News of Science

Jarmo Expedition

Materials that will date the two oldest known villages in which man settled down to a permanent agricultural life have been obtained in Iraq during the last year by an expedition of the Oriental Institute of the University of Chicago. Robert J. Braidwood, professor in the institute and leader of a team of scientists in the institute's Iraq-Jarmo expedition during the past season, has returned to Chicago with a new report on Jarmo, a village he found 6 years ago between Kirkuk and Sulimaniya that has been dated about 4700 B.C. The expedition also found the even earlier village of M'leffat, which probably antedates 5000 B.C. M'leffat was found during the exploration of the basin of the Greater Zab River about 100 miles north of Jarmo.

Fifty-two carbon samples from fire pits in the villages, and from earlier cave dwellings and other sites along the Fertile Crescent were collected by the radiocarbon specialist of the expedition, Frederick R. Matson of Pennsylvania State University. The samples will be processed by the radiocarbon dating method that was developed by Willard F. Libby. It is hoped that a reliable chronology of man's early settlements in western Asia can be established. Three previous samples from Jarmo were dated by Libby in 1952 at approximately 4750 B.C. The geologist member of the team, H. E. Wright of the University of Minnesota, found evidence of Pleistocene age glaciation in the Kurdish Mountains of northeastern Iraq. Impressions of plants and grains in the mud ruins of Jarmo and M'leffat were gathered by Hans Helbaek, botanist of the Danish National Museum. Pieces of bones of animals were found in the two sites and in other prehistoric habitations by zoologist Charles A. Reed of the University of Illinois. Horn cores of goats gave one clue concerning the existence of domesticated animals about 7000 years ago.

An extensive collection of existing plants, 5000 species that were found within 4 miles of Jarmo, was made by Helbaek for comparative study with the older flora. Reed also made a complete collection of modern animals, including not only domestic, but wild species such as bear, fox, and gazelle. No wild horses or cattle exist in the region today. The last wild horse was reported in the Mesopotamia desert in 1928. Wild sheep, goats, and pigs persist; specimens of these were obtained.

Although final knowledge of conditions at the time the village existed must await analysis of the thousands of specimens collected by the expedition, the general evidence indicates that the climate and environment were not greatly different in 4500–5000 B.C. than now. Ancient Jarmo appears to have been a land of limited rain, as it is today. The original inhabitants, though fewer in number and with smaller flocks, started the process of overgrazing and deforestation that resulted in the erosion and depletion of the soil so marked today. The evidence of glaciation, together with the deduction from the various collections, may permit an informed guess concerning the climatic changes over the last 40,000 years, it is reported.

Braidwood had hoped that 3 months of excavation in the spring of this year would reveal all remaining significant features of Jarmo, but during the last week of digging, a deep trench being run through a thick concentration of ash intercepted a wall more than 5 feet thick, an architectural feature not compatible with a primitive village.

The Jarmo houses were made of unbaked mud, which is not very durable. It is Braidwood's present opinion that the 27-foot accretion on the village site, with evidence of a variety of architectural renovations, represents a period of not much more than 250 years, for the early agriculturists continually rebuilt on the heaps of their disintegrated houses.

Many small unbaked clay figurines, emphasizing pregnancy, of the "mother goddess" type, were found this year. Lesser numbers of other unbaked modeling, including some figures that were recognizable as wild boar, were also found. Bowls shaped out of marble were also found. A few shards of painted pottery were found in the upper levels. Some of the stone bowl fragments show that the grinding was planned to use the dark veins of the marble to produce decorative lines in the finished bowl.

No pottery was found at M'leffat. But there is indication that trade in obsidian existed even at that time, for the nearest source was 250 miles away in what is now Turkey. Only scattered pieces of obsidian were found at M'leffat, but obsidian exists in quantity at Jarmo, as do shells from the Persian Gulf.

Other members of the professional staff of the expedition were Bruce Howe of the Peabody Museum, Harvard University, who represented the Baghdad School of the American Schools of Oriental Research and studied the terminal cave stage of life in the area in an associated project; Vivian Broman, field assistant; and Polly Jo Anderson, University of Chicago graduate student in anthropology, anthropological assistant at Jarmo.

Survey of Graduate Students

Twenty-five percent of the resident graduate students in the United States held teaching or research assistantships or fellowships in April 1954, according to preliminary findings of a survey by the National Science Foundation. *Highlights of a Survey of Graduate Student Enrollments, Fellowships, and Assistantships, 1954* (*Scientific Manpower Bulletin,* No. 5), which was recently published by the foundation, summarizes these findings, which covered more than 152,000 resident graduate students who were enrolled for a degree in an academic department in 330 institutions of higher education.

Factual information in the bulletin includes the numbers of graduate students in the United States, their distribution by academic fields, the extent to which they obtained financial assistance in the form of teaching or research assistantships or fellowships, and the sources of funds for such financial assistance. Table 1 shows the distribution of resident graduate students enrolled for a major in April 1954 by field, and the percentages receiving these types of financial assistance.

The graduate-student population covered in the bulletin included about 94,000 first-year graduate students and 58,000 advanced students. About 47 percent of the 152,067 graduate students were attending school full time. Nearly three-fourths of the graduate students in the survey were males, and in most fields of the natural sciences the proportion of women was relatively small.

Survey findings include comparative data by field on the number of graduate students who held teaching or research assistantships or fellowships and the dollar amounts of the stipends paid. Although those who received financial assistance represented about one-fourth of the total number of graduate students concerning whom information was obtained, the proportion who received stipends varied widely from one field to another. Within the natural sciences, for