

NATIONAL ACADEMY OF SCIENCES

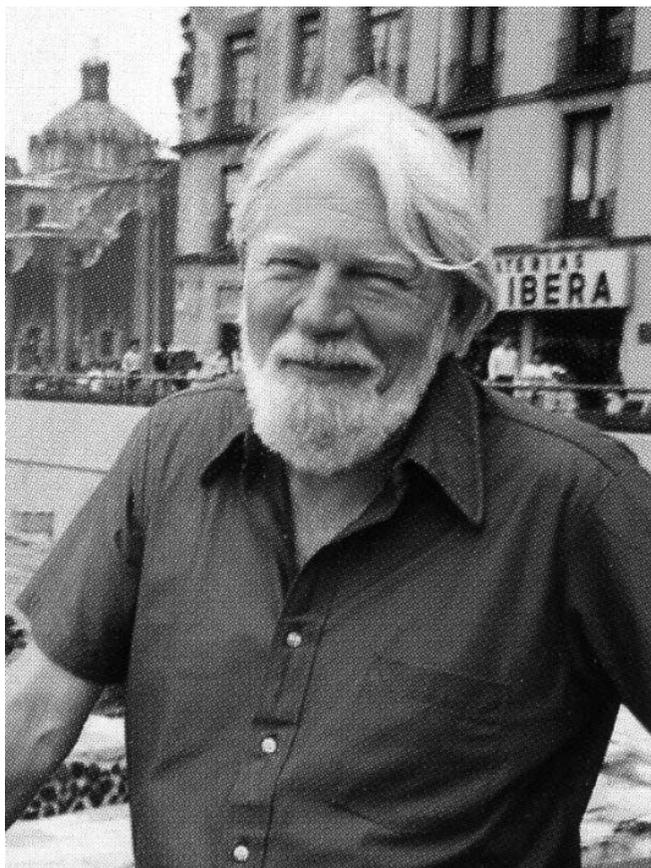
WILLIAM TIMOTHY SANDERS
1926–2008

A Biographical Memoir by
JOYCE MARCUS

*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 2011
NATIONAL ACADEMY OF SCIENCES
WASHINGTON, D.C.



will + son

WILLIAM TIMOTHY SANDERS

April 19, 1926–July 2, 2008

BY JOYCE MARCUS

WILLIAM T. SANDERS WAS A CHARISMATIC and highly influential figure in the field of American archaeology. He ended up changing the course of Mesoamerican archaeology by shifting the scale of analysis from the individual site to the macroregion. He used a cultural ecology explanatory framework, providing the key environmental data that he felt would serve as a background to understanding the archaeological record.

Among Sanders's enduring legacies are vast bodies of empirical data, including the location of thousands of archaeological sites and the natural settings in which they arose. In every region where he worked he documented the rise and fall of populations from the initial village occupation until A.D. 1519, the year the Spaniards arrived in Mexico.

The study of archaeological settlement patterns had been pioneered in Peru's Virú Valley by Sanders's professor at Harvard, Gordon R. Willey. It was Sanders, however, who turned a Klieg light on both highland and lowland Mesoamerican landscapes and their diverse settlements.

Sanders established the full-coverage survey technique used widely today, combining aerial photographs and crews of students on foot. He used the maximal scatter and the density of pottery fragments on the surface to estimate each

site's size by time period, and used various formulae to infer the number of people who occupied that site during each period.

By focusing his attention on large regions Sanders sought to document population growth and dispersal and suggest the processes leading to urbanization and civilization. He defined urbanization as the growth of settlements with population densities exceeding 2000 persons per square kilometer, most of whose occupants would not have been involved in the direct production of food. He expected that urban communities would show social differentiation based on occupation, status, control of power, and in some cases ethnic diversity. In an article published in *American Anthropologist* Sanders reserved the term "city" for those settlements with populations exceeding 10,000 (1962).

Sanders firmly believed that central Mexico was the first place in Mesoamerica to develop urbanization. From his extensive archaeological surveys there (including his survey of the hinterland of the early metropolis of Teotihuacan), he created site-size hierarchies, classifying certain sites as capitals, towns, villages, or hamlets. Sanders relied heavily on highland data to explain population nucleation, craft specialization, residence by occupation, and the rise and fall of civilizations and empires.

To understand topics such as craft specialization, ethnic diversity, and residence by occupation, Sanders often turned to ethnohistory (16th-century descriptions of Native American societies), the literature on comparative civilizations, and ethnographic analogy. Some of his most impressive papers incorporated such ethnohistoric and ethnographic data, both of which served to enhance and complement the archaeological survey results by providing data that the survey could not.

Unlike many other archaeologists of his generation, Sanders's work consistently emphasized the coevolution of the physical environment, agricultural technology, and cultural practices over time. His integrated approach to archaeology, demography, and cultural ecology (studying ancient agricultural strategies, canals, terraces, soils, geology, vegetation, pollen, and rainfall) linked humans to land. Many details about the agricultural practices in the Basin of Mexico (the region around modern Mexico City) came from the 16th-century Spanish documents and Sanders's own interviews with 20th-century farmers.

Sanders was fascinated by the huge indigenous centers of Teotihuacan and Tenochtitlan, both of which he saw as good examples of urbanism (even though we now consider them highly atypical, since each city had more than 100,000 residents). His decision to consider those two huge cities as the standard by which Mesoamerican urbanism could be measured meant that no other region's settlements measured up. Sanders's colleagues in the Maya area, in particular, found his practice of using Teotihuacan as the standard for urbanism to be unrealistic; as a result, several interesting debates took place between Sanders and the Maya archaeologists. Although many Maya cities had thousands of occupants, they never achieved the population densities seen at Teotihuacan and Tenochtitlan. Sanders's "Basin of Mexico-centric" position riled many archaeologists working in the tropical lowlands, leading him to defend his position by returning to work in the Maya region late in his career.

THE EARLY YEARS

Sanders was the eldest of seven children, born to a family of modest means in Patchogue, Long Island. He often described himself as coming from "the other side of the railroad tracks," and said that each day as he walked to school

he tried to observe as much of the landscape around him as he could. Sometimes he and his siblings found themselves walking behind overloaded coal trucks, and would pick up stray lumps of coal that had fallen off. This opportunistic behavior was great preparation for archaeological surface collection.

His love of walking and observing, noting everything in the environment while picking up stray items on the ground, stayed with Sanders during surveys of Quintana Roo on the Yucatán Peninsula, the Basin of Mexico, the Copan Valley of Honduras, and many other places.

One of Sanders's classmates at Patchogue High School was future National Academy of Sciences member Harold Conklin. Conklin recalls that one year, when he had chosen the League of the Iroquois as the topic for a term paper, he discovered that Lewis H. Morgan's key book on the Iroquois had already been checked out by Sanders. As a result of competing for the same book they became friends. Each, however, had a different take on the Iroquois. Conklin saw the formation of the Iroquois confederacy as the result of social and political factors, while Sanders saw its rise as the result of ecological and population dynamics. That contrast in explanatory frameworks was to characterize the work of these two scholars throughout their careers.

A few weeks before his graduation from high school in 1943 Sanders was given permission to leave school early to join the navy. He was soon sent to North Africa. As a result of his World War II service he was given the opportunity to use the GI Bill (passed in 1944 as the Servicemen's Readjustment Act) to continue his education wherever he chose. Sanders picked Harvard University, where he could study the anthropology of Native Americans. This interest had developed from his term paper on the Iroquois and from reading William Prescott's *Conquest of Mexico and Peru* and

various anthropological studies by Earnest Hooton, Carleton Coon, and others. Like Coon and Leslie White, Sanders valued the comparative framework, scientific method, and hard-won empirical data collected in the field.

Influenced by V. Gordon Childe's work on the urban revolution, Sanders wrote a 1949 senior honors thesis for Harvard, which he entitled "The 'Urban Revolution' in Central Mexico." He also wrote a paper on California Indians that can be found at Harvard in the Tozzer Library, named after one of Sanders's undergraduate advisers, Alfred M. Tozzer.

Sanders's 1957 doctoral dissertation was entitled *Tierra y Agua (Soil and Water): A Study of the Ecological Factors in the Development of Meso-American Civilizations*. This study showed Sanders's early commitment to using a combination of ethnography, geography, archaeology, and ecology to shed light on ancient Mexico. His dissertation compared and contrasted indigenous farming in the lowlands of Veracruz and the highlands of central Mexico, and ended in a study of the dynamic relationships among agriculture, population, land, and water. Human ecology continued to be a major focus of Sanders's later work.

To learn more about the dynamics between native farmers and their land, Sanders went on to interview living informants, study 16th-century documents, and collect additional environmental and archaeological data. Although Sanders is most often associated with the central Mexican region, he conducted extensive fieldwork in places such as Yucatán, Quintana Roo, Chiapas, Veracruz, the Valley of Guatemala, and the Copan Valley of western Honduras. He also spent a Fulbright year in 1964 working in Peru, leading to the publication of an important paper on the archaeological site of Pikillacta (1973).

SANDERS'S KEY FIELDWORK

Sanders conducted archaeological fieldwork for more than four decades, and the data he collected became more precious every year. Many of the sites he recorded have been destroyed (or soon will be) by the inexorable growth of population in Latin America.

THE 1950S

In the 1950s Sanders did fieldwork in Veracruz (1953), Quintana Roo (1960), and Chiapas (1961). He recovered settlement pattern data suggesting that there had once been large populations there, but he saw these populations as having been dispersed, rather than nucleated and urban.

As the result of this early survey work Sanders began to view the tropical lowlands as unlikely to have supported the kinds of highly nucleated urban centers known from the irrigated highlands of Mexico. During 1951 while taking courses at the Escuela Nacional de Antropología in Mexico City, Sanders had occasion to walk over many areas of the Basin of Mexico, and it was these long walks that were immensely influential in his subsequent thinking about the urban potential of the highlands.

In 1953 Sanders conducted an ethnographic study in the Basin of Mexico designed to collect information about cultivation practices, diversity of resources, and agricultural strategies. In 1954 he pursued this topic further, using 16th-century documents and supplementing this information with data on 20th-century agricultural practices and settlement patterns.

From 1954 to 1955 Sanders worked in the Maya area for the first time. He hoped to establish the length of occupation of several sites in the northeastern sector of the Yucatán Peninsula, specifically in the Mexican state of Quintana Roo. There he surveyed and mapped 40 sites, collecting diagnostic

pottery from the surface of each. He also did test excavations at two key sites, Tancah and Tulum. Although this early survey work is less well known than his extensive surveys in the Basin of Mexico, Sanders's fieldwork in the 1950s in Quintana Roo, Veracruz, and Chiapas was pioneering and significant in shaping his view; this fieldwork reinforced his belief that the lowlands lacked some of the key attributes that could have led to urbanism.

THE 1960S

In June 1960 Sanders initiated his largest survey, the Teotihuacan Valley Project. He thought of this as the first stage of a long-term attempt to apply to Mexico the techniques of settlement pattern survey pioneered by his professor Gordon R. Willey. Sanders's goal was to survey all of the Basin of Mexico, plus adjacent parts of Morelos and Tlaxcala, the western portion of Puebla, and the southern part of Hidalgo. In his early publications (e.g., 1956), Sanders called that whole region a "nuclear area," the region that witnessed state formation and urban development to a greater degree and earlier than elsewhere in Mexico. He fell short of his goal, but did achieve the largest settlement pattern survey ever undertaken.

For Sanders, studying this nuclear area was the key to understanding Mesoamerica as a whole. He considered the region to have been precocious during the Formative or Preclassic era (1500 B.C.-A.D. 250). It also gave rise to Teotihuacan, the largest city of the Classic period (A.D. 250-800). During the Postclassic period (A.D. 800-1500), this nuclear area was the core region for two empires, those of the Toltec and Aztec.

Sanders referred to this entire highland area as the Central Mexican Symbiotic Region. He went on to ascribe its unusual social and political precociousness to several

features of its physical geography: a semiarid climate that made land clearance easy, altitude differences that allowed maize agriculture to be practiced from 1200 to 1800 meters, with cotton grown below that elevation while agave was grown at higher elevations. According to Sanders it was fluctuating and unpredictable rainfall that stimulated agricultural intensification through irrigation even during the era of the earliest villages.

Sanders believed that this agricultural intensification led to very dense populations that could employ a variety of specialized agricultural techniques, including terracing on sloping terrain, floodwater farming, and permanent canal irrigation. The significant local variation, he argued, led to economic interdependence, which linked people occupying the various environmental niches. In his formulation of this scheme Sanders mentioned that he was influenced by the writings of Karl Wittfogel, who developed the notion that hydraulic agriculture supported a kind of “oriental despotism” in which political power was centralized.

Sanders also wrote that his theoretical perspective made use of ideas generated by Leslie White, V. Gordon Childe, Julian Steward, and Felix Webster McBryde. It is noteworthy that Sanders gravitated to those scholars more interested in natural environment and ecological energetics than to other social theorists. In particular it was McBryde, a cultural geographer, whose 20th-century studies in western Guatemala inspired Sanders to think about symbiotic regions and to use that term.

Sanders’s Teotihuacan Valley Project expanded the database on 16th- and 20th-century settlement patterns and continued the study of resource utilization that he had begun in 1954. By combining aerial photography with on-foot survey by crews of students, he eventually covered all of the Basin of Mexico, collecting diagnostic pottery fragments to date all

archaeological features. This survey was complemented by palaeobotanical coring and palynological analyses by Anton Kovar, who focused on swampy deposits near natural springs. The goal of this coring was to determine when the springs were used to supply water for irrigation.

Also undertaken during the 1961 and 1962 field seasons were the excavation of several test units and the horizontal exposure of some residential structures. Such excavations were not part of Sanders's original plan, but they were deemed necessary because the preexisting ceramic sequence for the basin was based heavily on burial vessels. It had proven to be less than useful for dating the sherds found on survey, many of which came from cooking pots and other domestic wares. The Late Preclassic and the Late Classic/Early Post-classic ceramics were particularly ill defined, especially the relationship between Coyotlatelco and Mazapan pottery that followed the collapse of Teotihuacan. Thus Sanders decided that residential structures should be targeted, with the goal of getting stratigraphic data to place the drabber domestic wares in chronological order.

Sanders's survey began in the immediate vicinity of the city of Teotihuacan and branched out later, with students like Jeffrey Parsons surveying the Texcoco Plain, Richard Blanton moving south to Ixtapalapa, and Robert Santley working in the Cuauhtitlan region. One student, Joseph Marino, remained in Mexico to continue the survey after the principal work had ended. Using information from a local informant, Marino decided to examine the north slope of Cerro Gordo, a hill that Sanders had not included in his original project. There Marino discovered an unusual concentration of Teotihuacan period sites. Because Sanders and the members of his project were becoming increasingly intrigued by the virtual absence of rural communities in the main valley, Sanders saw these Cerro Gordo sites as highly significant, so he added the hill's

north slope to the survey. This is just one example of how Sanders could change field plans, adjusting his survey limits and field methods to accommodate key data.

Sanders says that one of the key theoretical assumptions that structured his project was that three population variables—growth, size, and density—were the most powerful factors shaping social and political evolution. Hence, one of his major concerns was to develop a method for estimating the prehispanic population. Although he originally had wanted to use individual households as the population unit, heavy erosion in highland Mexico had caused significant site destruction and reduced the effectiveness or reliability of this method. Thus Sanders had to adopt a new approach.

In his 1953 and 1954 surveys of 20th-century settlements in Mexico, Sanders had noted that population density varied widely. While more than 90 percent of the population resided in nucleated communities, population densities within his sample ranged from 500 to 5000 people per square kilometer. Sanders's 1960 data from well-preserved archaeological sites seemed to suggest that equivalent variability existed in prehispanic communities. He reasoned that variations in population density should produce variations in debris and quantity of refuse—that is, the more people, the more trash they would produce. Sanders thus used a subjective measure of population density, based on whether the density of potsherds on the surface was light, medium, or heavy. Along with their descriptions of the prehistoric sites, Sanders's crews recorded data on the natural environment surrounding each site, including both present-day and prehistoric land use.

Looking back at his project, Sanders later concluded, "In retrospect, the major strength of the Basin of Mexico projects and more particularly of the Teotihuacan Valley project was the combination of ethnographic, archaeological, and ethno-

historic research. An added bonus was concurrent ongoing research by René Millon's Teotihuacan Mapping Project, the most extensive and intensive study of an ancient city."¹

Sanders also made use of his colleague Pedro Armillas's pioneering studies of fossil *chinampas* (swamp reclamation fields) in the southern lakes, and Armillas's ethnohistoric and ethnographic research, primarily in the Texcoco region, conducted over many seasons working with Angel Palerm. In 1972 Sanders conducted his own study of 20th-century agriculture and modern settlement in the Texcoco region (he had completed similar studies in the area of the chinampas in 1953). He expressed great concern over the loss of the ancient chinampas, which were disappearing in the face of modern agriculture. Sanders was nostalgic for the days when he, Armillas, and Palerm could visit the chinampas, now doomed to destruction by the lowered water table.

In assessing his own project Sanders said that its two major deficiencies were (1) that it should have collected more data about the hydrology and hydrography of the basin and the lake system and (2) it should have collected and studied many more ceramic fragments from each site to refine the chronology. He went on to say,

I particularly feel this deficiency because of the intensive and extensive site destruction that has occurred on many of these sites since 1975. For many of them, in fact the vast majority, the only significant data we will have are the field notes and surface samples from the initial surface survey (1999, p. 16).

One of Sanders's greatest contributions was his attention to the extensive hinterland around Teotihuacan, tracing that hinterland's history, population fluctuations, settlements, agricultural practices, and water management from its initial occupation to the arrival of the Spaniards. Sanders was able to show how many people, especially maize farmers and maguey

horticulturalists, were needed to construct and support both Teotihuacan and the later Aztec city of Tenochtitlan.

THE LATE 1960S AND EARLY 1970S

From 1968 to 1970 Sanders turned his attention to the highland Maya center of Kaminaljuyu in the Valley of Guatemala, a place occupied from ca. 1000 B.C. to A.D. 800. Threatened by the encroachment and expansion of Guatemala City, Kaminaljuyu was in dire need of a “rescue project” to salvage as much information as possible while there was still time. Decades earlier, when Kaminaljuyu still lay outside Guatemala City, researchers from the Carnegie Institution of Washington located 200 earthen mounds in an area of 5 square kilometers. By 1967 the modern city had expanded enormously, swallowing up almost all of the 200 earthen mounds.

Owing to the Carnegie project excavations of the 1930s it was known that Kaminaljuyu had several structures built in Teotihuacan style. This alleged “Teotihuacan influence” was one of the premises that sparked Sanders’s interest. He (and other scholars) wondered if Teotihuacan had conquered this highland Maya town, gained control of its obsidian sources, politically controlled it by placing Teotihuacanos in leadership roles, and had created the first state in the Maya area.

The role of Teotihuacan in Maya affairs is still a major topic for archaeologists, and the site of Kaminaljuyu is still at the center of many current models. Many of today’s archaeologists, however, regard the rulers at Kaminaljuyu as Maya leaders who simply copied specific Teotihuacan architectural styles. New data (including isotopic data on several skeletons in elite burials) suggest that the rulers were local people.

Given his tendency to underplay Maya urbanism, Sanders referred to Kaminaljuyu as a “town” rather than a city. (He was correct in seeing Kaminaljuyu as less urban than Teoti-

huacan, but such could be said about almost every city in Mesoamerica.)

Since Sanders feared that surface sherds at Kaminaljuyu might not reflect the whole long sequence of occupation (especially the earliest periods), he decided to augment his survey by making 500 2-meter by 2-meter testpits. In addition, Sanders and his crew conducted a surface survey of Kaminaljuyu's rural sustaining area.

The Valley of Guatemala is a clearly defined topographic unit and approximately the same size as the Teotihuacan region of the Basin of Mexico. To the east is the elevated zone called the Canchón Plateau. To the west and south are the Chimaltenango Valley and Pacific coastal piedmont and plain. Sanders's crew divided this region of Guatemala into units of 25 square kilometers, but was able to survey only 10 of those units, about half the area.

Sanders's team used the same site forms he had used in the Basin of Mexico. The surface pottery fragments from many sites posed a major problem, however, because they were severely weathered; further complicating the situation was the fact that many vessel forms endured for hundreds of years. Given these problems, Sanders decided to rely on dating sites by measuring the hydration layer on obsidian artifacts, a technique developed and refined by his collaborator Joseph Michels. Nearly 3000 obsidian artifacts from surface surveys, and an additional 1000 from testpits excavated at Kaminaljuyu were subjected to hydration analysis. Unfortunately, many archaeologists have since found problems with Michels's obsidian hydration dating.

In a retrospective paper Sanders (1999, p. 18) concluded,

These two regional projects—Teotihuacan Valley and subsequent projects in the Basin of Mexico, and the Kaminaljuyu project—convinced me that archaeology has an extraordinary capacity to reconstruct ancient cultural

systems, including not only characteristics of the infrastructure but the structure as well. The experience also pointed out that, if we wanted to attempt such reconstructions, a surface survey of the type Gordon Willey pioneered was only the first stage of a long-term project that had to include a series of large-scale excavations as well. Most particularly, the excavations should be directed toward residential architecture.

This admission that surface survey is only a “first stage” opened a number of eyes.

THE 1980S

In 1980 at the invitation of the Honduran government Sanders and his colleague David Webster began the Copan Valley Project, which focused on the Maya city of Copan and its hinterland in western Honduras. Here, as before, Sanders focused on documenting the population history and distribution of settlements through time, from ca. 1000 B.C. to A.D. 800. As he did in the Basin of Mexico and the Valley of Guatemala, Sanders used aerial photographs as a guide to locating sites. Unlike his earlier projects, however, he and Webster used the household as the site unit.

During their surveys in the Copan Valley, Sanders and Webster’s crew defined 4507 structures, grouped into 1425 residential units. One major improvement over previous projects was the generation of population estimates directly from residential architecture rather than surface sherds. This approach also set the stage for much closer collaboration between survey crews and excavators. Unlike his earliest projects, a major objective of the Copan project was to reconstruct the social, political, and economic institutions of that city at its peak (ca. A.D. 700-800). They attempted to do this by excavating a series of residences outside the city center, the so-called Main Group.

Among Sanders and Webster’s most important excavations were those that exposed a series of buildings in Group 9N-8

between 1980 and 1984. The most elaborate building, called the “House of the Bacabs,” proved to be the palace of a royal official who served in the court of Copan’s 16th ruler. Unlike earlier rulers Ruler 16 seems to have given his most loyal and important officials more authority and wealth. These key officials were allowed to display in their palaces their names and titles, carved on stone benches. The stone bench found in the central room of the House of the Bacabs displayed the hieroglyphic name Mak Chanil, as well as the name of his father. Mak Chanil’s palace included stone portraits that show him holding a scribe’s brush and a shell container for the ink. Based on these and other data, it appears that Mak Chanil was a royal scribe. His palatial compound not only housed his family but also had rooms set aside for storage, artisans and their workshops, servants’ quarters, and non-Maya people probably from the Ulua Valley of Honduras, who seem to have produced pottery and other items under his patronage.

In his 1989 paper “Household, Lineage, and State at Eighth-Century Copan, Honduras,” Sanders utilized African ethnographic data (from the Yoruba, Bantu, and Baganda societies) to shed light on Copan’s House of the Bacabs as well as Maya social, political, and religious practices and institutions.

PERSONAL QUALITIES

What were the special qualities that enabled this man from Patchogue to serve in the navy, thrive at Harvard, and go on to have a profound impact on American archaeology? Sanders possessed enormous confidence and tenacity; great dedication to long-term goals; an ability to complete arduous tasks; tremendous loyalty to family, informants, students, collaborators, and colleagues; and an exceptional ability to debate with others, yet collaborate and learn from them.

He had the wisdom to see merit in divergent views and frameworks, and did not regard those who disagreed with him as rivals or enemies. Competition merely encouraged him to collect more field data. He also could draw on the ethnohistoric and ethnographic record, which he knew even better than his list of publications reveal.

INTELLECTUAL LEGACY

Among Sanders's most enduring accomplishments were his empirical settlement pattern reports. His regional surveys generated data on thousands and thousands of archaeological sites. Given that 50 percent of the sites he found on survey are now completely or partially destroyed, Sanders's database can be considered invaluable. His former professor, Gordon R. Willey, once remarked that "for the past 30 years . . . [Sanders] has been the leading mind and spirit in settlement pattern archaeology, and in formulating the inferences that can be drawn from such settlement studies that help us to understand the courses of development of ancient human societies."²

A second legacy is his comparative approach. Because he worked in more than one region, Sanders was in a position to contrast settlement pattern data from the arid highlands and tropical lowlands of Mexico and Guatemala. Throughout his career he sought to explain why (in his opinion) the highlands came to be characterized by centralized urban societies, whereas the lowlands were occupied by less urban, less centralized societies.

His commitment to the comparative approach was also evident in his teaching at Pennsylvania State University, where he taught a popular course on comparative ethnography. He tapped into these ethnographic data in various publications, comparing aspects of Maya society to those of African chiefly societies (see especially 1974, 1981, 1989).

I think of Sanders first and foremost as a field researcher, and as someone who preferred doing survey to excavation. In 1973 he was chosen to participate in a seminar for some of Mexico's best graduate students. For a time these students were put to work excavating a terrace at the ancient city of Monte Albán in the Valley of Oaxaca. To the students' surprise Sanders kept wandering off to look at other parts of the site rather than supervising the excavation. I was left to explain to them that Sanders could not bear to stand still; he was convinced that the next terrace (or the next site) would tell him something more significant than would a focused excavation on one spot. That restlessness allowed Sanders to walk over a bigger area than most archaeologists ever do, and it encouraged him to think about Mesoamerica as a whole.

Sanders was truly a special scholar and dedicated social scientist who will be missed by all of us. He leaves behind his siblings, including his brother, biologist Gerald Sanders; his wife, Lili; three daughters; and a number of grandchildren and great-grandchildren. He also leaves behind countless students and colleagues whom he influenced. Even in his retirement from Pennsylvania State (1994-2008), Sanders remained active and prolific, writing reports that synthesized his field data.

Among the honors Sanders achieved were the A. V. Kidder Medal from the American Anthropological Association in 1980, the Pennsylvania State Faculty Scholar Medal for Outstanding Achievement in 1984, election to membership in the National Academy of Sciences in 1985, and an Evan Pugh Research Professorship at Pennsylvania State University in 1985.

CHRONOLOGY

- 1926 Born on April 19 in Patchogue, New York
- 1943 Joined the U.S. Navy
- 1946 Enrolled at Harvard University on the GI Bill
- 1947-1948
- Participated in the University of Michigan project in Kilarney Bay, Ontario, Canada
- 1949 Submitted his senior honors thesis entitled "The 'Urban Revolution' in Central Mexico"
- 1949 Received his A.B. at Harvard University
- 1951 Attended the Escuela Nacional de Antropología, Mexico City
- 1951 Fieldwork at Xochicalco, Morelos, Mexico
- 1953 Assistant field director on the Chontalpa Project, Tabasco, Mexico, with the New World Archaeological Foundation
- 1953 Ethnographic study of cultivation practices by farmers in Tabasco and the Basin of Mexico
- 1953 M.A., Harvard University
- 1954-1955
- Fieldwork in Quintana Roo, Yucatán Peninsula, Mexico, as a research fellow of the Carnegie Institution of Washington
- 1954 Study of 20th-century agriculture in the Teotihuacan Valley
- 1956 Hired as an assistant professor by the University of Mississippi
- 1956 Fieldwork at the archaeological site of Etowah in Georgia
- 1957 Submitted his doctoral dissertation entitled "Tierra y Agua (Soil and Water): A Study of the Ecological Factors in the Development of Meso-American Civilizations," and was awarded the Ph.D. degree at Harvard University
- 1957 Field director of the Pánuco River Basin Project in Veracruz, Mexico
- 1958 Field archaeologist at the site of Santa Cruz in Chiapas, Mexico, working with the New World Archaeological Foundation
- 1959 Hired as an assistant professor by Pennsylvania State University
- 1960 Initiated the Teotihuacan Valley Project

- 1962 Promoted to associate professor at Pennsylvania State University
- 1964 Received a Fulbright award to spend a year teaching at the Universidad de Cuzco, Peru; did fieldwork at Pikillacta
- 1964 Visited Virú Valley Project sites in Peru to gain insight into survey methods that could be adapted to study Teotihuacan Valley settlement patterns
- 1966 Promoted to full professor at Pennsylvania State University
- 1968 Initiated and codirected (with Joseph Michels) the Kaminaljuyu Project
- 1973 Co-taught (with Pedro Armillas and Kent V. Flannery) a special archaeology course for the Instituto Nacional de Antropología e Historia (this class took Mexico's top archaeology students to key sites in the Basin of Mexico, Valley of Oaxaca, and Yucatán Peninsula)
- 1974 Initiated the Cuauhtitlan-Temascalapa Project in the Basin of Mexico
- 1974-1975 Visiting professor at the Escuela Nacional de Antropología e Historia, Mexico City
- 1976 Visiting professor at the Universidad Nacional Autónoma de México
- 1977 Initiated the "Basin of Mexico Studies of Prehispanic Agricultural Systems Project"; and initiated excavations at Tlajinga, Teotihuacan
- 1981 Initiated and codirected (with David Webster) the Copan project in Honduras
- 1985 Named Evan Pugh Research Professor
- 1994 Retired from Pennsylvania State University; named Professor Emeritus
- 1995 Initiated a pilot survey at Tepetlaoxtoc in the Basin of Mexico
- 2008 Died July 2 in Mount Nittany Medical Center in State College, Pennsylvania

AWARDS AND HONORS

- 1980 awarded the A. V. Kidder Medal for Achievement in Mesoamerican Archaeology from the American Anthropological Association
- 1984 received the Pennsylvania State Faculty Scholar Medal for Outstanding Achievement
- 1985 elected to the U.S. National Academy of Sciences
- 1985 named "Evan Pugh Research Professor," the highest honor awarded by Pennsylvania State University

NOTES

1. R. Millon, B. Drewitt, and G. Cowgill. The Teotihuacán map. In *Urbanization at Teotihuacán, Mexico*, vol. 1, pt. 2, ed. R. Millon. Austin: University of Texas Press, 1973.

2. G. R. Willey. William Timothy Sanders: Some reminiscences, reflections, and an appreciation. In *Arqueología Mesoamericana: Homenaje a William T. Sanders*, vol. 1, eds. A. G. Mastache, J. R. Parsons, R. S. Santley, and M. C. Serra Puche, p. 40. Mexico City: Instituto Nacional de Antropología e Historia, 1996.

More biographical and bibliographic material can be found in the following publications:

- D. L. Webster and Susan T. Evans. In memoriam: "Even Jades are Shattered ..." William Timothy Sanders, 1926-2008. *Ancient Mesoam.* 19(2008):157-163.

- W. T. Sanders, A. G. Mastache, and R. Cobean, eds. *El urbanismo en Mesoamérica. Urbanism in Mesoamerica*. Mexico City: Instituto Nacional de Antropología e Historia and University Park: Pennsylvania State University, 2003.

- A. G. Mastache, J. R. Parsons, R. S. Santley, and M. C. Serra Puche, eds. *Arqueología Mesoamericana: Homenaje a William T. Sanders*, vols. 1, 2. Mexico City: Instituto Nacional de Antropología e Historia, 1996.

SELECTED BIBLIOGRAPHY

1952

El mercado de Tlatelolco. *Tlatoani* 1:14-16.

1953

The anthropo-geography of central Veracruz. *Rev. Mex. Estud. Antropol.* 13(2-3):27-78.

1955

An Archaeological Reconnaissance of Northern Quintana Roo. Current Report No. 24. Washington, D.C.: Carnegie Institution of Washington.

1956

The central Mexican symbiotic region: A study in prehistoric settlement patterns. In *Prehistoric Settlement Patterns in the New World*, ed. G. R. Willey, pp. 115-127. Viking Publications in Anthropology, No. 23. New York: Wenner-Gren Foundation for Anthropological Research.

1960

Prehistoric Ceramics and Settlement Patterns in Quintana Roo, Mexico. Publication 606. Washington, D.C.: Carnegie Institution of Washington.

1961

Ceramic Stratigraphy at Santa Cruz, Chiapas, Mexico. Publication No. 9. Provo, Utah: Brigham Young University, New World Archaeological Foundation.

1962

Cultural ecology of nuclear Mesoamerica. *Am. Anthropol.* 64:34-44.
Cultural ecology of the Maya lowlands. *Estud. Cult. Maya* 2:79-120.

1966

Life in a Classic village. In *Teotihuacan, Onceava Mesa Redonda*, pp. 123-147. Mexico City: Sociedad Mexicana de Antropología.

1968

With B. J. Price. *Mesoamerica: The Evolution of a Civilization*. New York: Random House.

Hydraulic agriculture, economic symbiosis, and the evolution of states in central Mexico. In *Anthropological Archaeology in the Americas*, ed. B. J. Meggers, pp. 88-107. Washington, D.C.: Anthropological Society of Washington.

1970

The Teotihuacan Valley Project Final Report, vol. 1. Occasional Papers in Anthropology No. 3. University Park: Pennsylvania State University, Department of Anthropology.

1973

The Significance of Pikillacta in Andean Culture History. Occasional Papers in Anthropology No. 8. University Park: Pennsylvania State University, Department of Anthropology.

1974

Chiefdom to state: Political evolution at Kaminaljuyu, Guatemala. In *Reconstructing Complex Societies*, Supplement to the Bulletin of the American School of Oriental Research, vol. 20, ed. C. B. Moore, pp. 97-116. Cambridge, Mass.: MIT Press.

1976

The population of the central Mexican symbiotic region, the Basin of Mexico, and the Teotihuacan Valley in the sixteenth century. In *The Native Population of the Americas in 1492*, ed. W. Denevan, pp. 85-150. Madison: University of Wisconsin Press.

1977

With J. W. Michels, eds. *Teotihuacan and Kaminaljuyu: A Study in Prehistoric Culture Contact*. Monograph Series on Kaminaljuyu. University Park: Pennsylvania State University Press.

Environmental heterogeneity and the evolution of lowland Maya civilization. In *The Origins of Maya Civilization*, ed. R. E. W. Adams, pp. 287-297. Albuquerque: University of New Mexico Press.

With R. S. Santley. A prehispanic irrigation system near Santa Clara Xalostoc in the Basin of Mexico. *Am. Antiquity* 42:582-588.

1978

Ethnographic analogy and the Teotihuacan horizon style. In *Middle Classic Mesoamerica*, ed. E. Pasztory, pp. 35-44. New York: Columbia University Press.

1979

With J. R. Parsons and R. S. Santley. *The Basin of Mexico: Ecological Processes in the Evolution of a Civilization*. New York: Academic Press.

The Jolly Green Giant in tenth-century Yucatan, or fact and fantasy in Maya agriculture. *Rev. Anthropol.* 6:493-506.

1981

Classic Maya settlement patterns and ethnographic analogy. In *Lowland Maya Settlement Patterns*, ed. W. Ashmore, pp. 351-369. Albuquerque: University of New Mexico Press.

1983

With R. Santley. A tale of three cities: Energetics and urbanization in prehispanic central Mexico. In *Prehistoric Settlement Patterns*, eds. E. Z. Vogt and R. M. Leventhal, pp. 243-291. Albuquerque: University of New Mexico Press.

1984

With H. T. Wright, R. McC. Adams, and T. Earle, eds. *On the Evolution of Complex Societies: Essays in Honor of Harry Hoijer*. Malibu, Calif.: Undena Publications.

1986-1990

Ed. *Excavaciones en el área urbana de Copán*, vols. 1, 2, 3. Tegucigalpa, Honduras: Instituto Hondureño de Antropología e Historia.

1988

With D. Webster. The Mesoamerican urban tradition. *Am. Anthropol.* 90:521-546.

1989

Household, lineage, and state at eighth-century Copan, Honduras. In *The House of the Bacabs, Copan, Honduras*, ed. D. Webster, pp. 89-105. Studies in Pre-Columbian Art & Archaeology No. 29. Washington, D.C.: Dumbarton Oaks Research Library and Collection.

1992

Ranking and stratification in prehispanic Mesoamerica. In *Mesoamerican Elites: An Archaeological Assessment*, eds. D. Z. Chase and A. F. Chase, pp. 278-291. Norman: University of Oklahoma Press.

1994-1995

Ed. *The Teotihuacan Valley Project Final Report, Parts One and Two*. Occasional Papers in Anthropology Nos. 19 and 20. University Park: Pennsylvania State University, Department of Anthropology.

1999

Three valleys: Twenty-five years of settlement archaeology in Mesoamerica. In *Settlement Pattern Studies in the Americas: Fifty Years Since Virú*, eds. B. R. Billman and G. M. Feinman, pp. 12-21. Washington, D.C.: Smithsonian Institution Press.

2003

With B. J. Price. The native aristocracy and the evolution of the latifundio in the Teotihuacán Valley, 1521-1917. *Ethnohistory* 50:69-88.

2007

With L. Gorenflo. *Archaeological Settlement Pattern Data from the Cuauhtitlan, Temascalapa, and Teotihuacan Regions of Mexico*. Occasional Papers in Anthropology No. 30. University Park: Pennsylvania State University, Department of Anthropology.

2008

Tenochtitlan in 1519: A preindustrial megalopolis. In *The Aztec World*, eds. E. M. Brumfiel and G. Feinman, pp. 67-86. New York: Abrams.