

XVI. COMMENTARY ON: THE CIVILIZATIONAL CONSEQUENCES OF VARYING DEGREES OF AGRICULTURAL AND CERAMIC DEPENDENCY WITHIN THE BASIC ECOSYSTEMS OF MESOAMERICA

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I want to say at the outset that this struck me as a very good paper, and that I found myself in agreement with most of it.

It falls into four sections:

(1) the Introduction. Lowe stresses the advantages of hunting and gathering in the very varied and favorable conditions in Mesoamerica, and suggests that this is one reason why dependence on agriculture came about so late there. This is perhaps underlined by the fact that the idea of cultivation was very much older. I would add that a modern hunting and gathering people, the Hadza of East Africa, found this a very satisfactory way of life compared with that of their agricultural neighbors until recent (and disastrous) government interference. They got on very well, to borrow a phrase from Lowe, without the trouble of planting crops and making pots. Leading on from this, MacNeish is quoted on the subject of specially favored hunting and gathering, and fishing, localities which allowed early settlement, perhaps the year round (the Archaic shell mounds in Kentucky may be an instance), but I feel that the idea should be treated with caution. Being suspicious of MacNeish's pit house villages in the Abejas Phase at Tehuacan, 3000 B.C., I asked Flannery, who replied "Half a pit house". Lowe goes on to point out that there comes a time in the second millenium B.C. (1500-1200) when development accelerates, and agriculture and settlement spread rapidly. This is demonstrated by the rapid spread of ceramics, acting as an index. Incidentally, if one looks at this stage and not at the whole slow build-up of cultivation from the beginning, there may be more to Childe's idea of a neolithic revolution than I have been accustomed to believe, as applied to Mesoamerica.

(2) The Appearance of Pottery. It is suggested that the availability of abundant natural containers, e.g. calabashes, retarded the adoption of pottery until beans began to be boiled rather than roasted and maize to be soaked, which could have been true of upland valleys like Tehuacan but not of lowland areas where pottery seems to have preceded the cultivation of corn and beans. The suggestion that the conservative way in which the shapes of the earliest pottery followed natural forms, indicates that its introduction did not produce cultural upheaval, seems to be a good one. I am not convinced by the suggestion that deepened stone mortars were the first manufactured vessels capable of boiling use over the fire. I doubt if they

would long survive such use. I agree that it is highly unlikely that the Tehuacan stone bowls had any influence on pottery manufacture, although both could have been inspired by gourd vessels. It is not very profitable to speculate on this, because very few bowls were found.

There is a discussion of possible routes for the introduction of pottery from a southern source, with a preference for the Gulf Coast with hints of connections as far away as Florida. As to the actual source, Honduras is mentioned as worthy of investigation, but I believe that the north coast of Colombia is as good a candidate in spite of Lowe's unwillingness to claim Puerto Hormiga as the source (of the Barra Phase pottery). The Chiapas pottery at least shares many shapes with Puerto Hormiga, which is the oldest pottery so far known in America, and apparently gives rise to a long succession with similar forms in the same area (Canapote followed by Barlovento), so there would be a possibility of a site intrusion at various times over a long period. Lowe suggests that the Barra Phase pottery of Chiapas can be as early as any in Mesoamerica, since there is no reason why the sparse and crude pottery of the Purrón Phase in Tehuacan should not have appeared towards the end of the phase, so a reasonable date for both would be about 1600 B.C. After that comes the critical period, less than 500 years in length, when there is a rapid growth of population and the development of the San Lorenzo Phase of the Olmec Culture, which many of us would regard as a civilization.

A word on the appearance of pottery in Peru. At Kotosh there are substantial buildings before pottery appears (a pyramid some 8 m. high). On the coast there are large centres of population and substantial buildings, for instance at Culebras and Chuquitanta. In both cases they are before 1800 B.C. We know nothing of the population size at Kotosh or of the sources of food, but on the coast there was a considerable reliance on sea food, guinea pigs, and, in some places, plant cultivation. Can these buildings, both secular and ceremonial, be regarded as indices of civilization in a preceramic context? It may be that it is safer to stick to the criteria suggested by Willey earlier in this conference, namely, large population size and density, social complexity, elaborate internal communications, and ideas.

(3) The Role of Ceramics and Agriculture. The suggestion is made that population and social pressures forced man to take measures to ensure dependable harvests, and that increased dependence on agriculture created uses for pottery and freed some time for its manufacture by specialists, in other words demography is the independent variable, with agricultural systems dependent on it, and pottery to some extent following them. Lowe goes on to suggest that the rise in population in late Classic Maya times may have overtaken production from agriculture and resulted in "agricultural involution", and that this, coupled with Mexican intrusions which upset the hierarchy, brought about the collapse of Classic Maya civilization, a model which might well apply to part of the area but I do not feel that it provides a full explanation. This, however, is jumping ahead from the emergence of civilization to its downfall,

and I do not propose to discuss it further except as regards the suggestion that the failure of the hierarchy to recover is undoubtedly due to the same factors as the late conquest of their habitat by the, presumably lowland, Maya before about 700 B.C., namely a lack of aggressive leadership. Aggressiveness is not something which I would have expected in general from the character of the Maya, but if it ever did arise I would expect it in late Classic times, when there is evidence of dynasties to which some ascribe extreme militancy. The personal leadership factor is bound to be difficult to detect archaeologically, in fact it is probably impossible to do so anywhere before the 16th century, when there can be little doubt that it was important in the rise of the Incas.

There follows a discussion of diet, in which I would call attention to two points. One is the effect of non-material considerations; Piggott's remark "Custom not calory is King" is shown to have "particular application to Mesoamerica, where calories are destroyed or ignored right and left." The other is the continued importance of wild resources, particularly from hunting, in some parts of Mesoamerica even to the present day, and a milpa may be valued as a source of animal food. I am glad that Lowe has drawn attention to an essential difference between the Old and the New World in the development of farming by mentioning the basic barley and sheep economy practiced in Iran by 4000 B.C., although it is possible that the fewness of domestic animals may be balanced to some extent by the unparalleled improvement of maize once its domestication has begun. Lowe makes the point that the abundance of game animals in the lowlands of Mesoamerica made more domestication relatively unnecessary, on which I would only comment that it was probably impossible for lack of suitable animals.

Developments in highland Mexico and the tropical forest are sharply contrasted, Lowe endorses that the destructiveness of man removed the natural resources of the Valley of Mexico about 2000 years ago, setting in motion a whole series of reactions which Sanders, in particular, has regarded as leading inevitably to the urbanistic civilization of that region. On the other hand, the slash-and-burn cultivation of the lowland Maya maintains natural resources, so much so that human and non-ecological explanations must be sought for their civilization. In spite of this most of us would regard the two as facets of one civilization, which raises the question whether there was something more at the back of both facets. This seems to bring us to what in their various ways John Graham, at this conference, and Gordon Willey, many years ago ("The Early Great Styles and the Rise of Pre-Columbia Civilizations", *American Anthropologist*, Vol. 64, No. 1, Part 1, p. 1, 1962) have indicated as spiritual factors. Perhaps they might also be described as human factors, as Lowe suggests for the lowland Maya. At any rate I am sometimes weary and sometimes dissatisfied with the unrestrained materialism of the ecological approach, and wonder whether spiritual factors can not have had their influence in other regions than the tropical forest. Lowe's final remarks about the unity of people from Honduras to Hidalgo suggest that they did.