Book Reviews

Ancient Civilization in the Near East

An Early Town on the Deh Luran Plain. Excavations at Tepe Farukhabad. HENRY T. WRIGHT, Ed. University of Michigan Museum of Anthropology, Ann Arbor, 1981. xvi, 462 pp., illus. Paper, $15. Memoirs of the Museum of Anthropology, University of Michigan, no. 13.

This report on the site of Tepe Farukhabad is of fundamental importance to scholars of ancient civilizations, both because it extends the well-known Deh Luran sequence into the second millennium B.C. and because of the theoretical and methodological stance, analytical mode, and style of data presentation adopted by Wright and his collaborators.

Previous work in the Deh Luran Plain by Hole, Flannery, and Neely established an archeological sequence covering human occupation in the plain from approximately 8000 through 4000 B.C., when simple sedentary village life, relying on a combination of small-scale food production and hunting and gathering, gradually evolved into a more complex system in which irrigation agriculture and sheep and goat herding became the dominant subsistence strategy.

The excavations at Farukhabad revealed 13 cultural phases in stratigraphic context. These phases may be considered in three units separated by two periods of abandonment. The earliest unit, spanning the late fifth to mid-fourth millennium B.C., begins with the Bayat Phase, previously recognized at Tepe Sabz, and ends with the Farukh Phase, for which Farukhabad is the type site. The Farukh Phase falls near the end of the Ubaid/Susiana ceramic tradition, which conferred a measure of cultural unity on greater Mesopotamia and set the scene for the subsequent development of early states. The second unit, beginning in the mid-fourth millennium and lasting until about 2600 B.C., includes the Uruk, Jemdet Nasr, and part of the early Dynastic Phase. In the opinion of a number of scholars early states were formed during this period. The final unit (approximately 2100 to 1300 B.C.) includes a series of Elamite phases spanning a period of diplomatic and military rivalry accompanied by the formation of early empires. A small corpus of Parthian and Sasanian material from an unstratified context was also excavated.

The original research design concerned the effects of competition for agricultural land within a growing population. As the research evolved some original topics were abandoned and three working propositions emerged as the focus of analysis: (i) that "increased participation in exchange networks begins with a local reorganization of production and an increase in export, rather than an initial increase in imports"; (ii) that "increased production and export leads to increased administrative specialization and state formation"; and (iii) that "increased participation in systems of export and import leads to the growth of central towns."

Wright concentrates his analytical and interpretative report on the first two units of occupation (Bayat through early Dynastic phases), presenting a detailed cultural history of the site and the Deh Luran Plain. A similar breadth is apparent in Elizabeth Carter's contribution on the Elamite phases.

A topical summary of contrasts between the Farukh Phase, representing the culmination of prestate developments, and the Jemdet Nasr Phase, representing the height of the early State Period, will provide some idea of the style of the report. It should be noted that there are quirks and turns along the path between these phases that can only be appreciated by studying the report itself.

Reconstruction of the subsistence system rests on comprehensive analyses of plant remains and animal bones contributed by Naomi Miller and Richard Redding, respectively. The range of plants and animals exploited remained relatively unchanged throughout the sequence, but shifts in the importance of various species did occur. Thus wheat (a very small sample) appears to have been more common than barley in Farukh times, but barley was clearly the predominant grain by Jemdet Nasr times. Variation in the density of bones (in terms of cubic meter of deposit), combined with a factor to account for the size of different species, is used as a measure of the relative importance of species. By this measure sheep and goats were the most important domestic animals in both phases. Of the two, sheep were preferred in the Farukh Phase and goats in the Jemdet Nasr Phase. Wright suggests that the preference for goats, together with a reduction in the density of spindle whorls, may relate to increased processing of goat hair or hides. Hunted equids were second in importance, followed by cattle, in both phases, but the Jemdet Nasr population enjoyed a greater variety of meat, including pig, imported marine fish, and birds, uncommon or not available during Farukh times.

Wright provides a detailed analysis of the role played by Farukhabad in interregional exchange (chapter 15) in addition to a more general discussion of production in each phase (chapters 5 and 10). As with subsistence, the basic elements of craft production for export and local consumption remained relatively stable through time, but variation in spatial organization and intensity of production are evident. Relative density (finds per cubic meter of deposit) in and around excavated buildings or features is used as an indication of the spatial organization of production. Phase-by-phase comparisons of density are used to monitor relative intensity of production. Production of chert for export is evaluated by the ratio of the density of large flakes and fragments to that of utilized blade segments; high values of the ratio are taken to indicate greater production for export. Bitumen export production is similarly evaluated by the ratio of waste density to density of locally utilized material. Sheep and goat products are the only other items suggested as probable exports, but such exports are difficult to evaluate. Wright identifies five varieties of chert for which there is no known local source and which are therefore assumed to be imported. The ratio of imported to local chert pieces is taken as a measure of the value of imported chert. Other imported items such as vesicular basalt, copper, marine shell, and semiprecious stones occur in relatively low frequency.

Consider now the contrast between the Farukh and Jemdet Nasr phases in production and exchange. Evidence of production of ceramics, probably for local use, is present for the Farukh Phase but missing for the Jemdet Nasr Phase. During Farukh times local and imported cherts were worked for local use, and some chert may have been exported.

Debris from chert production was concentrated near elaborate houses, but utilized pieces, including imported cherts, were more evenly distributed. Wright suggests that the ubiquity of imported cherts indicates that all households had access to a single import source. Chert production in the Jemdet Nasr Phase was not localized, export production was high, and imported cherts were quite rare, but different varieties were found in association with different houses, suggesting more than one import system. Bitumen production during Farukh times was not intense and was concentrated near small houses. Some bitumen may have been exported. Bitumen production varied considerably, but at a relatively high level, during Jemdet Nasr times and was most intense around the more elaborate buildings. The export ratio was relatively high.

In summary, it is evident that production for export was significantly more important during Jemdet Nasr times, and, although chert imports were at a low level, a great variety of other imported items were present in quantity. Clearly the Jemdet Nasr Phase was more prosperous and the economic system associated with this prosperity was more complex than the Farukh system. Social ranking, indicated by variation in the quality of domestic architecture, was present in both phases. However, Wright argues that high status in Jemdet Nasr society had very broad implications, including control over bitumen export production and virtually exclusive access to rare foods, such as birds and marine fish, and to high-value imported materials, such as lapis lazuli and metal. Administrative artifacts were not found in either phase, with the exception of a single possible seal in each, but Wright assumes that administrative activities, evidenced by sealings and bullae during Uruk times, continued to be pursued in Jemdet Nasr times.

In his final remarks Wright returns to the themes stated in his working propositions and concludes that efforts to reorganize export production began in Uruk times but were not successful until Jemdet Nasr times. Since administrative artifacts were present during the Uruk Phase, the order of his second proposition is reversed. Further, the growth of central towns characterized by specialization of production also seems to occur during Jemdet Nasr times and thus follows the formation of the state, which Wright still considers to have occurred during the Uruk Phase.

The preceding summary touches only the main themes of the Farukhabad report; many interesting topics such as Wright's proposed "design grammar" for Jemdet Nasr polychrome ware, the analysis of beveled rim bowls contributed by Anne Miller, and several informative technical or typological studies are not discussed.

It is difficult to provide an overall evaluation of a work with so many facets. One can only praise the comprehensive presentation of provenience data, the extensive tabulation of metric data on all classes of finds, the use of density measures in analysis, and the careful use of nonparametric statistics to evaluate the significance of artifact correlations and metric variation. The description of stratigraphy is thorough, although one might have expected a more vivid description of the processes by which the strata accumulated. Features and artifacts are well described and well illustrated, although the architectural plans are much too small and the labels are sometimes difficult to interpret. About half of the volume of material excavated was screened, but the tabulation of provenience and analytical units in appendix A does not in all cases unequivocally state which units were screened, a serious impediment to analysis by other scholars of the data presented.

Beyond these comments the Farukhabad report raises issues that must be confronted by any archeologist engaged in research on complex societies. These issues concern both sample size and sample bias.

The size of operations, two 5 by 14 meter trenches and one 1 by 17 meter trench, and the volume excavated, 520 cubic meters, constitute by no means an insignificant accomplishment for a staff of five supervising 30 workmen in a single season. Wright states his conviction that the size of the openings, with the exception of the narrow trench, was adequate and that Farukhabad is not a suitable site for horizontal exposure. Be that as it may, one of the most commendable aspects of this monograph is the scrupulous candor with which Wright reports problems in data recovery, possible sample bias, and, on page after page, reservations concerning the size of the samples. Yet in the end questions about the adequacy of the samples still cast a shadow over many of the conclusions. In my opinion this is not a fault to be laid entirely at Wright's feet; he was working within a system that is poorly organized to support complex archeological research conducted according to contemporary standards. We are certainly all aware that grand expeditions such as the Ur or the Diyala excavations are no longer either theoretically justifiable or financially possible. Nevertheless, it is unreasonable to believe that intensive data recovery and sophisticated quantitative analysis will always compensate for reduction in the scale of excavations. It is clear that a relatively modest increase in funding, devoted to an increase in the scale of excavations during the single season at Farukhabad, would have been amply justified by the stated research objectives and would have been cost-effective.

One can only hope that the Farukhabad report, with its broad scope and interesting, though tentative, conclusions, will stimulate constructive discussion of this problem among archeologists, and particularly within the institutions that support archeological research.

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A Scientist and Reformer

Charles Babbage. Pioneer of the Computer. ANTHONY HYMAN. Princeton University Press, Princeton, N.J., 1982. xvi, 288 pp. + plates. $25.

The 1830's were the years of the Great Reform Movement in Britain. British liberals, inspired by the reforms in Napoleonic France, initiated wide-ranging reforms to social, political, and scientific institutions. Valuing rationality over authority, they called upon science to set its house in order and apply its skills to the improvement of society.

Charles Babbage, who shared these liberal convictions, believed that science was the answer to social problems, but only if science itself was strong. In fact, he was the most prominent reformer of science of the time. He was a founder of the Cambridge Analytical Society, which both catalyzed educational reform at Cambridge and renewed British mathematics by introducing the effective analytical methods used on the Continent. He was a leader in restructuring the aristocrat-laden Royal Society and in bringing organization to science outside London through establishment of the British Association for the Advancement of Science. He encouraged the development of specialist scientific societies, including the Statistical Society, of