# NATIONAL ACADEMY OF SCIENCES

# HALLAM LEONARD MOVIUS JR. 1907-1987

A Biographical Memoir by HARVEY M. BRICKER

Any opinions expressed in this memoir are those of the author and do not necessarily reflect the views of the National Academy of Sciences.

**Biographical Memoir** 

Copyright 2007 National Academy of Sciences Washington, d.c.



Hallow L' Inovies p.

# HALLAM LEONARD MOVIUS JR.

November 28, 1907-May 30, 1987

BY HARVEY M. BRICKER

Hallam L. MOVIUS JR. WAS A Palaeolithic archaeologist, a specialist in the interpretation of human behavior and its environmental context during the latter part of the Old Stone Age, toward the end of the Pleistocene Epoch.<sup>1</sup> With broad training and varied field experience in Europe, the Near East, and Southeast Asia, he became in the years after World War II the preeminent spokesman for Palaeolithic archaeology in the United States. In his classes at Harvard and on his excavations in France, he was instrumental in training a generation of American and European archaeologists. His decades-long investigation of the Abri Pataud, a large Upper Palaeolithic rock shelter in southwestern France, formed the basis for what is today a French government museum and research center at the site.

Hallam Leonard Movius Jr. was born in Newton, Massachusetts, on November 28, 1907. He was the son of Alice Lee West Movius and Hallam Leonard Movius, an eminent landscape architect. Movius was educated at the Berkshire School in Sheffield, Massachusetts, and at Harvard College, which he entered in 1926, graduating with an S.B. degree in 1930. Immediately upon graduation, Movius started in on what would be his professional career by joining a sixmonth archaeological expedition to Central Europe sponsored by Harvard and the University of Pennsylvania. Upon his return to the United States, he began graduate work at Harvard in the Stone Age archaeology of the Old World, and during the years of his graduate training, he participated in fieldwork of very varied nature in both Europe and southwest Asia.

Movius's field experience in 1931 was an introduction to the archaeology and archaeologists of the Western European area that would be the locus of his latest and most important professional contributions. In the summer of that year he was one of several students in the summer field season of the American School of Prehistoric Research, an organization founded and directed by George Grant MacCurdy of Yale University. For much of the summer the group visited archaeological sites and museums in England, France, Germany, Switzerland, Austria, and Czechoslovakia, receiving private tours and lectures from many of the principal researchers in the field of European Stone Age prehistory. The Palaeolithic (Old Stone Age) sites in France to which Movius was introduced that summer included ones in Les Eyzies and elsewhere in the Vézère Valley of the Dordogne region; it was to Les Eyzies that he returned to start major field work following World War II. At the end of the American School's study tour in 1931, Movius stayed on in Czechoslovakia to excavate briefly with the Harvard-Penn expedition and then joined MacCurdy on a month-long archaeological reconnaissance trip through Yugoslavia.

In the spring of 1932 Movius joined the excavations at the site of Mugharet es-Skhul in the Mt. Carmel range of Israel that were being carried out by a joint expedition of the American School of Prehistoric Research and the British School of Archaeology in Jerusalem. The codirector representing the American School was Theodore McCown, and Hallam Movius was his assistant. The site was known to be of great importance because fossilized human skeletal material associated with Middle Palaeolithic artifacts had been found there the previous year. During the even more rewarding 1932 season, the remains of an additional eight to ten individuals were found, including the highly significant Skhul V, discovered by McCown and Movius on May 2, 1932. It was immediately obvious that this fossil was extremely important for understanding the relationship, evolutionary or otherwise, between Neanderthal and modern humans, but only at the end of the twentieth century did newly developed techniques of chronometric dating clarify the situation. It is now known that Skhul V dates to between 80,000 and 100,000 years ago and represents one of the earliest groups of modern humans to be found outside Africa, where such humans evolved.<sup>2</sup> Although Movius had a small part in the fascinating story of modern human origins in southwest Asia, he did not return to that area or topic during his professional career.

Having received his M.A. in anthropology from Harvard in 1932, Movius began the fieldwork that would lead to his Ph.D. dissertation during the summer of that same year, shortly after his return from southwest Asia. This new project was one part of a large interdisciplinary program, the Harvard Irish Survey, which included physical anthropologists (Earnest Hooton, C. Wesley Dupertius), sociologists (W. Lloyd Warner, Conrad Arensburg, Solon Kimball), and archaeologists. The archaeological research was supervised by Hugh Hencken, director of the Harvard Archaeological Expedition to Ireland, and Hallam Movius was the assistant director. Movius was given the responsibility for investigating the earliest sites, those of the Stone Age (primarily Mesolithic). He spent five summer seasons, 1932 through 1936, in Ireland (both Eire and Northern Ireland), excavating six different sites. This work provided the material for

his doctoral dissertation, and he received his Ph.D. in anthropology from Harvard in 1937.

As important as the Irish work may have seemed on the professional plane, it was no less important to Movius in the personal realm. During the later years of the project, an Australian archaeology student at Cambridge University, Nancy Champion de Crespigny, from Adelaide, South Australia, was one of the field assistants. Hallam and Nancy were married in 1936. Thus began not only a *connubium* but also a very effective professional collaboration. In a publication on his Irish work Movius thanked Nancy for her help with the management of the essential logistical and managerial support for all of Movius's subsequent fieldwork.

Movius's first fieldwork after completion of his doctorate and his marriage was as archaeologist and assistant director of what was called the American Southeast Asiatic Expedition (or sometimes the Harvard-Carnegie Expedition). The main goal of the expedition was to survey the geology, paleontology, and Stone Age archaeology of the Irrawady Valley in Burma and to relate the anticipated new information to the somewhat better known sequences of India, China, and Java.<sup>3</sup> The expedition was directed by geologist Helmut de Terra (Academy of Natural Sciences of Philadelphia and Carnegie Institution of Washington). The eminent paleontologist and Jesuit theologian Pierre Teilhard de Chardin took part in the expedition as a consultant on the fossil faunas of the region and comparisons with China. Movius was in charge of the archaeological research. He and Nancy made the long ocean voyage, first to Calcutta and then to Rangoon, continuing on by train and river steamer to Mandalay, and finally by whatever land transport was available, further northeast into the southern Shan states.

In later years Movius referred often to the difficult and adventurous aspects of this expedition. Beyond the archaeology, which was his primary concern, he was impressed by the linguistic complexity in this region of Upper Burma. A story that I heard him recount several times involved their getting lost somewhere in the hills and the inability of their Burmese driver to ask directions of the local inhabitants. The difficulty was that the driver's dialect had only three tones (as I remember), whereas the closely related but crucially different local dialect had five. After three months of fieldwork in Burma, the members of the expedition traveled to Java to study the geological context of the famous Homo erectus localities (Trinil, Modjokerto, and others) and to examine existing archaeological and paleontological collections from various Pleistocene localities on the island. The expedition ended in May 1938.

Movius's archaeological investigations in southeast Asia, the results of which were published during and just after World War II (1943; 1944; 1949,1-2), were pioneering contributions to knowledge of an area of the world whose Stone Age prehistory was virtually unknown. A general conclusion based on the wealth of specific data gathered was that during much of the Early Stone Age the archaeological materials in eastern and southeastern Asia were fundamentally different from those in western Asia, Europe, and Africa. In this eastern province the early hominid inhabitants manufactured rather simple core tools (choppers and chopping tools) and flake tools. In the western and southern province, however, core tools of the same period were more completely patterned (Acheulian handaxes and cleavers), and flakes for tool manufacture were often struck from specially prepared Levallois cores. This model, described in oversimplified form as the absence of Acheulian handaxes in eastern Asia, was codified by others in terms of a Movius

Line, running northwest to southeast across the Eurasian continent, separating the realm of the west from the very different eastern realm. There is no question that Hallam Movius is better known for the Movius Line than for anything else. It is, however, the case that this model, in its original form, is now known to be incorrect. Discoveries of handaxes and other Acheulian materials at sites in China at the end of the twentieth century showed that east and west were not completely isolated realms at this time despite what are in most cases quite different archaeological sequences.<sup>4</sup>

Movius's return to the United States from the Asian expedition in 1938 marked the end of the exciting first stage of his professional career. In addition to preparing the monographic reports on the Palaeolithic archaeology of Southeast Asia, he was revising his dissertation for publication by the Cambridge University Press. The outbreak of World War II in Europe complicated communications with the press. In his preface to *The Irish Stone Age*, which was published in 1942, Movius expressed his grateful admiration of the editorial staff, which "carried on with the job" despite the loss of proofs and other materials "due to enemy action."

As of 1939 Movius held the title of assistant curator of Palaeolithic archaeology at Harvard's Peabody Museum, but it was not obvious where his career would go from there. After Hallam's death, Nancy told me that there was a period when he thought that a career in Old World prehistory might not be possible (with many of the areas of interest to him occupied by invading armies) and that he might have to switch his specialty to the archaeology of the United States. This is apparently the explanation for an otherwise puzzling entry in his publication list—a brief report published in 1941 on excavations at a prehistoric site in Massachusetts. The entry of the United States into World War II in December 1941 removed all doubt about what Movius would do next.

Movius entered military service in 1942 as a first lieutenant in the 12th U.S. Army Air Force. He served in the Mediterranean theater, primarily in southern Italy, for over three years. He was an intelligence officer attached to a unit whose duties included assessing bombing damage inflicted on Axis industrial plants, tracking the extent to which damage from previous raids was being repaired, and recommending the scheduling of future bombing raids such that the fruitless expenditure of enemy resources would be maximized. Movius's wartime work was recognized by the award of the Legion of Merit, given "for exceptionally meritorious conduct in the performance of outstanding services and achievements."<sup>5</sup> He left the Air Force in early 1946 with the rank of lieutenant colonel.

Upon returning from the war, Movius began his career as a member of the Harvard faculty. He was appointed lecturer in the Department of Anthropology in 1948, promoted to associate professor with tenure in 1950, and promoted again to professor in 1957. He and Nancy added to their family during this period. A son, Geoffrey, had been born before the war in 1940, and now a daughter, Alice, was born in 1947. Movius's professional activities in these early postwar years were, in addition to teaching, of two kinds. He very quickly got started with new field research (discussed below), and through an ambitious program of publication, he set about establishing himself as one of this nation's leading experts on Palaeolithic archaeology.

During the late 1940s and early 1950s, Movius served as an interpreter or broker for American anthropologists of important new information about the Old Stone Age that was being published in Europe and Asia in languages other than English. Such publications included reports on hu-

man fossil finds in France (1948) and Uzbekistan (1953,1), a very ancient Lower Palaeolithic wooden spear from Germany (1950,2), and various sites in northern China (1956,1). As radiocarbon dating was first being developed, Movius wrote several articles (e.g., 1950,1) exploring its potential applications in Palaeolithic archaeology, a topic he followed up in the early 1960s with major critical reviews of radiocarbon dates on Upper Palaeolithic sites in Central and Western Europe (1960, 1963). Collaborating with a project of the Geological Society of America, he published a detailed review of Villafranchian stratigraphy in Western Europe (1949,3). With Henri Vallois, a French physical anthropologist, he coedited the Catalogue des hommes fossiles (1953,3), the result of an international project to inventory all known fossils of early humans and their ancestors. In 1952 the Wenner-Gren Foundation for Anthropological Research held a two-week symposium to assess the state of anthropological knowledge and practice in the middle of the twentieth century. Movius was chosen to prepare the inventory paper on Palaeolithic archaeology (1953,2), a measure of the stature he had achieved in his discipline. This leadership position was recognized by national and international honors throughout his career. He received the Viking Fund Medal for Archaeology in 1949, and he was elected to membership in the National Academy of Sciences in 1957. He was, in addition, a member of the American Academy of Arts and Sciences, and in 1970 he was named a Chevalier des Arts et Lettres of the Republic of France.

The first archaeological fieldwork done by Movius after the war was the excavation of a large rockshelter, La Colombière, in the foothills of the Jura Mountains in eastcentral France. The rockshelter was occupied by Upper Palaeolithic groups at several different times near the end of the Pleistocene Epoch. In the summer of 1948 an inter-

disciplinary research program codirected by Movius and Kirk Bryan, a Harvard geologist, began the field investigation of the human occupations of the site and of their geological and climatological contexts. Bryan died in 1950, and the geological research was completed by his colleague, Sheldon Judson, who coauthored with Movius the monographic site report (1956,2). The age and cultural affiliation of the principal archaeological level at La Colombière have been controversial, and radiocarbon dating done at the time was inconclusive. On the basis of more recent research,<sup>6</sup> the age of the occupation is now believed to be some 10 millennia younger than Movius thought (Magdalenian rather than Gravettian). Earlier excavations of a portion of this level by French prehistorians had discovered a series of eight watersmoothed river cobbles covered with engravings of Ice Age animals, and a ninth such object was discovered by Movius in 1948. These excellent examples of Palaeolithic mobiliary art make La Colombière one of the important sites of this age in eastern France.

In the summer of 1949, with the archaeological part of the fieldwork at La Colombière having been completed, Movius spent several months in France, mostly in the Dordogne region of the southwest, talking with local prehistorians and looking for a good Upper Palaeolithic site at which to start a major new excavation. The site he chose was a large collapsed rockshelter overlooking the Vézère Valley in the town of Les Eyzies. It was this site, the Abri Pataud, that would be Movius's primary professional concern from then until the end of his career. He did a test excavation in 1953 on the part of the site then accessible to him. The property was, however, part of a working farm, and a barn stood on the main portion of the site. In 1957 Harvard purchased the property and immediately transferred ownership to the French government, which in turn granted what became known as the Harvard Dordogne Project the excavation rights for a 20-year period. Six seasons of excavation were conducted at the Abri Pataud between 1958 and 1964. The old farmhouse and its ancillary structures (located, in fact, in a second walled-up rockshelter) were converted into laboratory and storage areas so that on-site analysis of the excavated materials could continue throughout the year. Early in the project, Hallam and Nancy acquired a property, Roque Veyral, just a few kilometers distant from the Abri Pataud and renovated it into a combination residence and laboratory. At the site or at Roque Veyral, or both, research and writing about the Abri Pataud continued for at least part of every year for nearly two decades.

Hallam Movius's Abri Pataud project made several kinds of contributions to Palaeolithic archaeology and European prehistory. First, and most obviously, it answered substantive technical questions about the sequence and radiocarbon dating of Upper Palaeolithic archaeological cultures in southwestern France, a classic region for the understanding of human behavior at the end of the Ice Age. The site was, in fact, occupied repeatedly between about 34,000 and 20,000 radiocarbon years ago, by people representing the Aurignacian, Gravettian, Noaillian, and Solutrean archaeological cultures.

Second, it provided for U.S. archaeologists a model of the sort of broadly interdisciplinary approach to an archaeological site that was becoming standard operating procedure for Old World prehistory after World War II. The breadth of Movius's research plan can be seen from the contributors to the introductory volume of the multivolume site report (1975): these included two archaeologists, two geologists, a vertebrate paleontologist, a malacologist, two human paleontologists, a palynologist, and two ecological biologists. Third, the Abri Pataud project invented and tested new techniques for excavating large rockshelters, especially the simultaneous control of vertical (stratigraphic) and lateral variation in the archaeological deposits.

Fourth, the operation directed by Movius served as a training ground for a generation of aspiring Palaeolithic archaeologists, primarily from North America and Europe. During much of the 1950s and 1960s, the Abri Pataud and the several sites excavated by François Bordes of the University of Bordeaux, who was also digging in the Dordogne, were the principal training academies in this field. During the course of his operation, Movius had 78 field and laboratory assistants coming from 11 different nations. An important part of the training occurred on the Sunday excursions led by Hallam and Nancy for the benefit of the crew. The students visited sites and museums and met many of the prehistorians active in southwestern France at the time. Movius had benefited from such opportunities in the 1930s as a student with the American School of Prehistoric Research, and he considered them valuable for his own students.

Fifth, Movius and several of his graduate students working at the Abri Pataud developed new techniques of subtypological "attribute analysis" for the study of Upper Palaeolithic chipped lithic tools (1969, 1970, 1971). This work extended previous work on French material by James Sackett,<sup>7</sup> another of Movius's graduate students, and paralleled similar techniques being advocated in the United States by Albert Spaulding<sup>8</sup> and being applied in Hungary by Lászlo Vértes.<sup>9</sup> The full potential of this approach, which could later be realized because of developments in personal computing, was not achieved by the Pataud group or by others working in the 1960s and 1970s. It did, however, move the analysis of the Abri Pataud materials completely away from what had been the traditional typological or index fossil approach.

In 1970, still in his early sixties and at the height of his career, Movius suffered a stroke while working at the Abri Pataud. He recovered almost fully, with only a lingering weakness on one side that required him to walk with a cane. For several years he continued to teach and to spend part of every year in Dordogne pursuing his research and writing. The site report on the Abri Pataud was planned as a multivolume monograph series to be published by Harvard's Peabody Museum as bulletins of the American School of Prehistoric Research. Movius saw the first two volumes through to publication, in 1975 and 1977, but a series of increasingly debilitating health problems made it more and more difficult for him to take an active part in the publication program. He retired from teaching in 1974 and from his curatorship at the Peabody Museum in 1976. Two more site report monographs<sup>10,11</sup> were published in 1984 and 1985, but the Peabody Museum had already confirmed its inability to proceed with the final three volumes planned for the series. In view of the great importance of the site to the profession, the director of antiquities for southwestern France proposed that a one-volume, French-language summary report on the entire Abri Pataud operation be compiled and published at French government expense. Movius enthusiastically endorsed this plan, and the volume in question<sup>12</sup> was published in Paris in 1995, some years after Movius's death. Movius's Avant propos to this volume, dated December 1985, was the last thing he wrote about the great site that was the capstone of his career. Hallam Movius died in Cambridge, Massachusetts, on May 30, 1987.

The Abri Pataud continues to provide important information about Upper Palaeolithic prehistory to both specialists and the general public. The French government has built a building over the excavated part of the rockshelter, and Movius's laboratory areas have been turned into a research center and a museum, le Musée de l'abri Pataud, with outreach programs that enrich the cultural life of the region.<sup>13</sup> The contributions of Hallam Movius to French prehistory are prominently chronicled in this museum.

I was closely associated with Hallam Movius during the last quarter-century of his life. He was my teacher, dissertation director, and valued colleague, and he and Nancy became warm personal friends. Two aspects of his legacy to me I regard as most important and most indicative of what kind of man there was behind the publication list and the professional honors. The first was his insistence that his students gain the fullest possible knowledge of the history of their discipline and of the particular problems on which they were working. In his teaching and in his own research, he fully implemented the proposition that we, as scholars, must stand on the shoulders of our predecessors, endeavoring to give to our successors a platform just a bit higher than the one on which we ourselves first stood. We can build on the platform of previous research only if we have taken the trouble to learn about it. The second aspect of his legacy, taught by example on numerous occasions, was the precept that one must not deal with ideas or positions in terms of where they originated. He did not believe in scholarly guilt or merit by association, and he did not discount or ignore the work of a scholar who belonged to the "wrong" school or one that was out of fashion. Vital contributions to knowledge can and often do have the most unlikely origins, quite unrelated to the prominence or professional affiliations of their proponents. In these ways and others, Hallam Movius fulfilled the expectations one has of an eminent university professor, excelling in both scholarly research and teaching.

## BIOGRAPHICAL MEMOIRS

IN PREPARING THIS MEMOIR I was aided by information contained in an obituary<sup>14</sup> written by William Howells and Nancy Movius given to me by its authors, a memorial minute<sup>15</sup> prepared by Gordon Willey and others for Harvard's Faculty of Arts and Sciences, a copy of a curriculum vitae prepared by Movius early in his career and supplied to me by Willey, Web-based information on the Movius papers in the Peabody Museum Archives,<sup>16</sup> and by conversations with Nancy Movius. I am very grateful for this invaluable assistance.

# NOTES

1. The Palaeolithic or Old Stone Age is a cultural stage recognized by archaeologists. It began about 2.5 million years ago and ended about 10,000 years ago. With this temporal span, the Palaeolithic extended from the end of the Pliocene Epoch to the end of the Pleistocene Epoch of the geologic time scale. The Palaeolithic was followed in some parts of the eastern hemisphere or Old World by a Mesolithic stage, which began at the end of the Pleistocene or Ice Age and ended a few millennia later when farming, the defining characteristic of the Neolithic stage, began in the area in question.

2. Skhul V: background. No date. Available at http://www.peabody.harvard.edu/skhul-bak/background.html. Accessed December 3, 2005.

3. H. de Terra. Preliminary report on recent geological and archaeological discoveries relating to early man in Southeast Asia. *Proc. Natl. Acad. Sci. U. S. A.* 24(1938):407-413.

4. For example, Y. Hou, R. Potts, B. Yuan, Z. Guo, A. Deino, W. Wang, J. Clark, G. Xie, and W. Huang. Mid-Pleistocene Acheuleanlike stone technology of the Bose Basin, south China. *Science* 287(2000):1622-1626.

5. Legion of merit. No date. Available at http://www.tioh.hqda. pentagon.mil/Awards/LOM1.html. Accessed December 18, 2005.

6. For example, R. Desbrosse. Les civilisations du Paléolithique supérieur dans le Jura méridional et dans les Alpes du Nord. In *La Préhistoire Française*, vol. 1, ed. H. de Lumley, pp. 1196-1213. Paris: Centre National de la Recherche Scientifique, 1976.

7. J. Sackett. Quantitative analysis of Upper Paleolithic stone tools. *Am. Anthropol.* 68(no. 2, pt. 2)(1966):356-394.

8. A. Spaulding. Statistical techniques for the discovery of artifact types. *Am. Antiquity* 18(1953):305-313.

16

9. L. Vértes. Tata: Eine Mittelpaläolithische Travertin-Siedlung in Ungarn. Budapest: Akadémiai Kiadó, 1964.

10. H. Bricker and N. David. *Exacavation of the Abri Pataud, Les Eyzies (Dordogne). The Périgordian VI (Level 3) Assemblage.* Harvard University, Peabody Museum, American School of Prehistoric Research, Bulletin 34, 1984.

11. N. David. Exacavation of the Abri Pataud, Les Eyzies (Dordogne). The Noaillian (Level 4) Assemblages and the Noaillian Culture in Western Europe. Harvard University, Peabody Museum, American School of Prehistoric Research, Bulletin 37, 1985.

12. H. Bricker, ed. Le Paléolithique supérieur de l'abri Pataud (Dordogne). Les fouilles de H. L. Movius Jr.. Suivi d'un inventaire analytique des sites aurignaciens et périgordiens de Dordogne. Documents d'Archéologie Française 50. Paris: Maison des Sciences de l'Homme, 1995.

13. B. Delluc and G. Delluc. *Visiter l'abri Pataud*. Luçon: Editions Sud-Ouest, 1998.

14. W. Howells and N. Movius. Hallam L. Movius, Jr. 1907-1987. Asian Perspect. 27(1986-1987):181-182.

15. G. Willey, J. Brew, H. Bricker, K. Chang, W. Howells, and C. Lamberg-Karlovsky. Hallam Leonard Movius. Memorial Minute adopted by the Faculty of Arts and Sciences, Harvard University, March 8, 1988. *Harvard Univ. Gaz.* 83(May 20, 1988).

16. Peabody Museum Archives. 2001. Movius, Hallam L., Jr. (1907-1987), Papers c. 1931-1969: A finding aid. Available online with a search at http://oasis.harvard.edu. Accessed December 3, 2005.

# SELECTED BIBLIOGRAPHY

# 1942

The Irish Stone Age. Its Chronology, Development and Relationships. Cambridge: Cambridge University Press. (Reissued as a reprint edition in 1969 by Greenwood Press, New York.)

# 1943

The Stone Age of Burma. In *Research on Early Man in Burma*, eds. H. de Terra and H. Movius. *Trans. Am. Philos. Soc.* 32(3):341-393.

# 1944

Early Man and Pleistocene Stratigraphy in Southern and Eastern Asia. Harvard University, Peabody Museum Papers 19(3). Cambridge: Peabody Museum.

# 1948

Tayacian man from the cave of Fontéchevade (Charente). Am. Anthropol. 50:365-367.

# 1949

- [1] Lower Palaeolithic archaeology in southern Asia and the Far East. In *Early Man in the Far East*, ed. W. Howells. *Stud. Phys. Anthropol.* 1:17-81.
- [2] The Lower Palaeolithic Cultures of Southern and Eastern Asia. Trans. Am. Philos. Soc. 38(4):329-420.
- [3] Villafranchian stratigraphy in southern and southwestern Europe. J. Geol. 57:380-412.

## 1950

- Détermination de l'âge des matériaux archéologiques et géologiques d'après leur teneur en radiocarbone. L'Anthropologie 54:175-178.
- [2] A wooden spear of Third Interglacial Age from Lower Saxony. *Southwest. J. Anthropol.* 6:139-142.

### 1953

- [1] The Mousterian Cave of Teshik-Tash, Southeastern Uzbekistan, Central Asia. Harvard University, Peabody Museum, American School of Prehistoric Research, Bulletin 17:11-71.
- [2] Old World prehistory: Paleolithic. In Anthropology Today, ed. A. Kroeber, pp. 163-192. Chicago: University of Chicago Press.
- [3] With H. Vallois. Editors of Catalogue des hommes fossiles; édité au nom de la Commission pour l'Homme Fossile de l'Union Paléontologique Internationale (Extrait du Fascicule V des Comptes Rendus de la XIXème Session du Congrès Géologique International, Alger, 1952). Macon, Protat Frères.

#### 1956

- [1] New Palaeolithic sites, near Ting-Ts'un in the Fen river, Shansi province, North China. *Quaternaria* 3:13-26.
- [2] With S. Judson. The Rock-Shelter of La Colombière: Archaeological and Geological Investigations of an Upper Perigordian Site near Ponçin (Ain). Harvard University, Peabody Museum, American School of Prehistoric Research, Bulletin 19.

#### 1959

With H. Vallois. Crâne proto-magdalénien et Vénus du Périgordien final trouvés dans l'abri Pataud, Les Eyzies (Dordogne). *L'Anthropologie* 63:213-232.

#### 1960

Radiocarbon dates and Upper Palaeolithic archaeology in central and western Europe. *Curr. Anthropol.* 1:355-391.

#### 1963

L'âge du Périgordien et de l'Aurignacien et du Proto-Magdalénien en France sur la base des datations au carbone 14. *Bull. Soc. Méridionale Spéléol. Préhist.* 6/9(1956/1959):131-142.

# 1966

- [1] The hearths of the Upper Périgordian and Aurignacian horizons at the abri Pataud, Les Eyzies (Dordogne), and their possible significance. *Am. Anthropol.* 68(no.2, pt.2):296-325.
- [2] L'histoire de la reconnaissance des burins en silex et la découverte de leur fonction en tant qu'outils pendant le Paléolithique supérieur. *Bull. Soc. Préhist. Fr.* 63:50-65.

## 1969

With N. David, H. Bricker, and R. Clay. The Analysis of Certain Major Classes of Upper Palaeolithic Tools, Harvard University, Peabody Museum, American School of Prehistoric Research, Bulletin 26.

# 1970

With N. David. Burins avec modification tertiaire du biseau, burinspointe et burins du Raysse à l'abri Pataud, Les Eyzies (Dordogne). Bull. Soc. Préhist. Fr. 67:445-455.

# 1971

With A. Brooks. The analysis of certain major classes of Upper Palaeolithic tools: Aurignacian scrapers. *Proc. Prehist. Soc.* 37:253-273.

# 1974

The Abri Pataud program of the French Upper Palaeolithic in retrospect. In *Archaeological Researches in Retrospect*, ed. G. Willey, pp. 87-116. Cambridge: Winthrop.

#### 1975

Ed. *Excavation of the Abri Pataud, Les Eyzies (Dordogne).* Harvard University, Peabody Museum, American School of Prehistoric Research, Bulletin 30.

## 1977

Excavation of the Abri Pataud, Les Eyzies (Dordogne). Stratigraphy. Harvard University, Peabody Museum, American School of Prehistoric Research, Bulletin 31.