100 Years of Research
The Approaching Museum Centennial

The University Museum has tried over the years to encourage an awareness of the richness and diversity of human culture, both past and present, through its displayed collections and through continued research and publication. With the centennial of the Museum rapidly approaching—it was founded in 1887—a booklet was produced to accompany a display of Museum materials at the Girard Bank in Center City Philadelphia. That booklet is reprinted below, in slightly modified form, both as an indirect announcement of our forthcoming centennial and as an overview of some of the research carried out here during the past 100 years.

The University Museum of the University of Pennsylvania is an internationally renowned educational and research institution. Founded in 1887 by a group of farsighted Philadelphians, the Museum is devoted to the acquisition and dissemination of knowledge, and the preservation of mankind’s cultural heritage. In 1986-87, the Museum will celebrate its first 100 years of accomplishment.

The University Museum is dedicated to the exploration of mankind’s history and the understanding of cultural diversity. Its archaeological and anthropological research programs have led to investigations of the peoples and history of all the earth’s inhabited continents. The collections derived from this research constitute one of the world’s great treasures and offer insights into the character of man.

In its role as educator, the Museum sponsors exhibitions and a wide range of publications. It is involved in international education programs under the auspices of the University of Pennsylvania. A public education program reaches throughout the Delaware Valley and the Commonwealth of Pennsylvania.

The Museum is currently involved in field projects in many parts of the world. Its scholars are investigating the Mycenaean citadel of Gla in Greece and the eclipse of India’s earliest civilization at an ancient town known as Rojdi. The results of excavations directed by the late Rodney Young at Gordion in Turkey continue to be analyzed on the site by the Mediterranean Section of the Museum. The site of Gritzile in Turkey, where field work is sponsored jointly with Bryn Mawr College, is particularly valuable as a training ground for
University of Pennsylvania students. The American Historical Archaeology Section is working in Silver Reef, an early mining town in Utah. In Egypt, research at the ancient religious center of Abydos, which began in the nineteenth century, continues to prove productive. Across the Red Sea in Yemen, the Wadi Jubbah Project is conducting exploration and excavation aimed at furthering our understanding of the Kingdom of Sheba.

The scope of this research is the source of the Museum's greatness. This began when John Peters, Professor of Hebrew at the University of Pennsylvania, enlisted the help of Edward White Clark, Charles Curtis Harrison, and other prominent Philadelphians to finance the first American archaeological excavation in the Near East. On December 6, 1887, the Trustees of the University agreed to send "an exploring expedition to Babylon and to bring such finds as could be exported "to the City of Philadelphia ... to become the property of the University of Pennsylvania, provided the said University furnishes suitable accommodations in a fire-proof building".

Nippur, the holy city of the Sumarians and Akkadians, was the site Peters selected to dig (Fig. 1). The team included a number of scholars, one of whom was Hermann Volrath Hilprecht, newly appointed as Professor of Assyriology at the University. Professor Peters made a beginning at this work, but it was hardly an unqualified success. As he says in his own recollection of the first campaign at Nippur, "Early in April 1889, when we had excavated but two months, an end was put to our work, growing out of the conduct of one of the Commissioner's Turkish guards in shooting an Arab who was trying to steal by night the males of the guard. Our camp was burned, we were robbed, and a blood feud was established against us. So closed the first year."

At about this same time, a building committee chaired by Dr. William Peppier, John Wanamaker, and Justus Strawbridge formed to assemble plans for a museum to be built on land donated by the City of Philadelphia. By 1889 generous donors, including Mrs. Edwin H. Fire, William L. Elkins, P.A.B. Widener, and Daniel Baugh, made it possible to begin construction of the present building.

The plans that these founders formulated were grand, since the Museum's research projects had already expanded to include archaeological and anthropological research in the Near East, Egypt, Mediterranean countries, and both continents of the Americas. Thousands of tablets written in cuneiform script arrived at the Museum from the Near East. Sara Voster Stevenson, the first female curator of Egyptology in the United States, assembled an important Egyptian collection. A distinguished collection of Near Eastern artifacts was given by Dr. Daniel Brinton of the University of Pennsylvania, who was America's first Professor of Anthropology. Mrs. Lucy Wharton Drexel donated a fine collection of Greek and Etruscan sculpture.

The development of the anthropological sciences has been a very important part of the University of Pennsylvania tradition. The appointment of Professor Daniel Brinton was followed by a number of other events that furthered this tradition and significantly contributed to the Museum's collections. Among these was the arrival at the Museum of three outstanding field ethnologists: William Curtis Farabee, Henry Usher Hall, and Louis Shorridge.

William Curtis Farabee was brought onto the staff of the Museum in 1913 to conduct an exploration of the Amazon Basin (Fig. 2). He set out from Philadelphia on the 'Pennsylvania', a yacht purchased, overhauled, and outfitted for the expedition. But when the boat developed problems too costly to repair, it was sold and Farabee continued by steamship to Para, where he began his explorations.

Farabee's reports from the field, published in The Museum Journal, reflect the courage and dedication with which he pursued his work. The only means of travel in the region were by canoe or on foot. Sometimes the members of the expedition made their own back canoes, a vesel which Farabee found to be a "serviceable but cranky craft which is inclined to roll over with little provocation, and when it does, it sinks at once." On occasion they had to maneuver through rapids "only guided by the sound." They hunted and fished for their food as they went along, and on more than one occasion Farabee was surprised to see a jaguar run off with a bird he had just shot, or an alligator getting his catch.

Henry Usher Hall was a University Museum ethnologist trained at Oxford. He organized two research projects during his career that dealt with areas of marked environmental and cultural contrast: Siberia and West Africa.

In Siberia, he spent eighteen months during 1914 and 1915 gathering ethnographic materials among the Tungus, Samoyed, Dolgan, Yakut, and Tuvuck tribes (Fig. 3). At the time these were almost unknown peoples, and his work helped to acquaint western scholars with their existence. His collection of articles of daily life from this region is almost unique in the United States.

Hall spent 1936-37 in Sierra Leone, West Africa. There he studied the peoples of Sherbro...
Island and the Chieftain of Shenge. Aside from his ethnographic studies, during this visit he assembled one of the finest, best documented collections of African material culture ever brought to the west.

Louis Shotridge, a Tlingit Indian from southeastern Alaska (Fig. 4), was an assistant in the University Museum for twenty years. Born the son of a chief of the Chilkat branch of the Tlingit, he took the name "T'ohtitchik" from his grandfather when this man died. "Shotridge" curiously enough, is a corruption of "T'ohtitchik" as pronounced by the Chilkat. He was brought to Philadelphia in 1912 by Museum Director George Byron Gordon to catalogue Native American artifacts.

Once having demonstrated his abilities, Shotridge (with financial support from John Wanamaker) was sent back to Alaska to undertake a complete historical and ethnological study of his people. Over the years, he obtained many narratives—mythological, legendary, and historical—which he recorded from the lips of the storytellers, in his own language. He believed that these, together with the masks, war helmets, and other artifacts that had been in the same clan for many generations, illustrated the conceptions, industries, and arts of his tribe. Shotridge's collection of materials from his own people on the North-west Coast is among the Museum's most extensive and best documented holdings. It represents an expression of a people's inner life and provides us with a comprehensive and authentic record of a tradition and culture which would otherwise have been lost.

It was these men and others like them who brought great ethnographic collections to Philadelphia. Some of their field work was quite innovative. The Museum has always had an unusually productive interest in utilizing new scientific techniques for the investigation of man. The use of aerial photography and reconnaissance was one of these innovations.

In 1930 The University Museum sent an aerial expedition over a part of Central America to search for Maya ruins. A Sikorsky amphibian biplane was used to fly over two areas in Guatemala. The expedition surveyed approximately 2500 miles never previously seen from the air, flying a total of 37 hours at an average speed of 100 miles an hour. One flight of two and a half hours covered an area which at that season of the year would have taken a month of overland travel. Among the 200 photographs taken, several revealed unknown ruins. Geographical observations helped correct current maps and accurately determine the location of both known and newly discovered sites. This project also demonstrated the feasibility of using parachute drops to supply distant camps.

Between the fall of 1935 and the spring of 1937, Erich Schmidt conducted aerial surveys over central western Iran (Fig. 5). Vertical and oblique photographs were taken from a camera suspended in the cabin of a Waco biplane christened "The Friend of Iran." By recording variations in topography, some of which were not detectable on the ground, the photographs gave Schmidt information on likely places of ancient habitation. Many sites were located, especially in areas like Luristan which had not been extensively surveyed because of rough terrain. In thirteen hours of flying time, 400 sites were
on the Persepolis plain were revealed by aerial
survey. The Museum also participated in another
innovation, the installation, at the University of
Pennsylvania, of one of the first radiocarbon
dating laboratories. Here, and in the Museum
Applied Science Center for Archaeology
(MASCA), physics, chemistry, and the
biological sciences meet archaeology and
anthropology. Modern dating techniques such
as radiocarbon and thermoluminescence are
applied to archaeological materials. The
physical investigation of cultural materials
occurs in MASCA’s laboratories, and this
gives us an insight into ancient technology,
society, and trade. Research in human biology
and on the domestication of plants and
animals is also undertaken by this team of
scientists. Two of MASCA’s current projects
involve investigations into matters as diverse as
early American iron smelting and ancient
Peruvian mumification.

At Catoctin Mountain, in Frederick County,
Maryland, are the remains of one of the
United States’ earliest iron working centers.
Armaments were produced there for the
Continental Army as early as 1776 and some of the
facilities remained in use until 1892. The
history of Catoctin during the 19th century is a
capsule of the course followed by many iron
furnace sites in rural America: alternating
expansion and retrenchment with frequent
changes in ownership in response to the
vicissitudes of the iron industry. At its peak in
the 1870s it was owned by Jacob Kunzel and
had three furnaces, including a new hot-blast
model, called the Deborah furnace, that was
fuelled by coke and anthracite. Catoctin’s eventu-
al demise was largely due to the secession of
steel. The local ore – limonite from Catoctin
Mountain – was too rich in phosphorus to be
suitable for Bessemer steelmaking.

MASCA scientists from The University
Museum have been conducting a research
program at Catoctin since 1985 (Fig. 6). They
have found, through an examination of slag
and iron casting debris, that during the
mid-18th century there was what we call a
‘finery forge’ at the site. This was used to con-
vert pig iron into wrought iron. But the micro-
structure and composition of the slag tells us
that the process was not as efficient one since
there is still a good deal of iron in this waste
material. This might explain why the forge
was allowed to lapse into disuse by the 1830s.
The MASCA research team has also deter-
mined that the cast iron was low in silicon and
sulfur. This tells us that it was produced in a
charcoal blast furnace operating at low tem-
peratures, around 1300°C. High carbon con-
tent (in the range of 3.5%–4.9%), much of it
in the form of free graphite flakes in the
metal’s microstructure, labels the metal as ‘grey
iron.’ This type of metal, aided by the high
phosphorus content of the limonite ore which
increased the fluidity of the metal stock, was
well suited for Catoctin’s main commercial
output of stove parts and hollow ware.

Similar insights into past ways of life have
come through the MASCA team’s investigation
of Peruvian mumification. The actual re-
mainder they examined came from the ancient
city of Pachacamac, just south of Lima, Peru
(Fig. 7). The mummy, a human wrapped in a
bundle of cloth, was excavated in 1956 by
Dr. Max Uhle of The University Museum.

An x-ray photograph determined that the
body within the bundle was that of a small
child, about one year old. Nothing in the bone
structure at this age indicates a child’s sex, and
none of the decorated items included in the
bundle prove this individual to be either male
or female. The cause of death is only too ob-
vious: a stone-bladed knife had been driven
through the base of the neck and onward into
the child’s mouth. The child’s spine was also
cut through at the twelfth thoracic vertebra.
The legs were severed from the trunk and then
crossed. All of this was so cleanly achieved as
to leave us with only one conclusion: the child
had been ritually sacrificed.

Human sacrifice is well documented by
Spanish writers who recorded Inca customs in
the mid-16th century. Such practices appear to
have been restricted then either to children of
about ten years of age who had been carefully
selected and prepared for the event for several
years, or to young women known as ‘Virgins of
the Sun.’ The sacrifice of an infant is thus a
surprising finding. We can only conjecture, by
parallel with Aztec customs in Mexico, that
the ritual was linked by sympathetic magic to the
pursuit of fertility in the land.

Another technological innovation originating
at The University Museum is that of excavating
scientifically underwater. This began in 1900
when the Museum was invited to organize an expedition off the southwest coast of Turkey. The place was Cape Gelidonya, where the wreck of a ship had been spotted by local sponge-divers. It was believed to have sunk during the Late Bronze age, some 3,300 years ago.

The Museum appointed George F. Bass as Director of the Cape Gelidonya Project, and he set out to apply the same rigorous and precise methods to excavating the ship that had been applied to excavations on land (Fig. 8). He encountered many difficulties in doing this. Equipment was inadequate and funds were in short supply. But in the end techniques were developed by Bass and his team that are now standard practice for underwater excavations all over the world. The two-man submarine named 'Awhari', shown on the inside front cover, was used in subsequent expeditions along with other pieces of advanced equipment like a submersible decompression chamber, closed-circuit television, an underwater telephone, and underwater photographic mapping systems. Many of these innovations have since found application in industry and commerce.

The University Museum played a pioneering role in the development of underwater archaeology. Today this is an important branch of our science that has led to further insights into ancient cultures.

In addition to being in the forefront of technological innovation, the Museum also took a leading role in investigating little-known civilizations. A long-term project was established at Gordian in central Turkey. This site is the capital of the ancient Phrygians and the city of King Midas "of the Golden Touch."

Certainly Alexander the Great knew of the legend when he went there on his eastward march in 333 B.C., but he was much more intrigued with another story – that of the Gordian knot. The oracle of the temple in which it was preserved said that he who could undo the knot would become master of Asia. When confronted with the puzzle, Alexander took direct action and cut the knot with his sword. Curiously, the prophecy was fulfilled and Alexander went on to conquer all the known world.

Rodney S. Young, The University Museum's Director of the Gordian Archaeological Project, knew that the combination of legend, which often contains an important kernel of truth, and historical association offered attractive incentives for excavation. At Gordium, factors of both a strong intellectual and practical nature also came into play. The excavation of the citadel mound would provide information about the little known civilization of the Phrygians, including clues to the understanding of their undeciphered language which was written in a script akin to that of the Greeks. Practically speaking, the city could be excavated relatively easily and economically, since it was totally unexcavated by modern structures.

The landscape around the city was dotted with over eighty conical earthen grave mounds known as tumuli. The largest tumulus was over 150 feet high and 900 feet in diameter. It was thought from the beginning of the project that this could be the final resting place of the great Midas (hence it was dubbed Midas Mound or MM), and archaeological excavation was used to test this possibility. The smooth contours of the huge mound suggested that it had escaped the looter’s spade, so the burial chamber might be intact.

The very size of the mound made ordinary methods of excavation impossible. Moreover, Professor Young did not want to destroy the appearance of this magnificent monument. After much consideration it was decided to use a drilling rig first to locate the tomb chamber and then to tunnel into it from the side. The drilling, done in 1955 and 1956, was successful in its purpose. The tunnel, begun in April 1957, reached its goal 140 yards inward on June 12.

The tomb was discovered to be a unique monument of ancient architecture. It was a small wooden house built from squared beams of pine. As a protection against tomb robbers, the house had been placed slightly away from the center of the tumulus and had been covered with stone rubble. The rubble and the wooden chamber were then buried in over one million cubic yards of earth.

Within the burial chamber, which measured 17 by 20 feet, was a wealth of property, no
doubt intended for the king in his afterlife. The sole occupant of the tomb, or rather his skeleton, lay on a wooden sled or coffin in a corner. He had been a small man, five feet three inches tall, and had died at about sixty-five years of age. Among the grave furnishings were 171 ancient safety pins along with 180 metal vessels, 3 of which carried the earliest Phrygian inscriptions yet found, helping to date the tomb to the Midas era, the 9th century B.C. Some of the objects had been placed on wooden tables, the most elaborate of which, the ‘Papdo’ table, is shown here as it was found (Fig. 9). (For a reconstructed view, see Expedition Vol. 25, No. 4, pp. 24–25.) The nine tables and two magnificent inlaid wooden screens are among the best examples of ancient woodworking known today. King Midas did not carry his ‘Golden Touch’ to the grave. Legend has it that the god Dionysus took pity on Midas and relieved him of his curse. There is nothing in the tomb that would dispute this, for even though there is an abundance of bronze, there is a complete absence of gold.

The scale of the work at Carchemish was similar to that of one of our Near Eastern research programs: the excavation of Ur. For most of the decade of the 1920s, the Museum worked at Ur in cooperation with the British Museum. The field operations were under the direction of the great archaeologist Sir Leonard Woolley, who proved to be not only a remarkable field technician but an innovative conservator as well.

The Ur excavations brought to light large sections of this ancient city. Of special note was the discovery of a series of sumptuously endowed burials from what has come to be called the ‘Royal Cemetery.’ Woolley also excavated the temple quarter of the city, exposing the gigantic ziggurat (brick tower) and surrounding buildings. Another recent and successful project was undertaken in the Near East between 1956 and 1974 by Dr. Robert H. Dyson, Jr., now Direc-

tor of The University Museum.

Hasanlu Tepe Is a large mounded site located in northwestern Iran (Fig. 10). It is about one mile in circumference and has a maximum height of some 75 feet. There are two ‘districts’ to the site: a low flat area called the ‘inner town’ with a cemetery and some small buildings on it, and a second, tall central ‘citadel’ area with important buildings, some of which were probably two-storied.

This site was first occupied by Neolithic farmers as early as the 6th millennium B.C., but the most important material and information derived from work here date to the Iron Age, ca. 1200 to 800 B.C. During this period, Hasanlu seems to have been an extremely important settlement within its region, possibly the seat of a local ruler. Toward the end of the 9th century B.C., however, this town was completely sacked and burned by invaders. The people who next settled Hasanlu leveled and covered the remains, sealing them for investigation by archaeologists of the 20th century.

Hasanlu has proved to be an extraordinary laboratory for pursuing an understanding of ancient man. Like Pompeii, the site is remarkably preserved. Hasanlu was so rapidly and violently devastated by the Iron Age attackers that the inhabitants had no time to escape and take their belongings with them. Whole buildings were found with their original contents largely intact. One small house filled with an extraordinary number of beads was found, evidently a central repository for such things. There were soldiers felled in battle and a group of fourteen young women killed by the collapse of the large building in which they had apparently taken refuge. The entire setting is one which allows us a unique insight into the past and the way of life of a people who would have been forgotten had it not been for the archaeologist’s curiosity.

A long-term commitment to the excavation of a single ancient city is one of the hallmarks of University Museum research. This is well illustrated by our excavations at the Dynastic Egyptian city of Abydos. These began at the turn of the century in cooperation with Sir Flinders Petrie, founder of the British School of Archaeology in Egypt, and continue today under the direction of Dr. David O’Connor (Fig. 11). Since 1967, the Museum has carried out major excavations in collaboration with
Yale University.

Abydos was one of the most important centers of Egyptian civilization. Located in southern Egypt, the site today is covered by thirteen square kilometers of ruined temples, chapels, vast cemeteries, and towns. Abydos was the burial place of Egypt's earliest pharaohs (First Dynasty, ca. 3100-2680 B.C.) and was a key center in the development of writing, art, and technology. Later, as principal cult center of Osiris, god of the dead, it attracted thousands of pilgrims to the annual celebration of his resurrection, burial, and rebirth.

To establish a perpetual link with Osiris, Pharaoh built funerary temples at Abydos; private memorial chapels were also erected. This cult and its pilgrims generated a large and long-lived city.

Research at Abydos has greatly increased our awareness of the complexity of Egyptian civilization in the 3rd millennium B.C. The Museum's scientific excavations were the first to bring to light the important private memorial chapels with their link to Osiris, that heretofore had only been noted in written accounts of the city. It is also of interest that our work at this great city has shown that the Pharaohs II (1280-1244 B.C.) built a temple to Osiris that may have been inspired by these private monuments. All of this is fine testimony that even after almost a century of work this extraordinary ancient city has much to tell us about Egyptian civilization.

Similar excavations have been undertaken in the New World. Dr. Max Uhle's excavation of Pachacamac in Peru has already been noted. The excavation and restoration of the great Maya center of Tikal in Guatemala is perhaps an even better example of long-term commitment to the investigation of ancient urbanization.

The Tikal Project was one of the Museum's largest and most ambitious field programs, for it involved not only an interdisciplinary archaeological effort but the restoration of a major urban center as well (Fig. 13). Some two million dollars reasonably approximates the sum spent over fourteen years, from 1938-50, of active field work at this center of ancient Maya civilization. Well over 100 senior staff were involved in the enormous reconstruction project, the success of which is a measure of this staff's ability and the sense of cooperation that was generated between the Museum and the government of Guatemala through its Institute of Anthropology and History. In fact, the Government of Guatemala underwrites approximately one half of the cost of the undertaking.

Led first by Edwin M. Shook and then by William R. Coe of the Museum, the Tikal Project changed forever our comprehension of Maya civilization. Deep excavations produced a stratigraphic record of events preceding the rise of this urban center. The decipherment of the Maya hieroglyphs provided us with a previously unknown royal genealogy spanning at least 572 years. A detailed map revealed the true density and distribution of monuments, houses, and plazas hidden within the dense jungle. The discovery and excavation, under scientifically controlled conditions, of a number of sumptuously endowed tombs yielded some of the richest, most exquisite collections of Maya art and craftsmanship yet uncovered.

It is fair to say that the Tikal Project accomplished its stated aims: "a Tikal architecturally restored and preserved, its rise and fall analyzed by the techniques of modern methodology; Tikal a permanent laboratory for social and natural scientists; the site a symbol of New World antiquity and, moreover, hemispheric unity."

It is fitting that this theme of great research projects brings this short rendering of Museum accomplishments back to the place where the Museum began: Nippur.

One of the most significant collections to come from our Nippur excavations was a very large number of ancient written documents. For three thousand years man used a reed stylus to write the Sumerian language on clay tablets. This ancient writing system is known to us as cuneiform. The University Museum possesses one of the largest assemblages of these virtually indestructable documents, and it has been since its beginnings a great center for cuneiform research. Scholars from throughout the world regularly visit Philadelphia to work in the Museum's tablet room.

The tablets from Nippur and other sites investigated by the Museum, such as Ur,泰 fossil Gavas and Tell Billa, deal with a broad set of historical topics. These range from the book-

keeping it takes to maintain a city to the myths and stories people tell to maintain a coherence in their cultural traditions. An example of an economic tablet from the 5th century B.C. is the following mortgage agreement (Figs. 13, 14):

Text: Twenty hides of dates belonging to Bintur-Ninurta, son of Murusag (and) owned by Biba, son of Bel-sumu from the association of the high priest of the Sin-magir official. In the seventh month of the third year of (Darius) he will pay the twenty kur of dates (measured) in the measure of Bintur-Ninurta at the city of (Ti-il-ka'). His field planted (with trees) and storable, his bow tied on the banks of the Harr-qiijal canal in the city of (Ti-il-ka') is a pledge. No other creditor shall have claim against the twenty kur of dates belonging to Bintur-Ninurta until Bintur-Ninurta, his (first) creditor, has been paid. The dates, the price of travel provisions, clothing (allowance) and equipment for work have been given to him to go to Uruk at the request of the king. This is apart from the previous contract owed by him.

This is a tablet recording a loan of 20 hides of dates (approximately 200 tons) recorded in the annals of Darius I. The tablet is a remarkable example of a written record in a language deciphered only in the 19th century, a language that is still being studied today.

Wittsion:

Sin-nu-ilu Surri, overseer of Nippur, son of Nadin, Balatsu, son of Bel-sumu; Nadin-sumu, son of Bel-sumu; Sin-mukin-aplu and Nunnart-tikdon; son of Kasir Apia, son of Nunnart-tikdon; Sadiya, son of Bel-um

Babylonia) and is dated to January 13, 421 B.C., in the reign of Darius II, king of the Persian empire.

Much of the pioneering work on understanding the literary works of the Sumerians was done at the Museum by the renowned Samuel Noah Kramer. "The Father of Sumerian Literature". Through his efforts a whole new world of understanding was opened. This kind of new exploration continues today with a dedicated group of scholars who are compiling the first dictionary of the Sumerian language. Led by Professor Åke S. Sjöberg, they will complete the first of a projected sixteen volumes of this work by the beginning of 1984.

It is projects like the compilation of the Sumerian Dictionary, or the excavation and restoration of Tikal, or the search for King Midad, or the development of radio-carbon dating that characterize University Museum research and that make it a great international center of learning and education.

At the University Museum looks to its second century of accomplishment, it is this distinguished history of research and education that is the foundation on which its future will be built. We cannot, however, assume that this second century will be anything like the first. Thus, the Museum is now beginning to look into the future, searching for a path of continued understanding of the history and nature of man.