

MINOAN ECONOMY. AN ALTERNATIVE MODEL

Most scholars have accepted the view of M. Finley that the Minoan palaces functioned as centers for the redistribution of commodities and services in the absence of a monetary system¹. Finley found that the Linear B tablets reveal a massive redistributive system, but did not see any evidence for exchange of different types of goods. Ventriss and Chadwick had concluded a year earlier that there was no fixed rate of exchange, whether in cattle, wheat, metal or money in the Mycenaean economy².

C. Renfrew suggested, on the other hand, in 1975 that the redistribution system, made necessary by the introduction of the "Mediterranean Triad" and the diversity brought by these crops to the subsistence system was the reason for the emergence of the Minoan palaces and the House of the Tiles at Lerna³. A system of reciprocity would have been replaced by one of "regularized redistribution which came ultimately under the control of the palace". At the same time, reciprocity was not abandoned, according to Renfrew, but would have continued in the shape of gift exchange between persons of roughly equal status. The transactions between the rulers of Homeric Greece are mentioned as a possible parallel for metal trade in the Minoan-Mycenaean world⁴. Four different types of trade are identified: (1) trade and exchange within settlements, (2) exchange between settlements within the culture, (3) exchange with other cultural areas inside the Aegean and (4) exchange with regions located outside the Aegean⁵.

In 1981 J. Cherry brought forward the theory that the redistribution system was a way by which the palaces exploited the Cretan countryside, describing the process with the often quoted phrase "what goes up stays up". In other words, there would be a flow of energy from the lower to the upper classes. According to Cherry, the direction of energy changes in societies which are in the process of state formation and increasingly more energy is put into the support of the elite. This energy is stored both as a reservoir of materials and by investment in prestige goods. The prestige goods become the material expression of an ideology supporting the elite and monumental architecture. More energy is acquired by warfare and increased trading activity⁶.

1 M. FINLEY, "The Mycenaean Tablets and Economic History", *Economic History Review* 10 (1957), 128-141.

2 M. VENTRIS & J. CHADWICK, *Documents in Mycenaean Greek* (1956), 198.

3 C. RENFREW, *The Emergence of Civilization* (1975), 296-297, 304-307. For other explanatory hypotheses (trade and the resulting emergence of an élite, improved shipbuilding technology and secondary products resulting from the introduction of animals) see, A. SHERRATT, "Plough and Pastoralism: Aspects of the Secondary Products Revolution", in I. HODDER, G. ISAAC & N. HAMMOND (eds.) *Pattern of the Past: Studies in Honour of David Clarke* (1981), 261-306 and T. VAN ANDEL, T. & C. N. RUNNELS, "An Essay on the 'Emergence of Civilization' in the Aegean World", *Antiquity* 62 (1988), 234-247.

4 RENFREW (*supra* n. 3), 463.

5 RENFREW (*supra* n. 3), 463-464.

6 J. CHERRY, "Generalization and the Archaeology of the State", in D. GREEN *et alii* (eds.), *Social Organization and Settlement: Contributions from Anthropology, Archaeology and Geography* (BAR Int.

In 1981 P. Halstead suggested that the diversity of climate and productivity in Crete would have led to communal storage and exchange of products between various regions and resulted in a "social storage" system ⁷.

Some years ago, K. Branigan discussed the theories of exploitation and "social security" presented by Cherry and Halstead in a paper in 1988. He arrived at the conclusion that while the early states of Crete provided redistribution of at least part of the agricultural production to the community at large and thus also security against poor harvests and other crises, this provision later gave way to increased palatial control of agricultural produce and the manufacture and import of luxury items. Branigan believed, however, that the palaces may also have continued "to organize localized exchanges to meet periodic irregularities in crop production" ⁸.

J. Moody had already suggested in a paper published a year earlier ⁹ that there is a definite change of emphasis from the accumulation of agricultural wealth in the Old Palaces to the accumulation of prestige goods in the New Palaces. She based her theory on the fact that the food storage capacity at Knossos and Phaistos was reduced between the Old and the New Palace period. At the same time, more space was converted into workshops. She described the Minoan palaces as developing into "prestige artifacts" ¹⁰.

It is thus now generally agreed that the Minoan economy was based on a redistribution system, and many scholars are convinced that the system gradually changed from supporting and providing a certain amount of security for the community as a whole to supporting the elite. Most scholars also evidently accept the idea of exchange controlled by the elite.

Branigan rightly stated that "no one seriously believes that the entire annual agricultural production of a Minoan state was transported to a palatial center", but no one has suggested how the flow of energy from the countryside to the elite in the palaces was organized ¹¹. All energy cannot have been stored in the palaces. Obviously some must have remained in circulation. Could the decreased storage space at Knossos and Phaistos have something to do with the introduction of a new economic system?

In 1992 I suggested that the Minoan villas may have functioned as administrative subcenters of the palaces. Different villas are likely to have played a different role in the economic and administrative hierarchy. Some villas of farm-type may have been directly responsible for the production of food and other staples, while others controlled an area with several villas. Commodities produced for local consumption are likely to have stayed in the area where they were produced and to have been accounted for and redistributed from the local centers ¹². The villas would, in other words, have formed a system through which energy would have been channeled to the palaces. But what form would the energy have taken?

K. Polanyi described the Minoan-Mycenaean economy as follows: "The authentic core of the Mycenaean economy was the palace household with its storage rooms and its household accounts which listed personnel, land-ownings and small cattle, assessed deliveries in wheat and barley, oil, olives, figs and a number of other staples (largely

Ser. 47, 1978), 245.

7 P. HALSTEAD, "From Determinism to Uncertainty: Social Storage and the Rise of the Minoan Palace", in A. SHERIDAN & G. BAILEY (eds.), *Economic Archaeology: towards an Integration of Ecological and Social Approaches* (BAR Int. Ser. 90, 1981), 187-213.

8 K. BRANIGAN, "Social Security and the State in Middle Bronze Age Crete", *Aegaeum* 2 (1988), 11-16.

9 J. MOODY, "The Minoan Palace as a Prestige Artifact", in *Function Palaces*, 235-41.

10 MOODY (*supra* n. 9), 235-241. For the change in storage space, see MOODY (*supra* n. 9), 236, table 1.

11 BRANIGAN (*supra* n. 8), 11.

12 G. WALBERG, *Middle Minoan III - A Time of Transition* (1992), 143.

unidentified) and handed out rations" ¹³. Polanyi, however, elsewhere distinguished between two different kinds of finance in early states with non-monetary economy: *staple finance* and *wealth finance* ¹⁴. Staple finance is, as the term suggests, based on obligatory contributions to the state in the form of grain, oil, wine, live-stock, etc. These commodities have established values and are used to pay persons employed by the state. They are usually heavy and of low value in relation to their size and weight and therefore impractical to move over large distances. The definition of staple finance corresponds, in short, well with his interpretation of the Minoan-Mycenaean redistribution system ¹⁵. Wealth finance is, on the other hand, based on the use of special products or objects as a means of payment. They are usually light and easy to transport and have an established value in relation to other products of the same kind. In order to support non-farming parts of the population, *i.e.* the elite and craft specialists working for the elite, these special products must at some point be converted into staple goods. In the Inka economy which was of redistribution type, staple finance was used on a local level while wealth finance was used to "support more centralized state functions requiring long-distance movement of goods" ¹⁶.

Is it possible that the Minoans adopted a similar combination of staple finance and wealth finance? If the villas functioned as palatial subcenters on different levels, this would undoubtedly have been the easiest way of channeling energy from one level to another. A transition to a combination of staple and wealth finance would help to explain the increased emphasis on luxury items and the investment in prestige goods in the Minoan world from the beginning of the neopalatial period. The luxury items may not only have been used for exchange between persons of elite status (gift exchange and transactions between rulers), but may have played a role as means of payment in a wealth finance system.

The identification of these items is, unfortunately, difficult. Pottery decorated in palatial styles can be ruled out, since very little palatial pottery has been found outside the palaces and little pottery seems to have been exchanged between the palaces ¹⁷. It is also fragile and relatively difficult to transport. Objects of gold, silver, ivory and stone vases are more likely candidates. Unlike food items, they can be easily transported, and they can also be stored over indefinite periods of time. It would, however, have been difficult to ascribe a specific value to them, and they would have been difficult to convert to specific amounts of staple goods. Sealstones which are more uniform in character would have been easier to handle in connection with economic transactions, but have a personal character and would probably not have been exchanged. Quantities of raw materials, such as bronze and wool, which could be used in the manufacture of objects of lesser value would, however, have been more practical and less heavy and bulky than grain, oil, wine and live-stock. The Pylos Jn tablets refer to assessment of bronze from sixteen places and distribution of weights of bronze to smiths for working ¹⁸. The Knossos D and the Pylos

13 K. POLANYI, "On the Comparative Treatment of Economic Institutions in Antiquity with Illustrations from Athens, Mycenae and Alalakh", in C.H. KRAELING and R.M. ADAMS (eds), *City Invincible, An Oriental Institute Symposium* (1960), 250, 340, 342.

14 K. POLANYI, *Primitive, Archaic, and Modern Economies: Essays of Karl Polanyi*. Ed. by G. Dalton (1968) 321.

15 K. POLANYI, "The Economy as Instituted Process", in K. POLANYI, C. ARENSBERG and H. PEARSON (eds.), *Trade and Market in the Early Empires* (1968), 321.

16 T.Y. LEVINE (ed.), *Inka Storage Systems* (1992), 33-34.

17 G. WALBERG, "Palatial and Provincial Workshops in the Middle Minoan Period", in *Function Palaces*, 283-284.

18 VENTRIS and CHADWICK (*supra* n. 2), 355.

Cn tablets represent census of sheep and goats¹⁹ and also, in the case of the D tablets from Knossos the amount of wool expected by various numbers of animals²⁰. The Knossos L series refers to various types of cloth and garments and KN L 693 also seems to record consignments of wool²¹. In addition, there seems to be a connection between garments and amounts of bronze. It has been suggested that the bronze represents the value of the garments, measured by bronze or the weight of the garments. The first and most likely interpretation would suggest that specific values were expressed in amounts of bronze and perhaps that there was a fixed conversion ratio between bronze and wool²². It is interesting to compare these references in the Linear B tablets to the role played by cloth in the Inka economy, which has been identified as a combination of staple finance and wealth finance²³. Inka cloth "served as a standard of payment of service to the state" and was used as a "special-purpose money, circulating in a restricted sphere of exchange". It seems to have been given by local elites to the state as obligatory "gifts" (=taxes) and to have been given back from the state as payment for services²⁴. The cloth could be easily transported over long distances.

There are, however, also objects other than raw materials which may have been used as payments in the Minoan economic system and which may have had a specific value: noduli and roundels. With the exception of one nodule from Gournia, all roundels and nodules have been found in palaces, and the nodules have only been found together with Linear A inscriptions. The nodules which bear the impression of one seal have been interpreted by J. Weingarten as dockets or obligations to pay occasional workers²⁵. They would, in other words, be redeemable for goods or payment for a certain value and have served as a kind of voucher. The roundels bear a number of impressions by the same seal and a Linear A inscription. The number of impressions are clearly important since an attempt has been made to remove one of the impressions on one sealing from Phaistos²⁶. E. Hallager has suggested that the roundels were used for documentation of goods which exchanged hands within the palace economy. The fact that roundels only have been found in palatial contexts makes it, however, less likely that they were used for transactions outside the palaces²⁷. It is, in any case, not unlikely that at least the noduli were convertible and represented a certain value and were distributed in return for products and services.

19 VENTRIS and CHADWICK (*supra* n. 2), 199-205.

20 VENTRIS and CHADWICK (*supra* n. 2), 202-203.

21 VENTRIS and CHADWICK (*supra* n. 2), 320-321.

22 For a later, Archaic (c. 500 B.C.) inscription from the Lasithi area, indicating a fixed ratio between commodities and drachmas (weight or value), see the Spensithios inscription, first published by L. H. JEFFERY and A. MOPURGO DAVIES in *Kadmos* 9 (1970), 118-54 and discussed by H. van EFFENTERRE in *BCH* 97 (1973), 31-46, esp. 41. H. van Effenterre has shown that the item connected with the drachmas in the inscription probably is bronze. I wish to thank Professor van Effenterre for this reference.

23 T. Y. LEVINE and T. K. EARLE, "Staple Finance, Wealth Finance, and Storage in the Inka Political Economy", in T. Y. LEVINE (ed.) *Inka Storage Systems* (1992), 51-61.

24 LEVINE (*supra* n. 23), 56-58.

25 J. WEINGARTEN, "The Sealing Structures of Minoan Crete, Part II: The Evidence from Knossos until the Destruction of the Palace", *OJA* 7 (1988), 1-17.

26 E. HALLAGER, "The Knossos Roundels: Introduction", *BSA* 82 (1987), 55.

27 I wish to thank Dr. Hallager for pointing this out to me. For the use and find-contexts of roundels, see, for instance, E. HALLAGER, "The Roundels in the Minoan Administrative System", in *Problems*, 109-110 and "Roundels among Sealings in Minoan Administration: A Comprehensive Analysis of Function", in *Aegean Seals, Sealings and Administration. Proceedings of the NEH-Dickson Conference of the Program in Aegean Scripts and Prehistory of the Dept of Classics, University of Texas at Austin, January 11-13, 1989*, *Aegaeum* 5 (1990), 121-142.

While the creation of redistribution systems of the Minoan palaces may have been made necessary by the introduction of the "Mediterranean Triad", and while they also may have some of their origin in communal storage and attempts to provide security against poor harvests and while gift exchange as well as local exchange of products may have been important, it is also clear that the mechanisms for Minoan economic exchange could not have remained the same from the time of the first palaces to the end of the Bronze Age. There are, in fact, as we have seen, several indications that the palace economy changed in the neopalatial period from a type of redistribution which resembled Polanyi's staple finance to a type which was to some extent based on a wealth finance system and *the use of special products with an established value*. These products which remain difficult to identify would have been used as means of payment *at different social levels* rather than have been stored mainly in order to support the ideology and life-style of the elite. The circulation of these special objects would have represented an important stimulating factor in Minoan economy within and between settlements and between different regions on Crete.

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