Food Production Techniques throughout the Old World:

An Exploratory Enquiry into the Extreme

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ABSTRACT

The paper attempts to locate peoples who began intensive farming efforts for the purpose of maximizing yields and producing maximum surpluses. According to one theory, such groups would undergo dramatic cultural shifts, including a rather sudden onset of population growth, the storage of surplus food, a new tendency toward expansion into adjacent ranges, and the advent of warfare. Archaeological evidence must perhaps be reinterpreted accordingly. This paper will explore some of the research done in this area to date, and will provide an overview of current archaeological views on the topic.

INTRODUCTION

It has been conjectured that there was a dramatic change in food production strategy in the Old World during the Mesolithic and Neolithic periods. Notable among the characteristics proposed is a shift from a primarily hunter-gatherer lifestyle to a primarily agricultural lifestyle, with particular emphasis upon those cases of a nearly complete reliance upon produced food. This emphasis will rule out most pastoral efforts, for instance, as well as subsistence farming efforts, in that these are not of the extreme type of agriculture specified in the proposals. Rather, the object is to locate peoples who began intensive farming efforts for the purpose of maximizing yields and producing maximum surpluses. Such groups, the theory goes, would undergo dramatic cultural shifts, including a rather sudden onset of population growth, the storage of surplus food, a new tendency toward expansion into adjacent ranges, and the advent of warfare. Archaeological evidence gathered to date appears to be sketchy, almost haphazard, and the conclusions being drawn are still quite speculative. This paper will explore some of the research done in this area to date, and will provide an overview of current archaeological views on the topic.

Attempts to most effectively organize this type of information for the purpose of examination might take any of several forms. One may attempt to discuss developmental transition in temporal terms, but discontinuity in both evidentiary content and developmental sequence become problematic. One may break the examination down by region, attempting to minimize such discontinuity effects, only to find that boundary designations are blurred by differential rates and overlapping modalities of developmental spread. One may even identify common, if somewhat arbitrary,

developmental stages or milestones, and attempt to plot a sort of temporal contour map based upon these heuristic designations. But the very fact of recognizing a temporal division in these arbitrary terms imposes an artificial significance by virtue of that very nomenclature, *vis.* “Stone Age”, “Paleolithic Explosion”, “Neolithic Revolution”, and other such “age” designations. Any way it is approached seems to carry its own set of problems, yet *some* systematized method of discussing the matter must be employed if internal consistency is to be preserved. In practice, archaeologists utilize all of these techniques; any reporting on their findings are thus compelled to adopt similar methodology. An attempt will be made herein to integrate all of these techniques, shaping the archaeological information into something that, it is hoped, will provide a representative overview.

DIVISIONS

The regions under review include most regions of the Old World, with particular emphasis on those areas that are both significantly removed from the equator, and are near major river systems. This has the perhaps unfortunate effect of eliminating all of sub-Saharan Africa, for instance, yet the target type of extreme food production is to be found within these confines. These regions are roughly defined by geographic configuration; beyond that, there is no particular significance to the designations. The Near East, including Mesopotamia, Anatolia, and the Levant, is of interest as it is the traditional “Cradle of Civilization”. The Nile River region carries its own ancient aura of mystery, as do both the Indo-Pakistani region and the Far Eastern regions of Pacific Australasia. Europe cannot properly be classed with these “primary hearths”, but is illustrative of the regional spread of the target peoples of the investigation. The Mediterranean/Aegean region is also of relatively minor significance for the purpose, and to the extent that it is mentioned, will be lumped with Temperate Europe.

The time periods under review are the traditional tripartate division of Paleolithic, Mesolithic, and Neolithic. The Paleolithic, being substantially longer than the others, is further divided into Lower, Middle, and Upper periods. But, because these temporal designations are nominally assigned by virtue of the type of technology being employed, the dates and durations necessarily vary by region. Further, it is by no means clear that the artifactual remains indicative of developmental state represent the most significant distinction between the populations of these periods, at least as regards food production techniques.

Of greatest import will be archaeological evidence of socio-economic divisions. Foraging populations, the so-called hunter-gatherers (h-g), represent the baseline. These tend to be the least sedentary of the groups, and the least likely to display the Service-Childe signs of "cultural complexity." Subsistence producers, including pastoralists and subsistence farming communities display some of this complexity, but not nearly to the extent of including them in the (apparently exalted) ranks of state-level societies. The difference between the h-g and the subsistence groups is not sharp; there is recognition of an intermediate condition called "harvest-gatherers" which appears to be a stable state in its own right (Kabo 1985). Conveniently however, the method of food getting is demarcated along ages named for the type of stone tool technology prevalent in the period. "Economically, the paleolithic and the mesolithic periods represented a nomadic, hunting-gathering way of life, while the neolithic period represented a settled, food-producing way of life" (Misra 2001:491). (One may presume that something remarkable happens in the Mesolithic, where and when it occurs). These groups are mentioned only for the sake of contrast; the focus is on the third type of food producing society, that we may call "extreme producers". This group will include societies that display such identifying characteristics as surplus food production (as evidenced by storage facilities), ostentatious sedentism (as evidenced by monumental public works), clear socio-economic stratification (as evidenced by both housing

facilities and funerary treatment), and territorial expansion (as evidenced by implements and depictions of warfare). There are certainly additional archaeological indicators available to help identify these societies, e.g. evidence of craft specialization, or the utilization of writing systems, but these few should provide ample demonstration of a pattern worthy of exploration. While these "complex" features will serve as diagnostic tools, it should be noted at this point that the primary significators for our purpose will be whether the societies in question succeeded in spreading their extreme production techniques, and associated lifestyles, to adjacent areas.

DEFINING THE QUESTION

The Near East presents itself as an obvious starting place in the investigation, as it is recognized as the first region to host a true state-level society. The city-state of Uruk, Fagan (2000) explains, "epitomizes cultural development just before and during the early stages of Sumerian civilization" (397). Uruk was a growing settlement around 4200 B.C.E., and held many surrounding villages in its sway. It already sported a small ziggurat, evidence of social stratification and ostentatious sedentism; these which would serve as the basis for much larger social developments in the succeeding centuries. Uruk was already engaged in extreme food production. Yet h-g groups had settled in completely sedentary villages in the region as early as 12,300 years ago (Pringle 1998) – roughly 8,000 years before this eldest of cities! Wheat and barley were domesticated in the region around 10,500 years ago, still 60 centuries before this city approached its power. What enabled, or urged, this one group to establish a state? More to the point, what made Uruk take the step to extreme food production?

It is perhaps significant that Uruk was not alone in this new trend. Eridu was growing quickly, and it too had the tell-tale ziggurat (Fagan). But there is another diagnostic feature to be examined – evidence of warfare. Ferguson (2003) states that the earliest evidence of warfare in the Middle East is from "about 10,000 years ago in what is now northern Iraq. Evidence from *three early farming sites*…includes maces, arrowheads

found associated with skeletons, defendable locations, and village defensive walls" (31-32) (emphasis added). Jericho, dating to about 10,000 years ago (Ferguson), was already thriving, yet a sampling of 370 skeletons from the period displays only two cases of any kind of trauma. And while Jericho had walls before any ziggurat was ever built, they appear to have been erected for flood control – not defense. It would seem then that a farming settlement can have been in place for quite a while, and in fact grow quite large, without becoming an extreme producer. Conversely, settlements characterized as "farming villages" are engaged in the world's first wars. The mystery deepens.

It is appropriate at this point to look back for what motivates h-g groups to "switch" to agriculture and sedentism. The transition from a h-g lifestyle to extreme production is a long, gradual process, and may stage through a stable "harvester-gatherer" period (Kabo 1985). In many cases, subsistence techniques long preceded the implementation of extreme production – even to the point of seasonally occupied settlements, as at Abu Hureyra (Pringle 1998). Kabo also suggests that technological advancement is not a driving force toward agricultural practice. What appear to be specialized agricultural tools are but adaptations of long-established h-g technologies. Pringle cites George Willcox's suggestion that "rising human populations and overexploitation of wild foods could have driven people to take up [extreme] farming" (76). Perhaps, but why would it take 6,000 to 8,000 years to reach this stage in some cases, and no time at all in others, all within the same region? What is the link between h-g or subsistence lifestyles and extreme production?

One obvious suggestion is that status differentiation may be instrumental. It has been suggested that hierarchization, defined as "sociopolitical roles expressed in the introduction of specialized leadership or decision-making positions" (Price 1985:258) might provide some explanation. If some strong leader emerged, might he (or she) not simply take over a city by force? This simplistic explanation is ludicrous on its face, as

mere strength of will does little to provide sustenance, much less training and motivation, to a conquering army, much less transform an entire society. The suggestion is further discounted by evidence that "status differentiation was in existence…some 24,000 years ago" (259), yet no state-level societies emerged as a result. But if trade is in place, whether internal, external, or both, an economy is in operation – and wealth can then be accrued. As regards the tendency toward warfare, "sedentism, property ownership, and male status differentiation are more developed, and conflict tends to arise from overt and chronic political status competition…and from competition over access to resources" (Knauft 1991:391). With the possibility of wealth available, specialization of production is thus encouraged, and Price (1985) suggests that this is sufficient to enable a margin of control over labor and resources. If the resources in question include food, as Price states, then control of the society is place. And as any population biologist will affirm, if you feed them, it will grow.

This may be sufficient as an explanation. Merely growing one's food is not enough to make a state. It requires that someone in a position of power take control of the food, and thus, of its production. This requires social stratification or hierarchization – political status, as marked by monumental public architechture. Finally, there must be sufficient force of arms to sustain the control, and expand it to encompass satellite settlements. With a priest class in place to moderate the surplus, and a royal class to command the army, the stage is set. They have but to lock up the food and enforce its production, and all else follows. This scenario is effectively spelled out in Price (1985), yet the example offered – a h-g village, no less - is but a sample of one. More evidence is required.

A DIRECTED SEARCH

The search for evidence must now turn specifically to those societies that display ostentatious sedentism in the form of monumental public architecture, have a well established social hierarchy characterized by a priest class and a royal class (evidenced

by temples and palaces, respectively), and engage in warfare for conquest. We find ample evidence in the Near East in Uruk, Sumer, Akkad, etc. But what of other regions? We need not look far.

While C-14 dating places the earliest Egyptian settlement at 3000 years after the earliest Near East settlements (Arkell & Ucko 1965), and it would appear that both emmer wheat and barley were imported to the Nile Valley, that much the same pattern asserts itself. Indeed, with the fertile growing region so tightly circumscribed by desert and high plateau, the hostilities predicted above would seem inevitable. And this pattern is precisely followed in the "monopoly" scenario outlined by Fagan (2000). By the time of Egypt's unification under Narmer (Fagan), the Nile has seen two state-level societies flourish along its banks. Between 4000 and 3000 B.C.E., a span of a mere thousand years, Egypt's societies had grown from competing farming villages to a single nation. This was unprecedented even in the Near East. Could it be that the methods involved were imported with the grains? The conclusion seems inescapable. State building was an export technology of the Near East.

In the Indo-Pakistani region, a similar story is played out. Settlers in the then-arable Saraswati Valley, vied with each other for control of the relatively circumscribed croplands. Wars raged, and cities were burnt time and again (Fagan 2000). Yet stone tools dated at 2 million years are found in the Siwalik hills in Pakistan. Once again, a people skilled in the arts of state building imported their craft to the region. The compressed history is interrupted this time, with the tectonic shifting and drying of the Saraswati River. The fight dispersed, and found homes in both the Indus valley, and along the Ganges River, among others. A map of Mesolithic sites in India discloses hundreds of settlements along eight river systems (Misra 2001:499). Mehrgahr, along the Bolan River, is the oldest of these cities, dating to between 6000 and 4400 B.C.E. (Misra 2001). It is no surprise that the crops of choice were emmer wheat and barley. Temples and other monumental public works abound in these cities; there is no dearth.

China presents a relatively unique scenario, in that it is actually a primary hearth. Like the Near East, it takes its time developing a crop (rice), over a period spanning from 8000 B.C.E. (Pringle 1998) to 5000 B.C.E. In the interim, cities gradually grew throughout the arable regions, particularly along the Huang Ho and Yangtze Rivers. Inevitably, they went to war, establishing ever larger kingdoms, and city-states followed. China was unified about 1700 B.C.E. (Fagan 2000). The story is similar enough to that of the Near East as to rule out coincidence.

CONCLUSION

The formula seems to play itself out nicely. Hunter-gatherer groups and/or subsistence farming groups settle as is convenient to their circumstances. Hierarchization occurs with trade and the possibility of wealth. Control of resources, especially food, is wrested with the accumulated wealth, and power inherent therewith. Power is ostentatiously displayed in monumental public works. Production is controlled, as the population is hostage to the secured surplus. Competition, both internal and external ensues, leading to conflict and war. The population grows as new lands are conquered, and neighboring peoples subsumed. The pattern reasserts itself throughout the Old World, and appears in fact to be the defining characteristic of Neolithic peoples.

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