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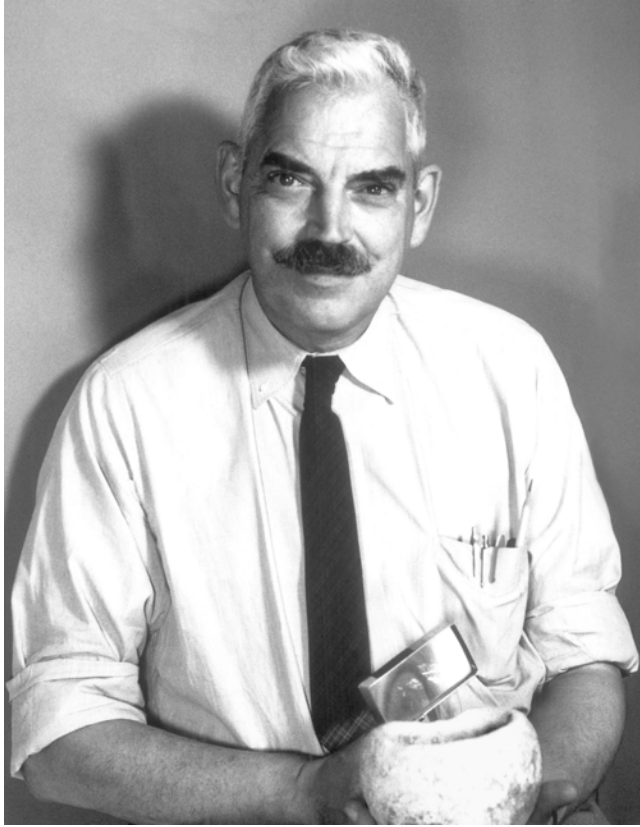
ROBERT JOHN BRAIDWOOD
1907–2003

A Biographical Memoir by
PATTY JO WATSON

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Biographical Memoirs

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Robert J. Braidwood

ROBERT JOHN BRAIDWOOD

July 29, 1907–January 15, 2003

BY PATTY JO WATSON

ROBERT J. BRAIDWOOD, ELECTED to the National Academy of Sciences in 1964, was a central figure within the community of field archaeologists that elicited culture history from the earth at the middle of the twentieth century. The heroic age of world archaeology, which began prior to World War II, was dominated by legendary excavators, such as Howard Carter, Gertrude Caton-Thompson, Grahame Clark, J. Desmond Clark, Dorothy Garrod, Emil Haury, Jesse Jennings, Kathleen Kenyon, A. V. Kidder, Richard (“Scotty”) MacNeish, Mortimer Wheeler, and Leonard Woolley. At the time of his death in January 2003, Bob Braidwood was the last survivor of this illustrious group.

Robert John Braidwood was born on July 29, 1907, in Detroit, Michigan, a second-generation descendant of Scottish immigrants, both his mother’s and his father’s parents having come to the United States during the nineteenth century. As a boy, Bob Braidwood worked in his father’s pharmacy after school and held occasional part-time jobs at a grocery store and a bank. During the summer before he left home to attend the University of Michigan as a freshman undergraduate, he held an apprentice card in a carpenters’ union. His carpentry skills were often deployed in archaeological field camps decades later and stayed with

him for the whole of his life. In the summer of 1978, by which time he was emeritus at the University of Chicago, he visited an excavation that William Marquardt and I were directing in Kentucky. He took pity on the graduate student geoarchaeologist who was struggling to encase a set of bulky sediment cores for transportation to the palynological laboratory at the University of Minnesota. Taking charge of the hammer, nails, and pieces of plywood collected for the job, he assembled the requisite number of sturdy sample boxes in a matter of minutes.

Bob Braidwood's career in anthropological archaeology began shortly after he completed a degree in architecture at the University of Michigan in 1929 and spent several months in an architectural office. The impact of the Great Depression made a future in architecture highly problematic, so he returned to Michigan to undertake coursework in two other areas that had interested him as an undergraduate: ancient history and anthropology. One of his ancient history classes was taught by Professor Leroy Waterman, a philologist and an expert on the correspondence of Neo-Assyrian rulers, who was then directing excavations at Tell Umar (ancient Selucia-on-the-Tigris), a large site south of Baghdad. At some point during that course, Waterman required each student to prepare a chronological chart showing highlights of history and cultural development for the ancient Near East. Because of the training he had received in drafting and lettering during his brief career in architecture, Braidwood—according to the story he told his students several decades later—produced such an impressive piece of graphics that Waterman invited him to join the University of Michigan's Selucia archaeological expedition as an architectural surveyor for the nine-month field season of 1930-1931. As a result of this experience Bob published a paper on Parthian jewelry, obtained the data for his master's

thesis (on the economic organization of the Selucid empire), and became an archaeologist.

Bob earned his B.A. in 1932 and M.A. in 1933 at the University of Michigan before being hired by the Oriental Institute, University of Chicago, as a field assistant for the Syrian Expedition to the Amuq (the Plain of Antioch, which became part of Turkey in 1939). Bob held this position for five years (1933-1938) until work by the Syrian Expedition ceased. On his return by steamship to the United States from Syria following the 1936 Amuq season, he met someone he had first encountered during his undergraduate days at the University of Michigan: a young woman named Linda Schreiber, who was working as a buyer for a large downtown Chicago department store. As the culmination of the ensuing shipboard romance, they were married the following January. Bob and Linda Braidwood worked together at home and abroad for the next 66 years, forming a formidable team as they organized and managed archaeological field crews in Syria, Iraq, Iran, and Turkey, as well as coauthoring and coediting dozens of publications describing and discussing results of their work.

Linda joined the Amuq field staff for the last Syrian season in 1938, and then both Braidwoods enrolled in graduate coursework during the fall term at the University of Chicago. Bob was pursuing a doctoral degree under the supervision of Henri Frankfort in the Department of Oriental Languages and Literatures at the Oriental Institute, but a third of his coursework was in the Department of Anthropology across the street from the institute on the main Chicago campus. Linda earned an M.A. at the institute in 1943, but was not allowed to pursue a Ph.D. because Bob was by then a part-time faculty member of the university. Nepotism rules forbade what was viewed at the time as a conflict of interest when a professor and a graduate student were

affiliated with the same university department, but Linda did hold a career-long research associate appointment at the Oriental Institute.

When Bob Braidwood was hired by the Oriental Institute in 1933, he was retained simply as a field assistant with the Syrian Expedition staff, which meant that he spent nine months (fall to spring) every year digging in Syria. He, like several others with the same kind of appointment, was on his own and was unsalaried during the three summer months when excavations were suspended. The Oriental Institute, like the University of Chicago itself, was funded primarily by John D. Rockefeller. Rockefeller had been persuaded by James Henry Breasted (the first American to obtain a Ph.D. in Near Eastern philology, in his case from the University of Berlin in Egyptian hieroglyphs and Egyptology) that a scholarly center dedicated to research on the ancient Oriental world (meaning Egypt, the Levant, and greater Mesopotamia) was an essential component for the great university Rockefeller was helping to build in south Chicago. In 1919 Rockefeller accepted Breasted's proposal, and funded construction of the Oriental Institute building during the 1920s. In his role as director of the new institute and still spending Rockefeller money, Breasted hired the best Assyriologists, Egyptologists, and other scholars of the eastern Mediterranean Bronze and Iron ages that he could find, many coming from Germany and other parts of Europe. These people were, for the most part, epigraphers and philologists who spent their research time transliterating, translating, and interpreting cuneiform or hieroglyphic writings recovered from an array of archaeological sites in western Asia and Egypt.

Breasted also established a major field program with twelve archaeological expeditions working annually in five countries: Egypt (six expeditions), Iran (one expedition),

Iraq (three expeditions), Palestine (one expedition), and Syria (one, the Amuq expedition). In 1941 Bob Braidwood was hired part-time by the University of Chicago to be the Oriental Institute's sole prehistorian, a position that was made full-time in 1945, subsequently with joint appointment in the Department of Anthropology, an arrangement he held until his retirement from the University in 1978. Perhaps the best aspect of this job was the agreement that every third year Bob was to be off campus and out of residence, digging at prehistoric sites in western Asia.

ARCHAEOLOGICAL FIELDWORK IN THE NEAR EAST

Braidwood's experience with the Syrian Expedition of the Oriental Institute was similar in some ways to his nine months with the Selucia project, in that the work of both was centered upon large-scale excavation of huge mounds (*tells*, *tepes*, or *höyüks*). Such mounds mark the locales where prehistoric, protohistoric, and historic communities lived and died, later ones having been constructed atop the ruins of earlier ones. Given the aridity of western Asia, most of the architecture encountered by the archaeologists was sun-dried mud brick (adobe), a very economical and flexible technology that facilitates remodeling, or leveling and rebuilding, but is quite challenging to excavate. Fortunately for fledgling field assistants like the young Bob Braidwood at Selucia, the native dig *ustas* (master excavators) were well trained and highly skilled at disentangling mud-brick wall lines from the cultural deposits that surround them.

Other than day-to-day supervision and recording at various portions of the excavation, Braidwood accomplished two major pieces of work during his five years in the Amuq. He was given responsibility for deep soundings of major mound sites being dug by the expedition, the most important such vertical exposure being at Tell Judaidah. As he

related the story many years later, the expedition director told him to take a crew, dig down to the bottom of the mound, and describe "the earliest stuff we've got." Braidwood did this by means of a step trench, dividing the stratified cultural remains (mostly on the basis of changing pottery types) into a long series of phases, each of which he labeled with letters of the alphabet, "A" being the earliest. His detailed account of this sequence, which he related to relevant artifacts and architecture at other Near Eastern sites, was presented in his doctoral dissertation, "Comparative Archeology of Early Syria," which was completed in 1942 and submitted in final form the following year.

Braidwood's other project was a regional survey of the entire Amuq to locate and date as many of the other sites in the area as possible. He made good use of the phase system defined in his vertical soundings to order the survey sites chronologically by means of artifacts (especially potsherds) on their surfaces. This information was published in 1937 as an Oriental Institute monograph, *Mounds in the Plain of Antioch*.

A third notable result of Bob Braidwood's years in the Amuq was the beginning of his career-long association and friendship with one of the expedition workmen, Abdullah Said Osman al-Sudani, a bright, knowledgeable young Egyptian. Bob and Linda Braidwood and Abdullah al-Sudani worked together for the next 30 years, first in Syria, then in Iraq, where Abdullah was site supervisor and all-around facilitator for the Oriental Institute's Iraq-Jarmo Project.

During the academic years from 1938 until the end of World War II, when the Braidwoods were graduate students at the University of Chicago, they participated in a seminar conducted by Bob Braidwood's dissertation professor, Henri Frankfort. The legendary Frankfort seminar, still a vivid memory that was often evoked during the 1950s-1960s by

the Braidwoods and other Oriental Institute personnel who had survived it, met weekly for nine months each year: from the beginning of fall term to the end of spring term. The goal Frankfort set for the class was to begin at the beginning of the archaeological record as then known in the Near East (Middle Paleolithic to late Upper Paleolithic [Late Pleistocene] and the Natufian of the Mt. Carmel rockshelters [variously regarded as Mesolithic or early Neolithic]) and continue to 2000 B.C. This experience, together with his dissertation research on early deposits underlying the Amuq mounds, provided the data for Braidwood's production in 1945 of what he called "the gap chart," a chronological diagram he drew up as a pedagogical device that highlighted a significant lacuna (gap) spanning several thousand years between the last mobile Paleolithic hunter-gatherers camping in rockshelters, and the first appearance of the earliest agropastoral villages, such as those represented by the Amuq A phase, for example, and the site of Hassuna in northern Iraq (1946; Lloyd and Safar, 1945). Braidwood was especially intrigued by that lacuna because he had been strongly influenced, early in his student days at Michigan, by the writings of V. Gordon Childe (Childe, 1928, 1934, 1936, 1942) about the post-Pleistocene Agricultural Revolution. Childe emphasized the great significance of this achievement, whereby human groups first domesticated plants and animals to invent a new form of subsistence that laid the economic foundations for the rise of civilization. The gap Braidwood's chart delineated coincided exactly with the time when the first food-producing villages—ancestral to Amuq A phase communities and to places like Hassuna—must have appeared.

It was this gap that Bob and Linda were eager to address in their first Oriental Institute fieldwork after World War II. Although they had hoped to return to northern

Syria, they were persuaded by cuneiformist and Sumerologist Thorkild Jacobsen, who was then director of the Institute, that the political situation in Iraq was more stable and more amenable to long-term archaeological work than was that in Syria. Hence, the Braidwoods' initial foray into the research trajectory that absorbed them for the rest of their careers began in 1948 in northern Iraq rather than northern Syria. Following information given them by the Directorate of Antiquities in Baghdad, they applied for and were granted an excavation permit for a site similar to Hassuna called Matarrah, and a sondage (test dig) permit for a second site, Jarmo. Jarmo, in the Kurdish hills near the town of Chemchemal, turned out to be the more interesting of the two because it had a major preceramic component, yet certainly seemed to be a sedentary community.

Following their 1948 season at Matarrah and Jarmo, the Braidwoods—accompanied, as they had been in the previous Iraqi season, by their children, nine-year-old Gretel and six-year-old Douglas—launched the Iraq-Jarmo Project and excavated several units at Jarmo during a nine-month period in 1950-1951. Test excavations were also carried out by Braidwood's colleague, Bruce Howe, at two earlier sites: a rockshelter (Palegawra), and an open site (Karim Shahir) with a thin deposit but one that seemed to be earlier than Jarmo. Although a geologist had spent part of the 1950-1951 season working with the archaeologists in and around Jarmo, for the next (1954-1955) Jarmo season, Braidwood was determined to have a range of experts in the natural sciences on his staff. He needed botanical and zoological expertise to identify the remains of wild and domestic wheat and barley, sheep, goats, pigs, and dogs, and to provide information about prehistoric climate and environment that would complement information from Herbert Wright, the geologist. One reason Braidwood was so interested in Jarmo

was its location in what he came to call “the Hilly Flanks of Breasted’s ‘Fertile Crescent,’” an upland region with sufficient rainfall to make irrigation unnecessary and to provide suitable habitats for wild ancestors of the first domesticated plants and animals. It seemed likely that archaeological remains of the first farmers and pastoralists would be found in areas where the ancestral species were naturally present.

With the support of a new government research-funding agency, the National Science Foundation, Bob Braidwood assembled the first interdisciplinary team to address agropastoral origins on the ground in the Near East. Besides Wright the geologist, this group included paleoethnobotanist Hans Helbaek, zoologist Charles Reed, and radiocarbon expert Fred Matson, as well as several archaeologists (Bob Braidwood and Linda Braidwood, Bruce Howe, and field assistants Vivian Broman and Patty Jo Andersen) and four camp managers (Mayo and Beverly Schreiber, Margaret Matson, and Rhea Wright). The 1954-1955 field season of the Iraq-Jarmo Project included a several-month period of site survey during the fall in a region northwest of Jarmo, and a three-month spring season back at Jarmo and Karim Shahr.

The Braidwoods planned further work at Jarmo and at several sites near it for the fourth Iraq-Jarmo Project season, but the nationalist revolution that took place in Iraq during the summer of 1958 resulted in significant political instability, especially in the northern Kurdish area, where Jarmo is located. As a result of this situation, the Iraq-Jarmo Project personnel moved operations across the border in 1959-1960 and became the Iranian Prehistoric Project, directed by Robert Braidwood and codirected by a prominent young Iranian archaeologist, Ezat Negahban, who had been a graduate student at the Oriental institute during the early 1950s. Beginning with a fall survey in portions of

the Kermanshah valley, the team carried out excavations at a nearby rockshelter (Ghar Warwasi), and at two open sites (Tepe Asiab [somewhat similar to Karim Shahir] and Tepe Serab [yielding remains that resemble the later Jarmo materials, and possibly occupied post-Jarmo as well]) while ethnoarchaeological work went on at several contemporary villages (Watson, 1979), and a very important palynological study was begun at lakes in the Zagros Mountains. Results of the latter investigation, directed by Herbert Wright, eventually resulted in radically altering the understanding of Holocene climate and environment, not only in the Hilly Flanks but also in the entire Near East (van Zeist and Bottema, 1977, 1991; Wright, 1983, 1998).

Another significant result of the Iranian Prehistoric Project was the work carried out elsewhere in Iran during several subsequent seasons by two young staff members of the 1959-1960 Oriental Institute expedition, Frank Hole and Kent Flannery, who initiated their own research in the Deh Luran valley of southwestern Iran in 1961 (Hole et al., 1969).

Following the Iranian season, Braidwood's group moved once more as the result of a very appealing arrangement negotiated by an energetic and persuasive colleague: Professor Halet Çambel, head of the Prehistory Department at Istanbul University. The Joint Prehistoric Project, Istanbul-Chicago, codirected by Bob Braidwood and Halet Çambel, was established in 1963 and began fieldwork during 1963-1964 in southeastern Turkey. After an initial regional survey, the project's focus was largely on the remarkable village site of Çayönü, several hundred years older than Jarmo but much fancier architecturally and artifactually (1980, 1982). During the 1968 and 1970 field seasons, however, intensive surface survey and subsequent test excavations were carried out at a nearby, somewhat younger site: Girikihacian (Redman and Watson, 1970; Watson and LeBlanc, 1990).

Beginning in 1978, Wulf Schirmer led a team from West Germany's Institut für Baugeschichte, Karlsruhe University, in recording and interpreting the complexities of buildings and building sequences at Çayönü. Research on plant remains was carried out by Jack Harlan, Robert Stewart, and Willem van Zeist; Charles Reed, John McArdle, Richard Meadow, and Barbara Lawrence applied their zoological expertise to the animal bones; Gary Wright and Richard Watson surveyed several obsidian sources thought to have been quarried prehistorically (obsidian [volcanic glass] was highly valued and widely traded throughout western Asia and the Aegean); and Robert Megard analyzed microfauna from lakes and ponds for detailed paleoclimatic evidence. As had been the case in both Iraq and Iran, participation by these collaborative scientists was funded primarily by the National Science Foundation.

Çambel and the Braidwoods continued research at Çayönü until 1989, when Halet retired, and the Joint Prehistoric Project directorship was turned over to a former student of hers, Professor Mehmet Özdoğan of Istanbul University.

HIS LEGACY

Bob and Linda Braidwood died of pneumonia within hours of each other on January 15, 2003. In April of that same year, Halet Çambel, Mehmet Özdoğan, and another friend and colleague of the Braidwoods from Istanbul University, Güven Arsebük, attended the memorial service at the University of Chicago. All three scholars referred to the Braidwoods' dedication to their work and to the unusual strength and productivity of the collaborative Turkish-American project they helped initiate. Together with the large international group of students and young colleagues who have participated in Oriental Institute Prehistoric Project expeditions (over the years staff members have come from

England, France, Germany, Greece, Iran, Italy, Korea, the Netherlands, and Turkey as well as the United States), the Joint Turkish Prehistoric Project is one of the Braidwoods' major legacies to their discipline.

There are several other significant and lasting achievements to the credit of Robert J. Braidwood. The chronological sequence he delineated when a young staff member of the Oriental Institute Syrian Expedition, for example, has stood the test of time admirably, and is still centrally referred to in discussions of prehistory, protohistory, and early Bronze Age archaeology in the Levant. His survey of the Amuq plain and the regional perspective from which the survey derived were highly innovative at a time when virtually the entire field of Near Eastern archaeology centered upon site-oriented research: major excavations by hundreds of loosely supervised workers at very large mounds, preferably sites that were mentioned in the Bible or in cuneiform, hieroglyphic, or other archives of the Bronze and Iron ages.

Braidwood's primary contribution, however, is widely recognized to be his initiation of systematic, international, interdisciplinary field research on agropastoral origins. In 1995 the Society for American Archaeology (a large, powerful professional organization, which he respected but never joined because all his own work had been in the Old World) honored Robert J. Braidwood with its Fryxell Medal for distinguished interdisciplinary research in archaeology. That award and the symposium in his honor that accompanied it highlighted Braidwood's most significant and best known contribution to world scholarship: the theoretical and methodological approach he devised and that he and Linda applied to their work at Jarmo. The Iraq-Jarmo Project was the first systematic, empirical attempt to recover solid evidence—animal bones, plant remains, geological observations

enabling paleoenvironmental reconstructions—about the indigenous origins of a prehistoric agropastoral economy. The basic research design Braidwood created in the early 1950s has long since become standard operating procedure, and the agropastoral origins problem he defined in the late 1940s has been taken up by interdisciplinary teams around the globe to track food-producing revolutions very different from the one he and Linda pursued for nearly half a century. The expertise in floral, faunal, and geological remains that Bob had to beg, borrow, or bootleg throughout most of his career is now lodged in a series of formal subdisciplines (archaeobotany, geoarchaeology, and zooarchaeology) for which his field projects in Iraq, Iran, and Turkey provided powerful stimuli.

Bob and Linda Braidwood were an archaeological team without parallel in their dedication to answering the questions that caught Bob's imagination in his student days at Michigan, when he first read the speculative writings of V. Gordon Childe, and then again in 1945 when his gap chart so clearly displayed a total lack of archaeological data about the critical portion of the post-Pleistocene record. Childe argued persuasively that the Agricultural Revolution in western Asia was enormously significant in that it provided the foundations for urban civilization in ancient Mesopotamia, but he paid scant attention to the questions that fascinated the Braidwoods throughout their careers: where, when, how, and why did that revolution take place? Their work in Iraq, Iran, and Turkey did not provide final answers to those queries. Their research, however, and that of dozens of other archaeologists all over the world—inspired by their results and by the enthusiasm and joy they and their col-

laborators poured into the search for answers—has enormously advanced archaeological theory, method, and substantive knowledge about a major transition in the human past.

GRETEL BRAIDWOOD, RAY TINDEL, AND WILLIAM SUMNER provided some of the information included in this memoir. See also “Archaeological Retrospect 2” (1981), my biographical memoir for Robert John Braidwood in the *Proceedings of the American Philosophical Society*, vol. 149, no. 2, as well as obituaries in the *American Anthropologist*, vol. 106, no. 3 (by P. J. Watson); the *American Journal of Archaeology*, vol. 107, no. 4 (by Andrew Moore); the *Journal of Anthropological Research*, vol. 59, no. 2 (by P. J. Watson); the *New York Times* for January 17, 2003 (by Stuart Laviertes); and *Neolithics*, Jan. 2003 (by Geoffrey Clark). The Braidwood memorial issues of two Turkish journals are very informative: *Arkeoloji ve Sanat* 113 (2003) and *Tüba-Ar* (Turkish Academy of Sciences Journal of Archaeology) 7 (2004). Additional sources are *The Encyclopedia of Archaeology: The Great Archaeologists* (edited by Tim Murray), vol. 2, pp. 495-505, 1999; Linda Braidwood’s *Digging Beyond the Tigris* (1953), Robert Braidwood’s *Archeologists and What They Do* (1960), and L. and R. Braidwoods’ essay, “A Highly Successful Collegiality” in *Light on Top of the Black Hill: Studies Presented to Halet Çambel* (eds. G. Arsebük, M. Mellink, and W. Schirmer, pp. 189-194, 1998).

CHRONOLOGY AND PROFESSIONAL RECORD

1907	Born July 29 in Detroit, Michigan
1926-1929	Attended University of Michigan College of Architecture
1929	Junior member of an architectural firm in Detroit
1930	January: returned to University of Michigan for coursework in ancient history and anthropology
1930-1931	Surveyor and artist with the University of Michigan Selucia-on-the-Tigris expedition
1932	B.A. in anthropology and ancient history, University of Michigan
1933	M.A. in anthropology and ancient history, University of Michigan

- 1933 Summer: topographic surveyor for the Department of Anthropology's excavations in Fulton County, Illinois
- 1933-1938 Field assistant on the staff of the Oriental Institute's Syrian Expedition, University of Chicago
- 1934 Summer: attended University of Berlin
- 1937 January: married Linda Schreiber
- 1938-1942 Doctoral studies at the Oriental Institute and Department of Anthropology, University of Chicago
- 1941 Summer: Field supervisor, Field Museum of Natural History excavations at the SU site near Reserve, New Mexico
- 1942 Ph.D. in Oriental Languages and Literatures (with considerable coursework in Anthropology), Oriental Institute, University of Chicago
- 1945 Permanent faculty position at the University of Chicago (Oriental Institute)
- 1948, 1950s Director of the Iraq-Jarmo Project fieldwork in northern Iraq
- 1959-1960 Director of the Iranian Prehistoric Project fieldwork in northwestern Iran
- 1960s-1980s Codirector, then advisor and consultant to the Turkish Prehistoric Project in southeastern Turkey
- 1978 Formal retirement from the Oriental Institute and Department of Anthropology, University of Chicago

MEMBERSHIPS

American Anthropological Association
 Archaeological Institute of America
 International Union of Pre- and Protohistoric Sciences

Foreign correspondent or honorary fellow of the following:
 Académie des Inscriptions et Belles Lettres, Institut de France
 Deutsches Archaeologisches Institut
 Osterreicheschie Akademie der Wissenschaften
 Istituto Italiana di Preistoria e Protostoria
 Jysk Arkaeologisk Selskab
 Kungl. Vetenskaps-och Vitterhets-Sammhallet i Goteborg
 Society of Antiquaries of London

ELECTIVE OFFICES HELD IN PROFESSIONAL ORGANIZATIONS

- 1961-1964 Executive Board, American Anthropological Association
- 1975-1980 Committee on Membership IV, American Philosophical Society
Permanent Council, International Union of Pre- and Protohistoric Sciences

HONORARY DOCTORATES

- 1971 Indiana University, Sc.D.
- 1975 University of Paris I (Sorbonne), Docteur
- 1984 University of Rome, D. Lit.

OTHER AWARDS AND HONORS

- 1963 Elected to American Philosophical Society
- 1964 Elected to National Academy of Sciences
- 1966 Elected to American Academy of Arts and Sciences
- 1971 American Anthropological Association Distinguished Lecturer
- 1971 Archaeological Institute of America Gold Medal for Distinguished Archaeological Achievement
- 1982 Festschrift, *The Hilly Flanks and Beyond: Essays on the Prehistory of Southwestern Asia*, presented to Robert J. Braidwood, November 15, 1982. Edited by T. Cuyler Young Jr., Phillip E. L. Smith, and Peder Mortensen, and published in 1983 as *Studies in Ancient Oriental Civilization* No. 36. Chicago: The Oriental Institute of the University of Chicago.
- 1995 Society for American Archaeology Fryxell Medal for Distinguished Contributions to Archaeology Through Interdisciplinary Research

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