC. The presence of Tx phase pottery not stratigraphically disposed in a temple whose use certainly continued through Roman times can be read as continuing use of Tx vessels in the TC phase.

However, there are further considerations drawn from literary sources. There is the evidence from Cicero's attack on Verres "teque, Juno regina, cuius duo fana duabut in insulis posita ..., Melitae et Sami, sanctissima et antiquissima simili scelere idem iste omnibus donis ornamentisque nudavit." (Cicero, In Verrem II, 5, 184) Azevedo comments,

"Of all the Mediterranean sanctuaries Cicero chooses to associate the temple in Malta with the sanctuary in Samos: he does so because Verres has pillaged both, but he also joins them in his common praise: "Sanctissima et antiquissima". They were, therefore, the two of the oldest and most venerable sanctuaries to Juno in the Mediterranean. Our excavations prove that the praise was not just rhetorical but rather a statement of fact." (MaiaM IV, 1967; 130)

Presumably Verres plundered both precisely because they were so rich in ex-votos presented over the centuries: German excavations proved that the Greek sanctuary in Samos developed from a third millennium cult-site of western Anatolian origin.

Such is the case for continuity as it stands at the present, not exactly hard proof, but a definite indication of continuity of some sort. However, it is also necessary to decide what sort of continuity is suggested. Given the inevitable gaps in the archaeological record, it is excessive to demand proof century by century: in Malta our current knowledge of the
The End of Temple Building

TC period certainly cannot provide such detail. At present the best we can do is to show continuity by period; we have a Tx phase temple later used by TC people and then by BN people (sherds), assuming that these were ethnically different, before the major reconstructions under the Phoenicians. There does seem to have been period continuity in cult and ritual and while this could have been interrupted at times (for how long?), it would truly seem astonishing if the Phoenicians, arriving in the eighth century, selected an ancient temple ruin and restored its cults if the temple had been unused for some sixteen centuries! The lack of silt and the mixing of the ceramics from different prehistoric periods is better accounted for by accepting some form of continuity, and this is surely required by the evident facility with which the Phoenicians took over the site and its cultual features. It should be noted that of all the ancient temple sites this phenomenon has to date only been proved at Tas Silg. The Tas Silg evidence disproves Trump's statement "A few sites were re-used, but for new purposes." (1976; 606) - at least in this case, and also his statement that "the break in tradition was absolute". Though it is not impossible that there was continuity at 'the temple of Hercules' and / or a possible Phoenician site at Valletta, such a temple apparently went unnoticed both by Cicero and the rapacious Verres. Further excavations are required before a hard conclusion can be reached. One area indicated is at Tas Silg, in the area (equal to 25% of that already excavated) not available to the Italian team, to the south and east of the modern wall behind the ancient terminal apse. Azevedo says "To the North the field shows traces which could suggest the presence of a necropolis which probably extends over the nearby fields" (MaiaM VII, 1973; 101). It is obviously premature to anticipate the scientific investigation which is urgently
The End of Temple Building

called for: the complete excavation of this area outside the current walls could resolve a lot of questions, especially if it had been used over an extended period. The neolithic disposition south of the road also has not been made clear: the two stones south of wall M 22 (Fig.8) certainly imply the existence of a second temple here, though this must have been destroyed and built over in ancient times. C. Caprino's report here states that "The potsherds found in a trench cut into the layer of hard brown soil are of Tarxien phase." (MaiaM VII, 1973; 55) Here too more excavation is required: the Italians have suggested re-routing the road which itself must conceal prehistoric material. BiN too was not completely excavated by Murray and needs further excavation. Osteological material, graves, ceramics, etc, are probably awaiting the excavator.

There is an instructive contrast between Tas Silg and nearby Borg in-Nadur. While both had one, perhaps two megalithic temples of Tx phase, had a relatively sparse TC visitation, and were much more substantially used by the BN people, the temple at TS continued in its religion function but that at BiN was taken over for secular purposes, as indeed was Tarxien. Evans comments,

"Dr Murray's excavations proved that after the close of the Copper Age they (the BiN buildings) were re-utilised by later peoples. There are only slight traces of the Tarxien Cemetery folk, but the site was intensively occupied by the Borg in-Nadur people who built the defensive walls and the huts further inland described below. The evidence seems clear that these had little or no interest in the religious function of the buildings, which they seem to have used for purely domestic purposes." (Evans, 1971; 14)

Why then was Tas Silg treated differently? The most natural explanation, given the excavational evidence, is that it continued to be used by a remnant of the older
The End of Temple Building

population who survived the crisis c.2500 BC and were able to transmit cultual observances to Bronze Age people. Unless the BA newcomers were very limited in numbers, it would be strange in islands containing some 43 temples that they only continued religious observances at one site. Osteological evidence could be decisive here, as it is quite plausible that a surviving minority of the temple-builders would have become much more conservative and would have continued to produce temple ceramics in the Tx style. Only if thermoluminescent techniques could provide reliable dates would the ceramic evidence match the precision of radiocarbon dating.

Bronze Age Malta

At this juncture, an overview of the BA and Phoenician populations may help to clarify the pre- and proto-historical context: this review is necessarily brief as the Bronze Age period, as well as bequeathing much less material than the previous periods, has also received much less attention, and the same is largely true of the Phoenician-Punic period. Of the remains of the TC people, Evans comments, "These remains are concentrated at one site, the cremational cemetery found by Zammit in the Tarxien temples." (Evans, 1959; 169). Sherd evidence proves a significant settlement round Ggantija (Count: Gg 145 Tx 83 TC 60 BN 2), and at Tal Qadi (Gg 13 Tx 847 TC 38 BN 7), as well as at TS and BiN. Since Evans found TC sherds inside the 'dolmen' at Ta Hammut (1955), and also in the Wied Mqubul cairn in 1953, he was able to conclude:

"It is therefore now possible to assign all the small rough stone monuments in the Maltese islands with a fair amount of probability to the people of the Tarxien Cemetery. There are about a score of known 'dolmens' in Malta and Goza..." (1959; 177)
Accepting Evans' conclusion, an important one to which we shall return, we still hardly have ten sites for Evans' twenty dolmens, not an impressive total for some 10 centuries of occupation (c.2500-1500 BC), especially when compared to the remains of the temple-builders. Clearly the demographic contrast is considerable, with little reason to posit a TC population much above a thousand; equally clearly, the 'dolmens', which are the major remains, when combined with some eventual evidence for metal-working, suggest a limited society perhaps led by chiefs, one which had the traditional agricultural subsistence, had sea contacts with Sicily and S. Italy, and cremated their dead in ceramic urns. The copper daggers may imply a more warlike society, though they are scarce.

Around 1500 BC, the BN people arrived with their distinctive culture, probably from Sicily, and established a main centre at the Borg in-Nadur site which they reconstructed. They created other sites in Malta and Gozo in naturally-defensible positions; the evidence is insufficient to estimate their population accurately, though suggesting a rather denser population than the TC people. They were joined around 900 BC by another group, "the Bahrija culture, taking its name from a settlement site in the S.W. of Malta which seems in fact to be the only centre of this culture." (Evans 1979; 24) They co-existed with the more numerous BN people, and established a relatively prosperous community probably specialising in textiles.

These final BA peoples lead us to the Phoenicians: "Malta was certainly a Phoenician base, and, from the archaeological data, can be ascribed to the eighth century." (Moscati 1973; 133) We know from Ptolemy that they founded Medina and other cities, and had famous
shrines to Hera and Herakles. The temple to Herakles has not yet been identified; Evans believes it could have been near Tas Silg on the basis of the Louvre cippus found there. The temple to Hera (Astarte-Tanit) has been identified as the Tx phase temple at Tas Silg, subsequently used and enlarged by the Phoenicians. Evans records that "Another Phoenician inscription refers to the restoration of various temples in Gozo by the people of that island." (Evans 1979;26) This is important evidence on the attitude of the Phoenicians to the megalithic temples. The Tas Silg evidence proves that they took over, restored and adapted that megalithic temple to their own requirements, while respecting ancient traditions which included a goddess figure and two baetyls. The Gozo evidence suggests some continuity of religious traditions in Gozo too: it is not likely that the Gozitans would have repaired their temples if these were not still in use of sorts, and the TS evidence points unambiguously to continued or restored use. Although the BA peoples were probably insufficiently skilled to repair the temples, they did use them, and the Phoenicians did have the expertise required for repairs. So, remarkable as it may appear, we could be faced with a situation in which BA people continued the use of temples built in the Tx or even Gg phases, while restoration and rebuilding was attempted by the Phoenicians in early historical times.

This means that it is increasingly important to make detailed investigations of the BA sites. We note that Evans' trenches in 1954 at Ggantija produced nearly as many TC sherds (60) as Tx (83). S. Tusa believes that the different burial practices of surface and underground tombs "depends on two different concepts of the afterlife based on their reference to either the element of Air or that of Earth." (Tusa 1988; 1) This view, applied to
The End of Temple Building

Malta, would associate Bronze Age burials with Air, protected either by stone dolmens or stone temples, while the underground Neolithic burials are associated with Earth and would reflect a chthonic ideology. Future dates from osteological evidence and evidence from sherds should make the whole situation far clearer; it is premature to make judgements. However, given that a thousand years passed before the arrival of the BN people, and most of another thousand before the Phoenicians, and given the evidence from TS and about Gozo, further evidence relating to continuity should be sought. The situation is complex, difficult, and only known in part.

We require working hypotheses about the nature of the occupying groups which can be tested by future research and excavation. The possibility of different groups cohabiting the islands contemporaneously cannot be ruled out. Evans comments,

"The fate of the Tarxian Cemetery people is as problematic as their origin. All that can be said for certain is that in the later 2 M BC we find the Maltese islands in the hands of people who were using a new kind of equipment, but it may be that once more this betokens a change in the ruling group rather than in the mass of the population." (Evans 1979, 22)

It seems generally accepted that a pattern of cohabitation was shown by the Ba people, who co-existed with the BN culture from their arrival C.900 BC till c.750 BC, exchanging their typical black pottery for other items.

A process of armed but relatively peaceful occupation can also be suggested for the Phoenicians, as Moscati implies: "The expansion of the Phoenicians and later of the Carthaginians was predominantly commercial,
The End of Temple Building

with no intent of conquest, requiring no stable settlements or mass emigration of the population." (Moscati 1973; 136) Of the Carthaginian hinterland, Harden informs us that

"Few of the inhabitants of this area, except in the Phoenician cities which it embraced, were full-blooded Phoenicians. The others will have been largely Berbers of indigenous stock, with many slaves (negroes and others) as well." (Harden 1963; 77)

To this we may add a further comment of Evans:

"It is noticeable that the islands seem to have been allowed a greater degree of freedom than most Punic satellites. For instance, they seem to have been allowed to trade freely with foreigners, which was most unusual." (1979; 26)

This evidence is best interpreted as Phoenician-Punic accommodation to an indigenous population who accepted the situation and Phoenician requirements, adopting technical, commercial and cultural features without presenting problems. Given their obviously small population, they had no choice, then too. But the evidence from Tas Silg indicates the extent to which the Phoenicians were able to fit in with existing religious practices, and with the ample BN material there, this surely demonstrates a degree of cohabitation which extended to a shared religion. Restored Gozitan temples would support this idea.
In fact, before the Roman sack of the islands in 257 BC, there is little or no evidence for warfare in the archipelago even in the BA and protohistorical period. The total arsenal recovered from BA Malta amounts to no more than a few copper daggers and obsidian arrowheads of TC period. As Trump has pointed out, any evidence for a military takeover is completely circumstantial. What applies to the later BA societies applies equally to the TC people: any case for military conquest can only be accepted if supported by material evidence.

Any conclusion about the arrival of the TC people has to be tentative as there simply is not adequate evidence yet to form a precise picture; this would require much more solid evidence from settlements, graves, etc, and especially the support of a detailed series of radiocarbon dates. Until these are forthcoming, all suggestions have to be provisional, including the date, nature and extent of the collapse. The TS material, with similar indications about Gozo, suggests a less dramatic model than Trump has proposed. If there was an overlap and cohabitation between remnants of the temple-builders and the TC people, we would expect this to be reflected in cultural remains (like ceramics: Pellegrin ware?) and in skeletal types. Was all the population brachycephalic in 2000 BC? It is essential that ceramic evidence should be supported by absolute dating as well as by stratigraphy; a residual population at TS, Gozo or elsewhere could well have become ultra-conservative, retaining the Tx temple pottery style for a considerable period along with religious rites and beliefs.

It appears that the best explanation of the collapse is of environmental deterioration under continuing stress, reaching crisis level when a series of dry
winters led to drought, accompanied by famine and perhaps disease. To extend this model, we may pose further questions: was the collapse total, and, if not, how fast was the change-over? Since the proposed explanation involves mass emigration, we may add a third, where did they go?

What we have to look for is evidence for substantial emigration from Malta. A major obstacle in the past has been that there are absolutely no remains anywhere of any megalithic structures which could have been Maltese-type temples. However, with my territorial interpretation, the megalithic temples appear as an adaptive phenomenon to the very restricted land available in Malta in conditions of demographic stress, so in conditions where there was no serious limitation to land available for subsistence farming, this exaggerated defensive reflex would no longer be evoked.

What then are the characteristics we should seek? The first would be the basic physical type, and although current evidence hardly provides full definition of the temple-builders' stock, there is evidence for a generally short, rather gracile build with dolichocephalic skull: this needs amplification. Culturally, since there are no temples elsewhere, there might be some residual evidence of architectural and masons' skills. Pottery could be helpful, though styles would not necessarily be retained; texture would be different in a land with different clays, and though elements of form and decoration could be retained, we have to remember that the Maltese evidence is essentially of temple ceramics perhaps produced by specialist potters. Although no neolithic kilns have been recovered yet, it is kiln techniques and firing temperatures that could most diagnostic. If Pellegrin ware forms a genuine and persistent line in
domestic ware, it is rather this we should seek. Subcutaneous handles and V-buttons could also be significant. In sculpture, the characteristic goddess figurines would be almost conclusive, but are unlikely as they were associated with temples, not funerary cult.

When looking for a land to which they could have emigrated, we do well to follow Renfrew's advice, "the relevant borders are first of all those around the Maltese islands." (in Bonanno ed. 1986; 121) While we cannot discount other Mediterranean areas, we should look first to Sicily. Not only is it visible from Malta on a clear day, but trade links show it was quite well known to Maltese sailors and traders. It is most unlikely that a small flotilla would have set off for an unknown destination: Sicily seems the obvious choice, at least initially. In considering Sicily, we must remember current limitations; S. Tusa reminds us that "intere zone dell 'isola sono quasi sconosciute" - for lack of exploration and excavation. (S. Tusa 1983; 269) Apart from the south-east (explored by Orsi) and the Aeolian Islands (B. Brea), much of Sicily's prehistory is little known.

Maltese relations with Sicily

At present there are far too few details to give an account, century by century, of the relations between Malta and Sicily; we can only put down the record to date. Here I shall generally avoid applying the Three Ages system to Sicily. Brea has remarked on the extreme rarity of copper finds in the Chalcolithic, recoveries for the whole island amounting to little more than a few beads and blades (Kokalos 1976-7). He has also said it is difficult to recognise any true break in Sicily between
Map 3: Sicily, the sites relevant to Malta.
The End of Temple Building

the Chalcolithic and Bronze Ages (1957; 98). S. Tusa comments more recently,

"Essendo la Sicilia notoriamente priva di fonti di rame e di stagno, la presenza del bronzo al posto del rame non implica assolutamente nulla sul piano socio-economico" (1983; 287),

and says that the assignation of the Serraferlicchio, Malpasso and Sant'Ippolito phases to the Eneolithic and the Castelluccio to the Bronze Age has never been the subject of detailed research. As radiocarbon dates also are extremely scarce for Sicily, I shall continue to use the ceramic phases. It is worth noting that the ten flint mines found by Orsi at Monte Tabuto continued their activity for most of the Early Bronze Age, showing how limited the use of metal was. Distefano (1988) has recently suggested a proto-Castellucciano phase overlapping that of Sant'Ippolito. Then the dates of the beginning of the Castelluccio phase are quite vague. It is accepted that the A-people arrived in Malta from around Stentinello, S.E. Sicily, and it is likely that the B-people also arrived via Sicily. Subsequent relations are evinced mainly through evidence of trading activity, especially in stone. The obsidian record shows initial links with Pantelleria being progressively replaced by those with Lipari, and it appears to show a reduction in the use of obsidian. The lava used for querns (especially at Tarxien) came from the Etna region. Flint too came from Sicily:

"Practically all the flint implements unearthed on Maltese sites of the period can be traced to that island. One particular type, of grey-buff colour, which makes its appearance for the first time in the Saflieni phase and becomes very common in the following phase, has had its origins tentatively located in the region of the Monti Iblei, near Syracuse." (Bonanno 1986b; 37-8)
The End of Temple Building

This suggests clear links between the Tarxien community and the Iblei region. Pottery fragments are very few (one Serraferlicchio sherd), but the 40 fragments of Thermi cups (Gg, Tx and TC phases) could have passed via Sicily. It is also clear that there would have been an exchange of objects of perishable nature. While the temple-builders were extremely self-sufficient, there is proof of these limited contacts with certain regions of Sicily and Lipari in all phases. We note that Sicily's first 'dolmen', the Cava dei Servi, is also in the centre of the Iblei district. Another probable import is the Tarxien bossed bone plaque, but other forms of material exchange have largely eluded archaeological recovery.

A priori considerations lead us to expect that Maltese influence abroad is likely to have been stronger in religion and especially funerary ritual. We now come to examine this important subsystem where archaeologists from Orsi and Brea to S. Tusa and Procelli have detected significant Maltese influence. Since this is largely funerary evidence (which Evans claims as the source of the temple culture), it is worth noticing the general context. Whitehouse has shown that single (occasionally double) rock-cut tombs go back to the early fourth millennium in Italy, S. Sicily (San Cono, Malpasso) and Sardinia (Ozieri), while "In the third millennium and later collective burial seems to have been the general rule everywhere." (Whitehouse 1983; 43-4) In the second millennium BC, rock-cut tombs continued mainly in S.E. Italy, Sicily and Sardinia, where Maltese influence has been suspected.

Reviewing "L'origine delle tombe a forno della Sicilia", S. Tinè analysed the 36 Copper Age tombs at Tranchina, near Sciacca (Agrigentino). 33 had only
single or double burials, belonging to the first Copper Age, while the remaining 3 showed numerous burials, their pottery dating them to the final Malpasso phase. Tinè considers that they thus show the moment of transition to collective burial, and were of foreign origin. He concludes,

"Fuori della Sicilia, nei regioni ad essa più vicine, la tomba a forno di tipo arcaico, del tutto simile in pianta e sezione a quelle di Tranchino, è presente nelle Isole Maltesi." (1963;80)

And Tinè then did not realise that the Zebbug and Xemxiya tombs were pre-Gg, so could easily be the prototypes of the collective Sicilian tombs.

Of the same phase are the five early rock-cut tombs at Malpasso in the upper Ippari valley (see Fig.9a). S. Tusa says that such a cluster of tombs is unknown in other regions of Sicily, and compares them to the Hypogéum at Hal Saflieni (1983; 214). As the Ippari opens onto the southern coast, it would have been a natural route for Maltese penetration. Near the mouth of the Ippari is Casalicchio-Agnone which has yielded TC style sherds, although without stratigraphic context. Tusa considers that they probably indicate either a Castelluccio village or else a kind of emporium like Ognina. A little further to the East at Manfria was another Castelluccio settlement where Brea found more TC sherds, indicating again at least trade (Brea 1968).

Moving east to the heart of the Monti Iblei, there is the hypogéum of 35 chambers found at Calaforno (Fig.9b) and excavated by L. Guzzardi, who states, "L'Ipogeo risulta scavato verso la seconda metà del terzo millennio a.C., come testimoniano i frammenti più antichi fra quelli raccolti." (Guzzardi 1980; 72) (non-
calibrated dates). Guzzardi fashionably says it was probably a burial place, and links it typologically with the Sardinian domus de janas, and, in Malta, with the Xemxiya tombs and especially with the Hal Saflieni Hypogeum because several rooms have windows looking through to others. Tusa comments, "Essendo questo tipo di ipogeo del tutto ignoto in ambiente siciliano ed europeo è certa la sua origine maltese" (Tusa 1983;216). The original excavators chose a site where a layer of soft limestone lay immediately under a harder layer which formed the roof of the chambers; this specialist knowledge seems very likely to have been Maltese in origin, while the windows point to Tarxien itself.

While the hypogeum of Calaforno belongs to the late Copper Age and the EBA, the next evidence, the necropolis of Palazzo Acreide, belongs entirely to the Castelluccio culture. Here we have a remarkable large necropolis of different groups of tombs, many of which were robbed in antiquity, although Orsi made some important finds of intact tombs. The most interesting are tombs 22, 31 and 34; they are collective tombs 'a grotticella' containing 26, 17 and 6 inhumations respectively. It is the low reliefs of the portal slabs of 31 and 34 which show a Maltese link noted and accepted by Orsi, Brea, Tusa and Procelli (see Plate 26). The upper part of 31 is a pair of antithetical spirals which bear a strong resemblance to the Hagar Qim slab and the 'blocking-stone' from Tx C. The slab of 34 bears two pairs of antithetical spirals essentially similar to those of the two carved screens from Tx C (compare with Plates 25).

S. Tusa has tried to relate the motif to W. Anatolian and Balkan examples, especially from Troy II and III. Though it is not impossible that there was such influence (but in which direction ?), the crucial fact is
The End of Temple Building

the proximity of the Maltese examples, only 80 miles away in an island famous for its religious and funerary forms. Tusa criticises the views of Orsi and Brea as inadequate; as they were deliberately hidden from view they can hardly have been planned as decorative, and the embellishment theory is disproved by the grave goods.

"In our opinion, these Sicilian stelae symbolise a dominant religious ideology based on the central theme of fertility and on superhuman beings who are in charge of it." (Tusa 1988; 12)

I personally consider that Tusa has made an important contribution in developing the argument from the sculptural to the symbolic and ideological plane. I believe we are looking at examples of acculturation which include Sicilian, Maltese, and perhaps Aegean and other elements. Tusa concedes some Maltese element, but preferred the Aegean interpretation. However, at the time of writing, Tusa was not using calibrated dating.

The intact inhumations found by Orsi were crouched or seated, but the majority were disarticulated, and Orsi believed that excarnation had occurred prior to burial, and this is now more probable for Malta too. Among the simple grave goods were jadeite amulets, miniature axes and seven bossed bone plaques. Evans, writing in the fifties, knew of 10 Sicilian bossed bone plaques, 2 from Lerna, 4 from Troy, 1 from Apulia and 1 from Tarxien, relating them to the female oculus idols. He also considered that the western examples were made locally (Evans 1956a; 92-3). By now his view has been further consolidated as there are 20 Sicilian examples (Procelli 1988), and there seems little doubt that it is Sicily that should be seen as the primary centre. The other specimens, whether local or imported, show links with Castellucian Sicily. Once again, the process of Bronze
The End of Temple Building

Age acculturation is apparent, with Sicilian, Maltese and Aegean links.

Further west, in the Ragusano, there is the significant 'complesso tombale di Contrado Paolina' excavated by Procelli (Figs. 10 and 11). Here there are three tombs, the second found intact and described as follows:

"Anche questa tomba è una grotticella artificiale del tipo "a forno". L'ingresso è formato da un vero e proprio trilite, due lastroni calcarei formano gli stipiti ed una terze funge da copertura (Fig. 19)"
(Procelli 1981; 84).

The tomb contained a complete flexed skeleton, scattered bones and a floor deposit with five vases; no radiocarbon dates were obtained. Most of the ceramics were of the Castelluccio style, but there were also "pocchi frammenti attribuibili alla facies neolitica di Serra d'Alto." The similarity of the building technique to Maltese traditions is obvious, as Procelli comments,

"le cui insolite caratteristiche architettoniche mi hanno indotto ad attribuirne l'origine all'influenza esercitata dalla vicina isola di Malta, questa volta però in un periodo immediatamente precedente l'occupazione dell'archipelago maltese da parte dalle genti del Cimitero di Tarxien. Da qui la necessità di rivedere sotto nuova luce il problema dei rapporti siculo-maltesi."
(Procelli 1981; 83)

Procelli links the Contrada Paolina tombs with two tombs (114 and 144) of the six collective tombs at Castiglione near Calaforino. 114 he says is a rare type in Sicily, with its long concave facade and central entry, so is probably

"un addatamento locale di forme e tecniche estranee all'ambiente siciliano ... la tecnica con l'assise inferiore ad ortostati ed quelle superiori a scaglie di pietra sovrapposte, il trilite d'ingresso e, per tomba 144 di Castiglione, il prospetto concavo,
The End of Temple Building

richiama molto da vicino le facciate dei templi maltesi" (Procelli 1981. 104)

To this Sluga Messina adds, "lo stesso si può ipotizzare per la tomba principale di Contrada Camuti, nel catanese" (Sluga Messina 1988; 11). Further Maltese elements appear to be the porthole slabs, both that found by Procelli at Contrada Paolina and the earlier one found by Orsi of Tomb 1 at Monte Sallia.

To these tombs must be linked others of the same region, those of the Cava Lazzaro and the Cava d'Ispica (Plate 27), to which Distefano (1988; 12) adds Baravitilla and Calicantone. Here again there are concave facades which define the area in front of the tomb entries. However these facades as well as their tombs have been carved out of the rock, presenting concave facades ornamented with carved pilasters. Procelli sees these too as of Maltese influence, indicating differentiation of one family group from another. Since no Maltese temple has pilasters in its facade, this inspiration seems to come specifically from halls 24 and 26 of the great Maltese Hypogeum. In fact, with the other links between this Iblei zone and Tarxien, I suggest that we should see these as probable Tarxien elements penetrating this area. Perhaps future finds will provide datable material conclusive for period. Tusa observes,

"L'approfondimento di questa evidenza potra' dare utili indizi sulla penetrazione dei materiali maltesi in Sicilia, trovandosi la nostra zona nei pressi della costa più vicina alle isole maltesi e quindi lungo una naturale via di penetrazione." (Tusa 1983; 321)

Still in the south-east corner of Sicily, there is important evidence of Maltese contacts from the Grotta della Chiusazza and from Ognina, near Syracuse. The
distinct stratigraphic layers found at Chiusazza have made it an important site for the diachronic sequence. Above the Eneolithic material are two distinct Castelluccian layers, B 3, typically Castelluccian in form and decoration, and D 4 which is not, but relates to TC and Capo Graziano wares. Nearby at Ognina, the ceramic evidence is rich in material of the D4 type, seen as imported from both areas. B. Brea saw here a Maltese colony of the TC people, Tusa considers Ognina a "vero e proprio emporio con presenza di genti maltesi" (Tusa 1983; 372). In either case, the existence of a group having close ties with Malta is clear.

Slightly further north, but still south of Etna, Evans claimed two sherds from Catania-Barriera as of Maltese influence. Brea agrees, and adds that the disc amulets from Manfria are local imitations of the Maltese disc idols. North of Etna, however, the east Sicilian coast has produced no further evidence suggesting Maltese links; the same is true for the north coast.

Moving north to the Lipari Islands, there are clear links between the Capo Graziano culture and that of the Tarxien Cemetery, links discovered by Brea and accepted by Evans, who refers to "the striking similarities between the pottery of the Tarxien Cemetery and that of Brea's newly-discovered Capo Graziano culture" (Evans 1956b; 85). In fact, though we may accept substantial trade links in the EBA, it is likely that both sprang from the same source, which explains the similarity in their ceramics; the Castelluccio painted ware is related to the matt painted wares of Anatolia and the Aegean (Brea 1976; 52).

Brea however linked the Maltese temple culture to the Aegean, as did Evans before the mid-seventies;
The End of Temple Building

calibration now makes this very unlikely. Brea also doubted whether there could be any overlap between the Castelluccio culture and the Tarxien phase, though both "John Evans and David Trump sembrano favorevoli a questa ipotesi" (Brea 1976; 90). However, his arguments for an effective isolation of Sicily in this period were not accepted by Tinè, and in an intervention he conceded the acceptability of Maltese influence at Malpasso-Calaforo. Procelli notes that both W. Bray and M. Almagro accept some overlap between the Tarxien and Castelluccian phases (Procelli 1981; 104). The material presented above appears fairly conclusive of far more important links; calibration renders the time-scale suitable.

It is most significant that, leaving Lipari and its obsidian aside, all the known links between Sicily and Malta lie around the southern Sicilian coast and the southern half of the eastern coast. This is exactly the area with natural access by sea from Malta, and indeed where parts are sometimes visible. Along the north coast there are no suggestive links either in tombs or ceramics, nor are there any dolmens or porthole slabs, the very minor exceptions being two V-buttons found near Palermo. The evidence, though perhaps only a fraction of what we may hope for after substantial exploration, is unmistakeable.

Moving east to peninsular Italy, there is one important area whose remains suggest Maltese links, the 'heel', and especially the region round Otranto. Here the remains are dolmens and ceramics. Evans reported some 40 dolmens in two distinct groups, the Bari-Taranto group and the Otranto group, with relatively little in common. Whitehouse says she saw about 10 of the former group which were either rectangular chambers or larger gallery graves. "The Biscaglie tomb contained the remains of at
least 13 individuals; most of the skeletons were disarticulated, but a few survived intact and these had been buried in the contracted position." (Whitehouse 1983; 47) She adds, "We have no radiocarbon dates for any south Italian megalithic tomb," so we are dependent on the typology of the tombs and their contents.

The Otranto group were found empty, so are only classed as tombs by inference. Evans found a general structural resemblance between these and the Maltese dolmens; both have a large irregular capstone supported on much smaller slabs and boulders. They are similar in size, and some capstones in each group have either a vertical hole bored through the middle or groovings round the upper surface suggesting non-utilitarian use (Evans 1956a; 92-3). Pierced stones presumably used for libations were common finds in the temples, and the 'mushroom' altars at HQ both have groovings.

On the ceramic evidence Evans says that there are general similarities between TC and Castelluccio wares, that their decoration is closest to the painted wares of Central Anatolia, while the best parallels in form for the TC and CGr wares are with Early Helladic rimmed-bowls, tankards and jugs.

"Such basic Tarxien Cemetery shapes as the askos, jug with cutaway neck, and two-handled jar take us back, via Early Helladic, to Western Anatolia, particularly Troy and Thermi. The more unusual Tarxien Cemetery shapes also find parallels in the latter region." (Evans 1956b; 97)

Dating is not accurate in these circumstances, but the evidence "suggests a late third-early second millennium BC date for the initial construction of monuments of both groups." (Whitehouse 1983; 47)
Evans draws conclusions of wider diffusionist movements:

"The connection of these objects from Troy and Thermi with the 'anchors' and clay hooks from further west seems beyond doubt, and further strengthens our evidence for a movement which eventually reached the central Mediterranean. ... A glance at the map of the distribution of thickened-rim bowls, 'bossed bone plaques' and 'anchor ornaments' shows how far they go to support the hypothesis of a cultural movement from the east to the central Mediterranean during the second millennium BC. The first and third of these are common objects, highly unlikely to have been made articles of commerce. Their spread therefore seems likely to imply the spread of their makers." (Evans 1956b; 100-1)

Diffusionist movements are quite acceptable here, but caution is needed too. We now realise that the bossed bone plaques were probably made in Sicily and travelled east, and this may also be true for other items: calibration makes this more likely. In fact there is no reason against supposing that the links were a two-way process, and there is increasing evidence to support this idea. So far there is no proof that the Otranto dolmens are older than those of Malta; the possibility that the Maltese dolmens are older has to be considered. It is perfectly possible that the Maltese dolmens represent a new form resulting from the interaction between the BA immigrants and a residual Maltese temple community with their expertise in masonry, and also that dolmens were introduced later into the Otranto area as part of a cultural back-flow. There is no known reason why the TC immigrants should not have remained in contact with the Otranto group from whom they probably took their origin. Whitehouse comments, "In the case of the Apulian megaliths there is general agreement that these must have been introduced from the west, for the simple reason that there are no megalithic tombs further east." (Whitehouse 1983; 58)
The End of Temple Building

Whatever the conclusions to be reached during the twenty-first century, it seems to me that we are confronted with a phenomenon of acculturation, in which there was certainly a movement westwards by boatloads of emigrants who were probably (as at TC) brachycephalic and had bronze technology, but in many respects were not superior to the indigenous inhabitants of the lands they reached. The bossed bone plaques seem to prove a cultural flow in the reverse direction, and the appearance of dolmens around Otranto could have similar significance. On the theme of acculturation, it is most interesting to note the analysis of skeletal remains from the Castelluccio necropolis of Castiglione by F. Facchino at Bologna University. He found evidence for at least 175 individuals (counting crania), including infants, adolescents and adults of both sexes; excluding the infants their average age was between 20 and 40. Distefano comments that dolichocephalic, brachycephalic and intermediate forms were found. "Siamo, certamente, in presenza di elementi derivanti da incroci, benché il tipo mediterraneo sembra prevalente." (Distefano 1988; 22) This is seen as representing a mixture of the local type with newcomers already racially mixed (Mediterranean, Danubian and Anatolian types) by the EBA. So for this Sicilian community, racial mixing, a normal feature of acculturation, is established; any Maltese elements present in this area already noted as suggesting Maltese links would be represented by the Mediterranean type.

It thus appears that the earlier views of both Brea and Evans regarding a substantial isolation of the two islands has now to be modified, definitely for the TC phase (and the Ca phase in Sicily), but also most probably for the Tx phase as well. While it should not be exaggerated, the evidence for Maltese influence on Sicilian funerary ritual seems clear; it led to new
Sicilian forms which incorporated Maltese masonry techniques and ideological cult practices. The distribution of the evidence, as well as its nature, shows substantial Maltese cultural influence, though perhaps it is too early to prove actual immigration. The distribution of the evidence along the south coast, with noticeable penetration up the river valleys, is quite compatible with the concept of small emigrating communities of a thousand or so establishing themselves in southern Sicily.
The End of Temple Building

Sardinia

The case of Sardinia must be mentioned here, if briefly, as Maltese links have been claimed, both directly, and indirectly via Sicily. Common features have been found in tomb forms, dolmens, porthole slabs, in pottery and also in minor forms including V-buttons and modelled phalli. Sardinia has over 1,100 recorded rock-cut tombs and three main varieties of megalithic tomb, but there are few radiocarbon dates, so absolute dating is not established, nor is any chronological priority between Sardinia and Malta. Whitehouse comments that

"The tombe di giganti are the most elaborate of all the megalithic tombs in the central Mediterranean. The distinguishing features of these tombs are their long chambers, entered through the centre of a facade, which frames an apsidal, semi-circular or occasionally almost circular forecourt." (Whitehouse 1983; 50)

This form, with its two long 'horns', must be associated with funerary and perhaps other communal rites, and thus, like the Sicilian examples, is partly a homologue of the Maltese temples: any direct influence from Malta remains to be proved. The dolmens could also be related to Malta, as Whitehouse comments, with their "large capstone which is supported on a number of uprights, varying from three to seven ... In this respect these dolmens resemble the block-and-shoulder style dolmens of Apulia and Malta", though pierced or decorated capstones are not found. (Whitehouse 1983; 40-50) Sardinian portal stelae, especially those centred in a concave facade, could certainly have Maltese influence. The dolmen at Sa Coveccada di Mores, Sassari, is a dolmen provided with a porthole; Sluga Messina describes the 'portello-finestra' as "presente con una notevole frequenza nelle "domus de
The End of Temple Building

Janas" sarde" (Sluga Messina 1988;4). She also reminds us that Malta and Sardinia share a special cult which used phalli in stone or relief, sometimes inside 'altarini'; she, Orsi and Procelli all commented on Sicilian examples. Messina also notes various Sardinian tombs which have two antithetical spirals in relief inside the tomb, one being the Domus dell'Ariete. Procelli has pointed out the similarities between the tomb of Cucuru Craboni (Cagliari) and that of Contrada Pergola. "Striking resemblances" have been noted by Evans between Tx and Ozieri ceramics (1979; 20), and "very strong resemblances" by Sluga Messina (Second Malta International Conference, 1988) especially in form, handles and decoration. Similarities in ceramics include spiral motifs and the U-shaped subcutaneous vase handles, commonplace in Tx phase Malta and rather less so in the Ozieri phase in Sardinia where they lack precise dating. At present, Malta seems to have a general overall priority in dating, with its rock-cut tombs, its megalithic architecture and perhaps also its dolmens. While this may be due to the greater depth of modern research in Malta, it is undeniable that the temples establish the existence of communities both unusually densely populated and unusually advanced for the Neolithic; consequently areas of Maltese influence should be looked for. These indications show it to be probable.

Conclusions

As brief summary for this long section, we note that, although the evidence is not yet conclusive, the Italian excavation at Tas Silg certainly suggests some continuity at this site, while the evidence of Phoenician inscriptions indicates that a similar situation could have existed in Gozo. A total break around 2500 BC, with
no survivors, seems improbable, yet so far there is no ceramic evidence for continuity into the TC phase. Extant wares should be examined by modern techniques, including X-ray analysis and diffraction, and electron and thin section microscopy. Since the TC people were brachycephalic, we should also look for inhumations of TC phase longheads. As the temple period was evidently characterised by virtually autonomous temple communities, it is at this level that responses to overpopulation, strain on resources and periods of drought should be sought. Consequently we should be prepared to find different solutions for different communities: there is no certainty that all communities would have emigrated to the same place or even at the same time, and there may have been survivors in Malta. In Sicily, which is inadequately explored, there is evidence of contacts with Malta back in the temple period. These contacts increased in the Castelluccio phase, which probably overlapped the Tarxien culture. Signs of Maltese influence appear in the geographic and cultural areas where we would expect it, in certain masonry techniques and especially in tomb forms with their ideological implications. TC ceramics in Sicily show further contacts, Maltese emporia have been suggested, and the osteological evidence from Castiglione proves the process of acculturation there. Acculturation has also been proved for the Rinaldone culture. Further investigation especially of settlement sites and tombs around the south Sicilian coast will decide whether or not there was actual immigration of temple communities: at present this appears likely.
"What we cannot explain is the multiplication of temple sites within each group, but this is hardly more of a problem than that long recognised, the reason for the multiplication of temples on each site."

David Trump (1983, 73)
Conclusions

Economy, Technology and Trade

Subsistence Economy

Use of systems archaeology brings out fully the use and limitations of the old Three Ages system; its continuing value varies considerably from one system to another. As regards subsistence economy, the temple-builders of Malta had a level which, from its surviving remains, was unexceptionably neolithic. There is evidence for cows and pigs, sheep and goats, and also, more surprisingly, a few ponies in livestock. For crops we know they had a hulled barley and mainly emmer wheat (Triticum dicoccum), with a naked grain which was probably club wheat (Triticum compactum), while they also grew lentils. The evidence recovered to date, deriving essentially from the Skorba site and the temples, gives little indication of the variations over the 1500-year-span, and not much more of the relative importance of the livestock species. The cattle from Xemxiya were described as smaller than Mediterranean cattle today by G. Pike (see Evans 1971; 240) while Prof Gaudert said of those from Skorba "The cattle were remarkable for their large size." (see Trump 1966a; 51) Apart from the possibility that there were different species, perhaps introduced by the two separate waves of immigrants, it could be the case that we are faced with marked sexual dimorphism in creatures not far removed from their auroch stock (see Plate 16.1). Apparently the cattle were less common, while the most numerous species were the ovicaprids, sheep and goats being difficult to separate at this point. The evidence on pigs, though clear, is simply inadequate. All of the remains of these
Conclusions

domesticated species is quite unremarkable, standard neolithic stuff, yielding little information either about the adaptive variations in time or of the certain adaptation to the specific ecological niche of Malta that must have taken place. We cannot even prove any intensification of farming methods, though some is probable. A very interesting possibility is that the temple sacrifices of these animals, particularly the ovicaprids, represents an adaptive development to control meat-eating when the population was high and pressure on land at a maximum. As P.E.C. Smith comments,

"a most compelling force favouring intensification is population pressure, when the point of density has been reached where the critical carrying capacity of the land is approached and the group must face a decline in living standards or a shift from their traditional mode of life." (1972-3; 13)

This basic farming was complemented by some limited hunting of red deer while the species survived; hunting or snaring for rabbits was probably relatively commonplace. As regards fowling, the dove bones found at Skorba indicate a valuable extra source of food; Malta then as now would have been on the routes of the spring and autumn migrations, implying considerable numbers of turtle dove, quail and partridge as well as many other species. The vine, fig and olive were quite likely indigenous; the beams recovered from Skorba imply some domestication of the wild scrub-olive. For herbs, and leaf and root crops including Brassicas, etc, we have simply no record at all. We can only assume that they would have made good use of the edible species available, including wild garlic, onion, fennel, and perhaps carrot and carob, and that they probably consumed a variety of wild bulbs including asphodel, orchids and iris, especially when times were hard. Over such a span of time, there is no doubt that there would have been hard
Conclusions

times as well as periods of plenty; the clear evidence of demographic growth to a level probably rarely experienced by neolithic communities, especially those not confined to the edges of continents, must have produced a response towards eating at lower trophic levels. Stock-raising for meat is simply the least efficient use of land, and where, as in Malta, land was absolutely limited, we have to expect adaptive mechanisms, perhaps involving fallow land. It is likely that these included some aspects of the 'secondary products revolution'.

The main ecological feature of the archipelago, however, is its intimate relation to the sea. There is no doubt that man arrived in Malta by boat, or that he continued, at least in season, to use boats whenever needed for trade: the evidence of obsidian and other stones is unambiguous. In such conditions, and with demographic pressures requiring adaptation to lower trophic levels, it can hardly be doubted that considerable recourse would have been made to fish. Though fish are not normal creatures for sacrifice, the altars from Bugibba provide some solid evidence, and we must suspect, if we cannot prove, that full harvesting of their marine resources, those of deep water as well as of the coasts, would have become an increasingly important activity. In particular, the presumed availability of large fish, swordfish and tunny, as well as smaller species, could have filled an increasingly serious protein shortfall. Although details are not visible today, that the temple-communities continued to grow and flourish over such a great period itself constitutes proof of successful adaptation to their ecological niche, even during phases of important demographic growth. Strictly speaking the typical Neolithic subsistence economy continued throughout the Middle Ages and effectively down to the agricultural revolution of the
Conclusions

eighteenth century. What interests us most is how the basic neolithic stock-raising and crop-growing was integrated into the typical ecological niche of each community.

Technology

Here the term neolithic has a precisely defined meaning and a clear end, the moment when a particular community acquired the materials and techniques necessary to create metal tools and weapons. Paradoxically, the Neolithic temple-builders have been classed as both Neolithic and Chalcolithic, despite there being no doubt that they had neither metals nor metal technology of any sort. First introduced by Zammit, then set aside by Evans, the term Chalcolithic was re-introduced by Trump in order to facilitate comparisons with Sicily, though recently he has tended to avoid the term. In fact, even in Sicily (see Brea, Kokalos 1976-7), there was very little use of copper throughout the third millennium, the island being devoid of its ores, and consequently the term has almost as little meaning there as in Malta. In both cases, it is the arrival of bronze technology which announces the real arrival of metals, and in both cases they had to be imported. As Tusa remarks, the arrival of copper in Sicily was on such a small scale as to have little significance. There is no serious doubt that the technology of the temple-builders was neolithic in the literal sense of the term, which is why Ridley proposed a scheme which has no Chalcolithic.

The reality is that the temple-builders had no metal of any sort at their disposal: all their tools, like all their other materials, were natural products (see Plates 24). They had a fair range of stone, from obsidian,
Conclusions

flint and chert to limestone and lava (there is no evidence for alabaster or jadeite being used as tools), supplemented by antler, horn, bone and wood, and presumably also by leather, fibres, etc. This is the true neolithic picture. Quite a few of these tools have survived, and in particular the Hypogeum gives us clear evidence about their techniques, various examples of tools being displayed in the National Museum.

This being so, there is no possibility of a select group using control of metals to create and enforce a privileged position in their society. It seems it was partly the use of the term 'Chalcolithic' that misled a scholar of Renfrew's calibre into reading the presence of chieftains into a society whose material remains and burials do not really justify this hypothesis. While ranking systems are not dependent on metals, genuine chiefdoms rarely lack them, nor are there in Malta other solid pointers to a chiefdom society. See discussion below.

In fact the remarkable achievements of the prehistoric Maltese, culminating in a unique set of stone temples, are all the more remarkable for being genuinely neolithic. Whether or not there was any hierarchy has nothing to do with the completely neolithic nature of their technological equipment.

Trade and Commerce

It is doubtful whether these were sufficiently developed or important among the temple-builders to warrant classification as a separate sub-system. This is not to question that there was some limited trading; it
Conclusions

is to place it in the context of the daily existence of the neolithic Maltese. It is also necessary to distinguish between purposive collecting expeditions and genuine trading involving exchange. Neolithic communities were typically largely self-sufficient as regards subsistence, and trade in other materials was normally very limited: in fact it was, in many areas, precisely the absence of tin and copper ores which broke down the characteristic neolithic self-sufficiency and ushered in the Bronze Age. For Malta and Gozo, there is no evidence for trade in comestibles, and, given the demographic strain on their own resources in the Gg and Tx periods, it is far from evident that there would have been any kind of surplus to exchange for the materials they required, though fish could constitute an exception. Nor have sherds of Maltese ceramic containers been found abroad in noticeable quantities before the Bronze Age. Presumably any real commerce would have been by exchange bartering.

When we examine the earliest evidence for importing materials from abroad, a new feature reveals itself. After the initial immigration, the first such material for which we have solid evidence is obsidian. Now obsidian is a substance whose source can be precisely determined; it is also one which had a great impact on developing societies at a very early date. Evans says,

"The Franchthi evidence demonstrates that the use of obsidian for tools and weapons developed pari passu with the beginning, and the subsequent steady rise in importance, of deep sea fishing, as indicated by the presence in increasing quantities of large fish bones. It was doubtless the development of efficient boats to exploit the resources of the sea, perhaps as a result of changing climatic conditions ... which first opened up the possibility of reaching, and ultimately of colonising, the majority of the islands." (1977; 15)
Conclusions

However, sources of obsidian are strictly limited (the major Neolithic sources were Melos, Lipari, Sardinia and also Pantelleria) and stationary: the presence of obsidian cannot have been very obvious to neolithic man. In comparison, tunny are much more plentiful and very mobile. Renfrew comments,

"The marine fauna - fish, molluscs and other invertebrates - have not changed significantly in the past 10,000 years, although routes of seasonal migration for tunny may have altered, perhaps affected by small changes in sea level." (1972; 269)

Contrasting a concealed source of quality stone with the recurrent abundance of the tunny and swordfish runs, there is a high probability that it was first the fish which gained the attention of neolithic man. In order to catch the fish it was necessary to have seaworthy and manoeuvrable boats, so it would appear that the initial stimulus was provided by the large fish, leading to an important development and improvement in boat-building, and that, once sea-borne, discoveries of hard stone like obsidian eventually followed, and these in turn led to a development of some of the earliest trade networks.

To date we do not know the exact origin of the Stentinello neolithic community, though a closely similar Impressed Ware has been found in S. Italy and also in Greece. Evans states,

"Wherever we can check, the earliest island populations seem to have come from the nearest coast, or other island, which points to very much the kind of 'wave of advance' pattern which has recently been envisaged by Ammerman and Cavalli-Sforza in recent articles." (1977; 15)

Consequently we seriously need to investigate the possibility that the earliest fully neolithic communities arrived in Sicily and Malta via S. Italy and Greece, and
Conclusions

that the coastal route they followed was linked to the
tunny routes. If this was so, we have a natural
explanation for the appearance of Ghar Dalam people at
Pantelleria - their discovery of obsidian there would have
been secondary to their fishing expeditions. It is also
significant to notice that there is no evidence yet for
neolithic settlements on Pantelleria, and thus that
Pantellerian obsidian formed an article of trade.
Therefore there is little doubt that these earliest
Maltese expeditions became what Professor Fedele calls
'purposive expeditions' aimed at collecting the valuable
obsidian rather than true trading expeditions.

These considerations therefore raise a major
question about the nature of Maltese trade prior to the
Bronze Age: To what extent were imported materials
obtained by purposive collecting expeditions on the
initiative of the Maltese, and how far did they
constitute genuine trading? Clearly the answers must be
by phase and according to the particular imported
material.

Returning to obsidian, it is clear that there was an
important shift in its importation. Cann and Renfrew's
research shows two major features: 1) a substantial
decline in the % of Pantellerian obsidian relative to
Lipari obsidian,
2) an apparent overall decline in the use of obsidian;
out of 298 samples analysed, no less than 221 (nearly 75
%) came from Gh D or Sk phase sites, over, say, some 1000
years, while only 77 specimens (c.25 %) came from the
phases Zb - Tx, some 1500 years. Either we have to
postulate a real overall decline in use of obsidian, or
else there is a distortion due to the latter sites being
typically temples: I favour the latter. The work of Brea
in the Aeolian Islands has clearly established settlement
sites which began very early: obsidian is abundant in the earliest levels at Stentinello. The earliest Aeolian village is Castellaro Vecchio in Lipari which has characteristic Stentinello pottery; its upland site indicates that it was better for tilling and pasture than navigation and trade, and thus it is likely that obsidian was secondary when it was founded, but rapidly became the major activity. It is equally likely that the first Maltese traders developed genuine trading relations with the natives of Lipari with whom they shared a common origin and, in all probability, a common language. But while proposing genuine trade, the complete absence of Maltese artifacts so far from Lipari makes it impossible to state what was exchanged.

Due to its characterisation, we are far better informed about obsidian than about other imported materials; these include flint, lava, greenstone (jadeite), and possibly alabaster and red ochre. Bonanno, drawing on Evans and Trump, says,

"Practically all the flint implements unearthed on Maltese sites of the period can be traced to that island (Sicily). One particular type, of grey-buff colour, which makes its appearance for the first time in the Saflieni phase and becomes very common in the following phase, has had its origins tentatively located in the region of the Monti Iblei, near Syracuse." (1986b,37-8)

When we combine this with Tusa's observation that most Maltese remains in Sicily are found on the southern coast, it is clear that much of this Sicilian flint need not have reached Malta by trade but perhaps by collecting forays of the type indicated by Pantellerian obsidian. Perhaps there a distinction to be made between littoral sites including the mouths of rivers and sites further inland. The former would have been suitable for collecting forays, while inland sites probably imply
Conclusions

trade. In the Iblei, Orsi discovered flint mines around Monte Tabuto; the settlements he found at Branco Grande belonging to the EBA prove the continuing importance of flint into the age of metals, since the region is a Castelluccio centre.
Conclusions

As regards lava, Bonanno comments,

"The lava quernstones from Tarxien ... came certainly from Etna. This importation of lava for cereal grinding is even more significant considering that the local coralline limestone served that purpose just as efficiently. Indeed among the grinders and quernstones of the Skorba site none was of this imported material." (1986b; 38)

Whether the lava was obtained by trade or by collecting forays is not clear, but its presence certainly proves contacts with south-east Sicily, significantly during the Tx phase and with Tarxien itself. Doubtless Maltese chert continued in use.

The case for greenstone is different. Though no detailed petrological examination has been made, Trump says it could well come from the Sila district in Calabria. Bonanno comments, "As no unworked lumps of this material were ever found on Maltese sites it is probable that they reached Malta in their finished state." (Bonanno 1986b; 39) The worked form was that of a miniature axe-pendant, normally an inch or two in length and pierced with one or two holes at the end away from the blade, presumably so that they could be worn as pendants. They are often spoken of as axe-amulets, and they constitute a common find among the very limited grave goods, being especially plentiful in the Hypogeum, though also found at other sites, especially, it appears, of the Tx phase. Bonanno's point implies that they were definitely articles of trade, and they actually constitute the unique item that could be read as indicating rank; their humble size and modest appearance preclude reading them as symbols of power. However,
Conclusions

their size and their common occurrence suggest an alternative interpretation, that they symbolised adherence to a particular aspect of cult, just as Christians frequently wear crucifixes.

The alabaster used in certain small goddess-type figurines has been tentatively assigned by authors from Zammit to Evans and Trump to Calabria, or possibly the Agrigentino. However they have failed to note that there are occasional appearances of this stone in Malta. This is specifically described at Zebbug by Houel,

"je passai au Casal-Zebuccio, pour y visiter une espèce de carrière d'alâbatre qu'on y trouve. Elle est située à l'occident de ce casal, dans le sein de la montagne. ... Cet alâbatre est gris, jaunâtre, et il y a quelque fois de beaux accidents bruns et de belles veines d'un beau blanc, semblable à du lait caillé; il est très-dur." (1787; 84)

The clay used by the temple-builders for their pottery was presumably of Maltese origin; the study by M. Molitor is awaiting publication. There was no need for Maltese potters to have recourse to imported clay. The same could well apply to the red ochre used as a regular feature for Maltese burials from the earliest times. Ochre is a combination of clay with hydrated iron oxides, which are present in Maltese soil, so it seems unnecessary to suggest importation from abroad. The application of the latest analytic techniques to Maltese pottery should be able to provide details of the techniques used by their potters.

As regards imported pottery, the extremely limited sherds of undisputed foreign origin are listed by Bonanno as follows,

"Five specimens, three from Skorba and two from Santa Verna, are identical with a sherd from Trefontane, west of Etna, but their real home is still
Conclusions

unidentified. In Malta these Trefontane sherds are associated with Grey Skorba and Zebbug contexts. A single Serraferlicchio sherd further supports the commercial links with Sicily. About forty fragments of Therma cups, including a complete one, span from Ggantija phase in the Temple Period to Tarxien Cemetery in the Bronze Age." (Bonanno 1986b; 39-40)

Recognised Maltese pottery found abroad comes from Sicily, studied above, with some examples from Sardinia.

The above items, with three polished stone axeheads (two from Skorba), and the bead with gold inlay constitute the hard evidence for trade. As we have seen, Pantellerian obsidian, some of the Sicilian flint and lava, clay, alabaster and red ochre should probably be discounted as they could easily have been collected. The Lipari obsidian, the flint from the inland Iblei sources, and the greenstone, together with the proved foreign sherds, make up the sum total of the certain evidence for foreign trade, an extremely small amount for some 2500 years of history, and hardly enough to form a serious sub-system. The essential neolithic self-sufficiency is hardly debatable for Malta at this time.

There are just about enough imported materials to make us wonder what the Maltese offered in exchange. To complement the even more limited evidence of Maltese ceramic ware abroad, which could have contained comestibles such as honey, we may add other natural products: food and liquids, textiles of wool or flax, and other products derived from animals or plants. As trading necessitated sea journeys, fish are a probable item of exchange. All of this is purely hypothetical; that there was exchange in some such items need not be doubted, though its extent must have been very strictly limited, and its details, like its fluctuations by phase, may well remain unknown.

-271-
Conclusions

The picture is similar for internal trade, as Bonanno points out. Those who favour the chieftain hypothesis like to point to the possibility of chieftains controlling exchange in commodities between different communities, and indeed it is pleasant to speculate that the great forecourts may also have served as centres for exchange at some level. There is however absolutely no evidence that they did serve, or need to serve, such a function, and equally none that any such postulated activity was controlled by chiefs or priests. In fact, whether there was any need for organised exchange is far from clear; there is nothing to show that, in such small islands, one area was likely to have products which could not equally have been produced by its neighbours. The furthest inland of the temple sites are Skorba and Tal Hagrat, but, as Zammit records, it only takes modern fishermen twenty minutes to walk to Mgarr after beaching their boats. That there was some exchange and barter need not be doubted, but the material evidence currently available does not suggest that it was controlled or very significant.

Society

In reconstructing the social subsystems of prehistoric societies, we depend on the range of remains recovered; in Malta, though remains are often tantalisingly inadequate, careful study does provide valuable indications. It is generally settlement sites that provide most information, but here, despite a unique richness in temple-sites, there is a near-total absence of real settlement sites. The major site recovered is Skorba where we cannot claim to have the whole site,
Conclusions

although we do have sufficient remains of huts to have a reasonable idea of what a neolithic Maltese village was like. Recovered huts do not include a significantly larger construction which could be interpreted as the home of a chief; the modest-sized Hut of Querns (6 by 3 m) was interpreted by Trump as most likely being a shrine. The remains of Skorba show an agglomerated pattern, which is what we could expect throughout the archipelago. That no other settlement sites have yet been found is probably best explained, with Evans (1953; 92), as due to persistent use over more than four millennia of the prime settlement sites, together with the demands for agricultural land.

Elsewhere, burial sites have provided evidence consistent with a chiefly interpretation. Recent excavations in Bulgaria, especially the Varna necropolis, that of Dourankoulak, and the ritual centre of Dolnoslav near Plovdiv, have yielded clear evidence of chieftain societies in the Chalcolithic (fifth millennium BC calibrated), with impressive quantities of grave goods including abundant gold and copper ornaments and emblems of power. These are a millennium earlier than the temple-builders, yet their society seems very different from the Maltese. I. Ivanov writes that "on peut affirmer avec certitude que la civilisation de Varna fut la première civilisation hierarchisée d'Europe" (Ivanov 1989; 67). Sometimes, as at Mycenae, there are large conspicuous shaft graves which contained a very small number of burials provided with elaborate and costly grave-goods of bronze age chiefs, while Fourth Dynasty Egypt, more nearly contemporary, constructed immense funerary structures as individual burial places for the nation's kings. Maltese burials, by contrast, are not individual but collective, with some very early rock-cut tombs which should perhaps be seen as 'family' tombs,
Conclusions

while in the great Hypogeum near Tarxien, the 7000 burials show a major centre of collective burial. Funerary goods again are extremely simple, with no metal, nothing to indicate status, and are typically limited to ceramics, the axe-pendants, some shells, and the traditional red ochre; There is nothing to suggest a hierarchy, status or power beyond perhaps simply being buried there. This is the essential position, and it provides a very flimsy base on which to construct a theory of chiefdoms. The Hypogeum is essentially a concealed subterranean structure like the rock-cut tombs, yet it would be valuable to know if, in the Tx phase, it were marked off externally by a structure (perhaps a circle) of megaliths like the Brocktorff Circle, as the megalithic stumps suggest. In any case, the sheer number of burials is major evidence against chiefdoms; we would be embarrassed to talk of 7000 chiefs - a ranking system makes far better sense. The current Cambridge excavation in the Brocktorff Circle has apparently established that, while the early rock-cut tomb belongs to the Zb phase and has yielded "at least 50 individuals and 70 pots" (Trump, personal communication), the spectacular circle of megaliths painted by both Houel and Brocktorff belongs to the Tx phase. This fits in well with my views on the later date for true megalithic construction, and suggests a development of ranking in the Tx phase.

It is true that there is no hard proof of whether the settlement plan was generally dispersed or aggregated; we can only argue from the Skorba site and the pattern of the temples. However, it does seem very probable that there was a segmentary society. Renfrew defines segmentary societies as lacking the centralised, hierarchical structure of a chiefdom or state, and says they
Conclusions

"are 'smallscale' societies, and frequently non-literate. In particular they display segmentary organisation, which implies the repetition of equivalent groups. They are cellular and modular: cellular in that the groups are clearly defined and operate in many ways independently, and modular in that they are of approximately equal size. The segments are autonomous, economically and politically, and usually number between 50 and 500 persons. In segmentary societies the primary functioning unit - normally a residential unit, whether a village or an association of dispersed houses - is the primary segment, 'a self-sustaining perpetual body, exercising social control over its productive resources' (SAHLINS 1961, 325)." (1976; 205)

The temple-builders match up to his two basic criteria for recognising a segmentary society since 1), their society was apparently composed of permanently functioning small groups of this kind, and 2) there is no evidence that the groups were subordinate parts of a large effective political and economic entity which limited the autonomy of its parts. The only possible exceptions to this are the temple-complexes such as Tarxien, but even here it appears that each community had its own temple (four temples each with five hundred would total 2000 individuals, a very acceptable figure for the area), nor is there any evidence of a larger entity limiting local autonomy. The temples indicate the repetition of equivalent groups throughout the islands, and thus are cellular. They are also modular if taken as individual temples rather than temple-complexes, although the existence of the latter in the later Tx phase might imply a developing situation. Discussing monuments as territorial markers, Renfrew states,

"In many segmentary societies the territorial division of the terrain is given symbolic expression. Membership of the group, and the land occupied are expressed in rituals, which are often focussed upon a specific location. Generally this will be in the heart of the territory, in the middle of its 'home range' ." (1976; 206)
Conclusions

There can be little doubt that the Maltese temples did function as ritual centres, both internally and in the forecourts. If we accept that the monuments and their ceremonies served to mark off one social group from another, which seems highly probable, then the groups belonged to temple-communities, not just six chiefdoms. Renfrew admits that "Segmentary societies ... lack the centralised, hierarchical structure of the chiefdom or state." (1976; 205)

It is difficult to avoid imposing an artificial pattern on limited evidence. Atkinson reminded us that megalithic monuments are the only evidence we have for the existence of prehistoric communities; both temple-building and religion constitute real communal activities. Accordingly, where we find separate temples, it seems safest to conclude that they represent separate communities, just as single village churches or mosques represent communities that are distinct from one another. Though the case of multiple temples (Gg, Sk, Tx, etc) is not immediately clear, it seems sounder to conclude that neighbouring communities (HQ and Mn) represent independent temple-communities that have chosen separate territories than that they represent chiefdoms. The boundaries between Renfrew's chiefdoms are arbitrary (surely relative population density was more important than actual area ?), and the ethnographic parallel with the megaliths and chieftains of Easter Island, as Evans says (1977; 23), can only point to a possibility. Sahlins has said "Chiefdoms are redistribution societies with a permanent central agency for coordination" (see Renfrew ed. 1973; 530). Centralised redistribution has not been demonstrated for Malta, where if we count just temple complexes instead of distinct temples, we still have some thirty sites (single or multiple) with their
Conclusions

own forecourts. Centralised redistribution seems basically improbable for Malta.

While the case of multiple temples has been thought more puzzling, I suggest that the organic explanation, based on demography, holds here too. "Birdsell has equally shown that when any given habitat is saturated to its carrying capacity the process of budding-off prevails" (Dolukhanov 1973; 332). In my opinion a doubled temple like the Ggantija is best explained on the village demography model: a growing population would create more stress on limited resources, and thus more social dissent which could be resolved by the establishment of a second temple (homologous to creating a second church in a village). This process might seem dubious, but actually works in modern Malta, and has been working since the population started to grow after the Great Siege of 1565. We can illustrate the suitability of the parochial model by referring to the construction of the monumental Rotunda of Xewkija, Gozo, from 1952-70. This was built as a more impressive replacement of the baroque church, itself monumental in size and in satisfactory condition. The new Rotunda, whose dome alone weighs 45,000 tonnes, was built, and funds raised, almost exclusively through the efforts of the villagers organised by the village priest Father Grech: significantly the population of this Maltese village was calculated at about 700 families, around 2,200 individuals. Evans too has noticed

"parallels which illustrate the functions of the monuments in the modern religious architecture of the islands. I am thinking of the double temples, ... one can illustrate their function from the modern churches. There are a number of double churches and in each case one of them is older and much richer, while the other has been added later." (Evans, in Piggott S. 1956; 180)
Conclusions

Where a third temple was built (Tx and Mn), this would represent a continuation of the same demographic process in the final Tx phase, when it is clear that little unexploited land can have remained. I hold that the temple phenomenon as a whole is best and most consistently explained in relation to demography. Is there any way of checking this hypothesis?

The essential feature of this explanation in terms of demographic growth is that it is a diachronic process, one lasting over fifteen centuries for the second immigrants. Of this period, we know that the temples were built over some ten centuries or so, with a certain probability that prototypes were built earlier and were probably related to the small A class temples which we can call shrines. If the phenomenon should be seen synchronically, then the developmental sequence is wrong, and we can expect temple clusters as well as individual temples to have appeared on a different time-scale or else at random. As a whole, the temples show an increase in their numbers over the period; temples were built through most or all of the Gg phase, and this process continued in or through the Tx phase. With a single exception at Skorba, no early temple fell out of use: the total of temples in use increased progressively. Turning now to the temple clusters, we find seven sites with two or more adjacent temples, Gg, HQ, Mn, Sk, TH, K and Tx. Of these seven clusters, there is not a single case where the complex appears to have been conceived and built as an entity. Leaving aside Kordin where the evidence has been largely destroyed, all the temple complexes show subsequent additions to the initial temple of the group. At HQ, Mn and Tx, there is actually a difference in pottery phase between the first and later temples; the same is true at Skorba and may be true at Tal Hagrát.
Conclusions

Only at the Gg is it not possible to demonstrate a difference in pottery phase, and here Evans and Trump are in agreement that Gg S preceeded Gg N and underwent certain modifications when the latter was added. The evidence for a diachronic process appears conclusive, and this is the more remarkable since it can be demonstrated just by two pottery phases each lasting some five centuries, and so far without real radiocarbon dating support. We have examined above the problem of the inadequate relative chronology of the temple parts. To the ceramic evidence we may add that of the evolution in ground plan, first worked out by Evans, and accepted by Trump, and also the evolution in masonry styles presented above, with the creation of ashlar masonry, the ability to manhandle and erect big megaliths of 10 - 30 tons, and the long-and-short technique to avoid their rotation. The ceramic evidence is confirmed by the stones themselves.

My interpretation sees a single temple as the centre for a single community (however its huts were arranged, most likely in agglomerated villages), while two contiguous temples sharing a single forecourt show demographic growth and the splitting of one original community into two 'parishes' which shared a common assembly area, yet made sacrifices in two distinct temples, and were possibly endogamous moieties. Where there are separate temple complexes, with separate forecourts for assemblies, it would appear that we have largely autonomous temple-communities. We note that out of the total of 43 named temples/temple-sites, about half are in clusters, while the remainder are apparently single temples such as Santa Verna, Tal Qadi and Bugibba.

This solution does not prove, nor seek to prove, the primary pre-supposition that there is a quantitative
Conclusions

relationship between material remains and demography. Primary presuppositions are essentially heuristic, and can rarely be 'proved' in an absolute sense. While we could collect evidence for this for historical or contemporary societies on a comparative basis, this would not amount to hard proof for a prehistoric society such as the Maltese. Palaeodemography is obliged to work in the opposite direction to contemporary demography – arguing from material remains to human populations.

I freely accept that there may be other hypotheses that might provide other explanations for the material facts; however, these are not apparent. There is no proof that multiplication of temples meant new rituals or new deities: the same basic rites of libation and sacrifice are common to all temples with adequate records, while the creation of new rituals was frequently established in old temples – an oracle and betyls in HQ, betyls in Gg as well as Tx phase temples (Mn, Tx). Nor would it help to suggest dedication of different temples to different goddesses: at HQ two goddesses were represented on a single slab of an outer cella, and in any case the modern view of deities is that they are projections of human societies, so a second goddess could represent a second community. In Catholic Malta, as generally elsewhere, a second church developing in a village is always dedicated to a different saint to that of the parish church, and the process does help to resolve demographic and social stress – precisely through its association with communal religious activities.

An important and interesting feature of early societies is the emergence or presence of lineage groups. Sahlins has said that expansion in an open environment may often be accompanied by segmentation, while long-term
occupation of an area tends to produce segmentary lineages, especially where there is competition (Sahlins 1961; 342). Hedges (1984) likewise has pointed out that tribes organised on a lineage basis pay great heed to their ancestors. This certainly suggests the possibility of lineages in Malta, where certain groups (10 % ?) did pay great attention to their dead. Possibly helpful ethnographic parallels come from Madagascar and Malaysia. In Malaysia land was not scarce before the war and was held commonly by the villages, but post-war developments saw an increasing population, land becoming scarcer, and the introduction of wet rice cultivation. "As a result have emerged supra-household 'proto-lineages' and the formal disposal of the dead in cemeteries" (Chapman 1981; 74). Similarly the Malagasy Merina, who practise the cultivation of rice in confined valleys where land is scarce, have endogamous marriage, and burial in monumental tombs inside the territory of each local deme. They see deme membership as a relation between people and land (Ibid.). When further burials are found in Malta, it should be perfectly possible to say whether or not there is evidence of genetic similarity between individuals: if there is, this is surely positive evidence for some form of lineage descent.

Discussing the Archaeology of Death, Chapman says,

"From an anthropological basis I have argued that interment in cemeteries or monuments will emerge in periods of imbalance between society and critical resources. Such imbalance may arise in many ways, but in all cases society perceives the spatial and/or temporal variation in important resources to have reached a critical level and devises new mechanisms to regulate access to these resources. The emergence of territorially based descent groups, whether restricted or unrestricted, exogamous or endogamous, is a response to this process and the new social order may be symbolised to the community at large by the use of formal disposal areas, through which a permanent claim
Conclusions

to the use and control of critical resources is established by the presence of the ancestors." (1981; 80)

It is characteristic of Malta that these social symbols were the temples of each community, rather than monumental tombs; this is exceptional in Neolithic Europe, and makes the communal religious component quite explicit. However, as Evans has discerned, there was a real link especially in ritual between tomb and temple, shown most clearly in the Hypogeum, and using symbols such as the trilithon entry, porthole slabs and goddess figurines. This process of creating symbolic monuments is then, apparently, carried one step further, when in the Tarxien phase the great megaliths of the temples were copied around the Brocktorff Circle tombs, with the deliberate intent of monumentalising the area—previously used for concealed tombs of a strictly limited group. This act then, which may have been repeated above the Hypogeum and for other funerary circles, appears to symbolise the emergence of a new social order based on lineage and rank.

Brown has stressed the need to distinguish rank from authority. Drawing on Fried, he says, "The potential for rank is present in all egalitarian societies. Rank only requires the proper social circumstances to emerge from ever-present differences in personal abilities and achievements." (Brown 1981; 27) He cites Cowgill and Flannery that population change can stimulate social ranking. Flannery has stated that one of the thorniest problems in cultural evolution is the emergence of hereditary inequality. It may be that, in their final demographic and ecological crisis, the Maltese temple-builders actually created a document showing the
Conclusions

emergence of lineages and rank in an originally egalitarian society.
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COLOUR PLATES
Plate 1.1 Natural coralline slab in situ at Ta Cenc.

Plate 1.2 Coralline outcrops at Ta Cenc.
Plate 2.1  Ggantija South, facade and forecourt, Painted by Brocktorff in 1827.

Plate 2.2  Ggantija South, facade with interior view.
Plate 3.1 (left) Ggantija South, court 7, cyclopean masonry.
Plate 3.2 (right) Ggantija North, courts 11 and 14 (terminal apse).
Plate 4.1 (left)
Ggantija South, inner and outer doorways.

Plate 4.2 (right)
Ggantija South; court 4, section by entry trilithon.
Plate 5.1  Hagar Qim, cyclopean masonry inside main doorway.

Plate 5.2  Hagar Qim, the great megalith and façade.
Plate 6.1  Hagar Qim, ashlar masonry in court 5.

Plate 6.2  Mnajdra South, masonry of court 4.
Plate 7.1 Mnajdra South, ashlar masonry of court 1 with porthole slab (right) and two oracle holes.

Plate 7.2 Mn C court 8, ashlar masonry and 'oracle hole'.
Plate 8.1  Tarxien West, terminal apse with altar niche and decorated stone, court 6.

Plate 8.2  Tarxien West, court 6, detail of masonry.
Plate 9.1  Tarxien East, orthostats of court 22.

Plate 9.2  Tarxien Central, orthostats of court 12, with flagstones and fire stains.
Plate 10.1  Tarxien Central, megaliths of external wall.

Plate 10.2  Ggantija South, megaliths of external wall.
Plate 11.1  The Hal Saflieni Hypogeum, the 'Holy of Holies'.

Plate 11.2  The Hypogeum, Main Hall, showing upper window, entries to two subordinate chambers and one niche.
Plate 12.1 Dolichocephalic skulls from the Hypogeum.

Plate 12.2 The grave goods from the Hypogeum, with necklaces, etc, above, and greenstone axe-pendants and sherds below.
Plate 13.1  Hagar Qim, view across the forecourt to the facade with 'priests' houses'

Plate 13.2  Mnajdra, view across the forecourt to Mnajdra South (left), Mnajdra Central and Mnajdra North (right).
Plate 14.1 Ta Hgrogat West, megalithic facade with steps.

Plate 14.2 Tarxien West, restored neolithic model of facade.
Plate 15.1  Hagar Qim, megalithic temenos wall beside Hagar Qim North.

Plate 15.2  The ceremonial megalithic entrance to the Ggantija temenos, painted by Brocktorff in 1827.
Plate 16.1  Tarxien court 13, low-relief fresco showing bull and cow or sow.

Plate 16.2  Tarxien West, court 3, carved block with animal frieze.
Plate 17.1 Ggantija South court 6, showing cyclopean masonry of walls and triple altar niche in globigerina.

Plate 17.2 Tarxien Central courts 9 and 10, with hearth, monolithic bowl and blocked entry trilithon.
Plate 18.1 Tarxien West, court 2, with monumental cult figure and carved altar blocks (copies).

Plate 18.2 Tarxien West, plinth of monumental cult figure with engravings (National Museum, original).
Plate 19.1 'Goddess' figurines sculpted in limestone from Hagar Qim.

Plate 19.2 'Goddess' figurine from Tas Silg, first court right.
Plate 20.1 Two porthole slabs in Hagar Qim, court 1, with floral altar.

Plate 20.2 Mn S, porthole entry into court 3: honeycomb decoration and altar niche.
Plate 21.1  Hagar Qim court 10, orthostats and betyl.

Plate 21.2  Hagar Qim, external altar, room 15.
Plate 22.1 Betyl from Ggantija, Rabat Museum.

Plate 22.2 National Museum, Valletta, with model phallic niches and phalli in foreground.
Plate 23.1 Quern with 7 compartments in situ in Kordin West.

Plate 23.2 'Altar quern' from Tarxien Museum.
Plate 24.1 Neolithic tools in the National Museum, Valletta.

Plate 24.2 Neolithic implements in the National Museum, Valletta, with antler picks above, querns and bowl below.
Plate 25.1 (left)
Blocking-stone, Tx Central, court 14, with antithetical spirals ('prophylactic eyes').

Plate 25.2 (right)
Carved screen from Tarxien Central, court 17, with two pairs of antithetical spirals.
Plate 26.1 (left)
Limestone portal slab from entry to Tomb 31 at Castelluccio, showing 'eye' spirals.

Plate 26.2 (right)
Limestone portal slab from entry to Tomb 34 at Castelluccio, showing two pairs of antithetical spirals.
(Both are now in the Paolo Orsi Museum, Siracusa).
Plate 27.1  Rock-cut tomb at Cava d'Ispica, Sicily, showing central porthole-type entry in concave facade with pilasters.

Plate 27.2  General View of other rock-cut tombs near Cava d'Ispica, Sicily.
Plate 28.1  The 'Brocktorff Circle', Gozo, painted by Brocktorff in 1827.

Plate 28.2  The excavation of Bayer's Pit in the 'Brocktorff Circle', painted by Brocktorff in 1827.
FIGURES
(Fig. 25) - RICOSTRUZIONE PROSPETTICA DELLA FACCIA DEL TEMPIO DI TARSCIEN NEL SUO ULTIMO ASPETTO

Fig. 2. Tarxien West: Ceschi's reconstruction.
Fig. 3. Ceschi's reconstruction of courts 1 and 3 at Tarxien West.
Fig. 5a: The Hypogeum, Main Hall.

Fig. 5b: The Hypogeum, Holy of Holies and figurines.
FIG. 37. - IPPOGO DI HAL SAFLIENI - ALTRA SALA CON DECORAZIONE ARCHITETTONICA COM-

Fig. 6. The Hypogeum, Main Hall: Ceschi's reconstruction.
2. Tas-Silg. 1 Veduta generale dell’area 6 da Sud; 2 Bacino 47 e vani 3, 49, 50, 4 da Ovest; 3 Particolare del bacino 47 con il betilo da Sud-Ovest.

Fig. 7. Tas Silg: monolithic basin and betyl.
26. Tas-Silg. 1 Muri M8, M10, muro preistorico k; 2 In basso: muri M8, M10, M22, k; in alto, da sinistra a destra: complesso costituito dai muri M18, M20, M24, M25 e muri M23, M21.
Fig. 9a - Malpasso. Ipogo.

Fig. 9b - Calaforno. Ipogo.
Fig. 10. Tombs at Contrada Paolina.
Fig. 11. Porthole slab and tomb sections, Contrada Paolina.
Fig. 12a: unidentified megalithic structure in Malta; Houel original 416.

Fig. 12b: Megalithic temple, perhaps Ggantija; Houel original 442.