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anthro·notes

a newsletter for teachers

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PRE-COLUMBIAN SETTLERS: FACT OR FANCY

Native Americans are descendants of the "Lost Tribes of Israel". Meso-, Central, and South American pyramids, mummies and hieroglyphs demonstrate American Indian origins from Egypt. Celto-Iberians preceeded Columbus' arrival in America by 2,000 years! Ground drawings on the Nasca Plain in Peru clearly indicate an ancient landing strip used by visiting spacemen. A vanished European race preceding the Indians built the huge earthworks and mounds dotting the eastern United States.

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What do these statements have in common? First, they are claims regarding the pre-Columbian contact and colonization in the Americas. Second, these claims have not been validated by individuals trained and experienced in archeological research. And third, they are accepted as fact by a considerable segment of the public as well as by some in the anthropological profession. There are differences, of course, in that some are well meaning misinterpretations of evidence while others are based on hoaxes or conscious misrepresentations.

What is wrong with claims that, using cultural trait resemblance such as pyramids, suggest historical contact between the Old and New Worlds? Scholars point out several difficulties. 1) Resemblances are taken out of context in time and space. 2) While there is a similarity of form, there may be differences in meaning and function. 3) Only similarities are emphasized, never differences. 4) No attention is paid to the implications of such claims beyond their narrow focus. Unfortunately, racism is an element that still "rears its ugly head." Europeans considered Native Americans too "primitive" to be capable of such impressive cultural achievements as moundbuilding or massive Nasca ground drawings. Rather, these sophisticated technological creations must be of European origin.

North American culture history is not as well known as might be supposed. Historians have concentrated on individual histories and political events rather than on regional and ethnic studies, American material culture, and architectural history. For instance, a number of stone structures, attributed to an ancient culture by Barry Fell, were no mystery at all to local residents who identified them without question as root cellars. The stone structures are associated with 18th and 19th century house structures and food storage technology. Barry Fell, a marine biologist and self-proclaimed expert in ancient languages, has attempted to demonstrate that ancient peoples -- the Phoenicians, Carthaginians,

and Egyptians -- had contact with the New World long before the brief visits of the Norsemen in A.D. 1000. Fell's claims are based on stone inscriptions and stone structures found primarily in northeastern United States. Linguists, archeologists, and historians have shown these "inscriptions" to be for the most part, random marks or "writing" created by hoaxers, a not uncommon form of practical joke in the 19th century. But Fell, who has a large and dedicated following, continues to ignore archeological, historical, and other linguistic evidence.

In his book Fads and Fallacies in the Name of Science (New York: Dover, 1957), Martin Gardner describes traits shared by pseudoscientists. First, a pseudoscientist works in almost total isolation from the professional ranks, and therefore, is outside the channels through which new ideas are introduced and evaluated. Second, a pseudoscientist has a tendency toward paranoia which is likely to be displayed in five ways: 1) considering oneself to be a genius, 2) regarding one's colleagues as ignorant blockheads, 3) believing oneself to be unjustly persecuted and discriminated against, 4) having strong compulsions to focus one's attacks on the greatest scientists and best-established theories, and 5) writing in complex jargon. An example of a pseudoscientist is Augustus Le Plongeon, a 19th century French adventurer, who spent his life unrelentingly determined to demonstrate ancient Egyptian contact in Central and South America. Robert Wauchope wrote of Le Plongeon, "he assumed unquestioningly that his own identifications were correct, [and] instead of questioning his own theories when he confronted a mass of contrary evidence, he merely admitted bewilderment and walked calmly away from the subject, still convinced of his original hypothesis" (1962:18).

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Unscientific claims regarding the prehistory of the Americas continue to receive publicity. Interest in what has been described as "cult archeology" appears akin to religious fervor (see Cole's article). One of the most frequent inquiries received by the Smithsonian's Department of Anthropology concerns the Book of Mormon and the hypothesis that the Lost Tribes of Israel help explain the origin of the American Indians. Pseudoscientists' revelations are appealing to the public and newsmedia alike, as is evident in Erich von Däniken's Chariots of the Gods? and other books selling over 40 million copies. For most of the general public, science is abstract and dull while pseudoscientists' spectacular interpretations stimulate the imagination.

What do these claims have to do with teachers, students, scientists, and the general public? It is the responsibility of educators to teach logical thinking and the process of critical analysis in order to create an educated, not a gullible, public. Scientists must keep the public informed of their work. They should not ignore what they may feel are fantastic and erroneous claims while the public is being swayed by the titillating media. Assertive counter-arguments by scientists might help stifle the speculations before they ferment in the minds of the public. Just as creationism is now threatening science teaching in American schools, so too pseudoscientific archeology prevents the public from understanding not only archeology in particular but science in general.

Below are a few references which might interest those who wish more detailed exploration into controversies concerning the prehistory of the Americas.

Cole, John. "Cult Archeology and Unscientific Method and Theory," In Advances in Archaeological Method and Theory, vol. 3, Michael B. Schiffer, editor. New York: Academic Press, 1980.

A provocative commentary on the characteristics of cult archeologies which contribute to their popular appeal.

Goddard, Ives and William W. Fitzhugh. Barry Fell Statement. Department of Anthropology, Smithsonian Institution, 1979.

Goddard, a linguist, and Fitzhugh, an archeologist, refute Fell's interpretation in his book, America B.C., of stone "inscriptions" demonstrating ancient peoples' contact with the New World prior to A.D. 1000.

McKusick, Marshall. The Davenport Conspiracy. Iowa City: University of Iowa, 1970.

A true account of the Davenport tablets of Iowa which created one of the major controversies in the 19th century concerning the mound-builders and the prehistory of America.

Neudorfer, Giovanna. Vermont's Stone Chambers: An Inquiry Into Their Past. Vermont Historical Society, 1980.

An excellent example of a thorough archeological investigation of Vermont's controversial stone structures attributed to European Neolithic or Bronze Age settlers, with a good introduction on the general controversy by William Fitzhugh.

Ross, Anne and Peter Reynolds. "Ancient Vermont," Antiquity 52:100-107, 1978.

A negative assessment of the alleged evidence for pre-Columbian Celts in New England by British Celtic specialists.

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SUMMER OPPORTUNITIES FOR TEACHERS AND STUDENTS

Alexandria Archaeological Research Center offers spring and summer opportunities for student and adult volunteers. This season samples will be taken from a large number of 19th-century households from different socio-economic levels. Artifact analysis, archival research and laboratory projects will also be conducted. Those interested can call Barbara Magid, volunteer coordinator, at 838-4399.

Catholic University's summer field school at Thunderbird Archaeological Park, a paleo-Indian complex near Front Royal, Virginia, will begin its first session June 28 - July 16; second session July 19 - August 6. To register write: Summer Sessions Office, McMahon Hall, Room 116, Catholic University, Washington, D.C. 20064.

Earthwatch offers opportunities for the interested public (ages 16-75) to join scientific expeditions throughout the world with museum and university scholars of various disciplines. For information on joining an expedition, write: Earthwatch, 10 Juniper Rd., Box 127, Belmont, MA 02178.

Fairfax County Archaeological Survey continues to offer volunteer opportunities in survey, excavation and laboratory work in both historic and prehistoric archeology. High school and college interns may receive credit. For further information call Mike Johnson (prehistoric archeologist) or Ed Chatelain (historic archeologist) at 642-5807.

Fairfax County Public Schools sponsors a six-week historic archeology course for high school students. The course entails two weeks of classroom study and four weeks of excavation. The field school will operate from July 6-August 14. For information write:



Mr. Frank Taylor, Masonville Instructional Center, 3705 Creft Dr., Annandale, VA 22003; 698-7500.

George Mason University's five-week field school (May 24 - June 25) will involve finding the original layout and building structures of Colchester, an 18th century town in Virginia, now a suburban residential area. For more information contact Ann Palkovich, Anthropology Program, George Mason University, Fairfax, VA 22030; 323-3492.

George Washington University offers two historical archeology field research sessions in Alexandria, Virginia. The first one-week session (May 31 - June 6) focuses on basic techniques of historical archeology including development of research questions, documentary research, and artifact analysis. The second two-week session (June 15 - June 29) involves study of historic site excavation and artifact analysis in Alexandria's Historic District. For further information contact Pamela J. Cressey, Field Director, Alexandria Archaeological

Research Center, City Hall, Box 178, Alexandria, VA 22313; 750-6200.

Kampsville Archeological Center, operated by the Northwestern University Archeology Program and the Foundation for Illinois Archeology, offers educational research programs for junior and senior high school students, college and graduate credit opportunities, separate workshops for teachers and fieldwork opportunities for the non-professional. For information write: Ellen Gantner, Director of Admissions, Kampsville Archeological Center, P.O. Box 1499, Evanston, IL 60204; (312) 492-5300.

University of Maryland offers its first field school in urban archeology, in historic Annapolis from June 7 - July 16. This six-week program will include intensive excavation at Reynolds Tavern built in 1747 and The Jonas Green Site first occupied in 1696, and weekly guest lecturers. Deadline for applications is May 1, with limited enrollment. For further information contact Dr. Anne Yentsch, Department of Anthropology, University of Maryland, College Park, MD 20742; 454-4677.

Study Abroad Office (2115 N. Administration Bldg., University of Maryland, College Park, MD) provides information on a walk-in basis for students interested in opportunities for travel, study and work abroad. Extensive catalogues and indexes including information on internships and scholarships are available.

Smithsonian Institution's Office of Elementary and Secondary Education offers several workshops for elementary and high school teachers including: American Cultural History Through Art (June 28 - July 2); Architecture in the Classroom (June 28 - July 2); Insects in the Classroom (July 12 - July 16); Developing Language Skills (July 19 -

July 23); Teaching Writing Using Museums (July 26 - July 29); and Improvisation is a Problem Solving Tool! (July 26 - July 30). Inservice credit is available for teachers in local jurisdictions. For further information call Tom Lowderbaugh at 357-3049. Telecommunications Device for the Deaf number is 357-1696. Interpreters for hearing impaired participants can be made available free-of-charge by prior arrangement.

Thunderbird Research Corporations' archeological field program is open to the general public. One-week excavation sessions begin May 30 at Virginia's first prehistoric National Historic Landmark where human occupation dates from ca. 10,000 B.C. to the Colonial Period. For further information write: Thunderbird Research Corporation, 1982 Summer Field Program, Route 1, Box 432, Front Royal, VA 22630; (703) 635-7337/3860.

Field School Listings in anthropology and archeology are available from:

American Anthropological Association
1703 New Hampshire Ave., N.W.
Washington, D.C. 20009
(\$2.50 plus 37¢ postage or stamped envelope)

Archaeological Institute of America
53 Park Place
New York, New York 10007 (\$4.00)



TEACHER'S CORNER: ZOO VIEW

Springtime is a good time to visit the zoo, and observing primates can be an excellent learning activity for junior high or high school students. Below are two exercises appropriate for observing monkeys (Monkey House) and apes (Great Ape House) at the National Zoological Park, Washington, D.C.* The activities tie into biology, sociology, anthropology, and English classes with their emphasis on behavior, non-verbal communication, and observation and interpretation skills.

PRIMATE OBSERVATION: LOCOMOTION

1. Walk by at least 8 cages with different primates and record what the most active animal in the cage is doing as you walk by -- i.e. sitting, grooming, sleeping, brachiating (moving arm by arm), knuckle walking, leaping, hanging by the tail and one leg. Record the name of the primate and the locomotion pattern.
2. For 3 primates you observed moving, describe how the method of locomotion is related to the animal's anatomy. What physical features help the animal move, such as tail form, location of special friction skin (like skin on our palm), form of nails.
3. Select any adult primate to observe and take notes on for 15 minutes. Then observe an infant primate (of the same species) for 15 minutes. Estimate about how much of the time is spent in each of the different locomotor activities - walking on all fours, walking or standing on two legs, brachiating, jumping from hindlimbs and landing on forelimbs, jumping on hindlimbs and landing on hindlimbs. Discuss the similarities and differences between the adult's and the infant's movement.

* These teaching activities were developed for the G.W.U./S.I. Anthropology for Teachers Program funded by the National Science Foundation.

PRIMATE OBSERVATION: COMMUNICATION

1. Each student chooses a group of monkeys or apes. Watch for 10 minutes, learning to identify each animal (assigning each a name can help).
2. Take notes for 20 minutes, noting specific acts of communication. The list below can serve as a guide:

TACTILE: (grooming, touching, chasing,
(A) nipping, wrestling)

VISUAL: rigid or relaxed posture;
(B) facial expressions such as stares or grins; gestures such as raised eyebrows or yawns; slapping ground or cage; shaking a stick to threaten another; presenting hindquarters in appeasement)

VOCAL-AUDITORY: (listening, shouting,
(C) laughing, hooting or calling with vowel sounds; chattering with consonant sounds)

OLFACTORY - taste and smell:
(D) mal smelling another; 'marking', i.e. urinating, licking or rubbing part of the environment which is then smelled by another animal)

3. After you observe for 20 minutes analyze your notes. Write down A/B/C/or D next to the communication acts described. Does the communication give you any clues to the relationships of the animals to one another?
4. Do a similar observation on a human group that you find at the Zoo.
5. As a class, various students can share their observations. Summarize the communication for both the non-human and the human groups.
6. What are the most common communication acts? Which animals communicate the most? How do nonhuman primates differ in communication acts from humans?

ESKIMO EXHIBIT

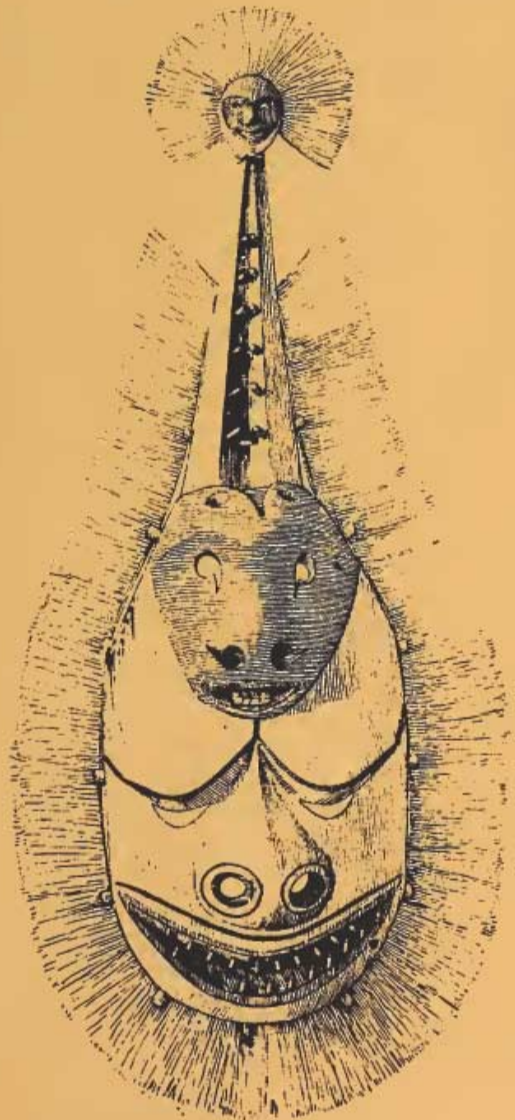
A major exhibition on Eskimo culture of the Bering Sea opens June 18, 1982 at the Smithsonian Institution's National Museum of Natural History/National Museum of Man. Organized by Smithsonian archeologist William Fitzhugh and research/exhibit coordinator Susan Kaplan, the show will portray Bering Sea Eskimo culture about 1880, prior to extensive European contact. Titled INUA: SPIRIT WORLD OF THE BERING SEA ESKIMO, the exhibit explores a central theme of Bering Sea Eskimo culture, the concept of Inua -- the spiritualism that pervades all aspects of life. Based on the collections and field-work of Smithsonian naturalist Edward W. Nelson, the INUA exhibit places on display for the first time the Smithsonian's richest collection of Alaskan Eskimo artifacts. In addition to the exhibit, a heavily illustrated catalogue, a set of educational materials, and a new reprinted edition of Nelson's classic monograph on the Bering Sea Eskimo will be available.

The exhibit will be on view in the Thomas M. Evans Gallery, the new temporary exhibitions hall in the Museum of Natural History. Approximately 500 objects, along with photographs, and a slide show specifically created for the exhibit, will explore the Alaskan Eskimos' relationship to their land, subsistence, domestic life, and spiritual/ceremonial world. Sections devoted to relationships with outside peoples, the archeological past, and contemporary art will provide a broad framework against which to view late 19th century Bering Sea Eskimo culture.

Extensive public programming has been planned. Performances by the King Island Eskimo Dancers from Nome, Alaska will take place on June 18, 19, and 20 in the Museum of Natural History. Demonstrations of traditional crafts, including ivory carving and basket weaving, will also be

available on those three days. At noon on Friday, June 18, the local premiere of a film on Alaskan Eskimos, "Village of No River," will be held. A day-long Smithsonian Resident Associate Seminar on the Art and Culture of the Bering Sea Eskimo is scheduled for Saturday, June 19 (see Upcoming Events). Friday, June 25, a public slide-lecture on the exhibit will be presented in Baird Auditorium.

Daily films on Alaskan Eskimos will be shown and guided tours will be available from specially trained docents. For teachers there may be workshops in the early fall. Any teachers interested in such workshops should contact Laura McKie, Office of Education, 357-2066. In the fall special tours of the exhibit may be arranged for school classes. The exhibit closes January 1983.



IQ, ME CUE, YOU QUEUE

"I feared that in making measurements on heads with the intention of finding a difference in volume between an intelligent and a less intelligent head, I would be led to increase, unconsciously and in good faith, the cephalic volume of intelligent heads and to decrease that of unintelligent heads.... Suggestibility... works less on an act of which we have full consciousness, than on a half-conscious act -- and this is precisely its danger." (Alfred Binet, 1900)

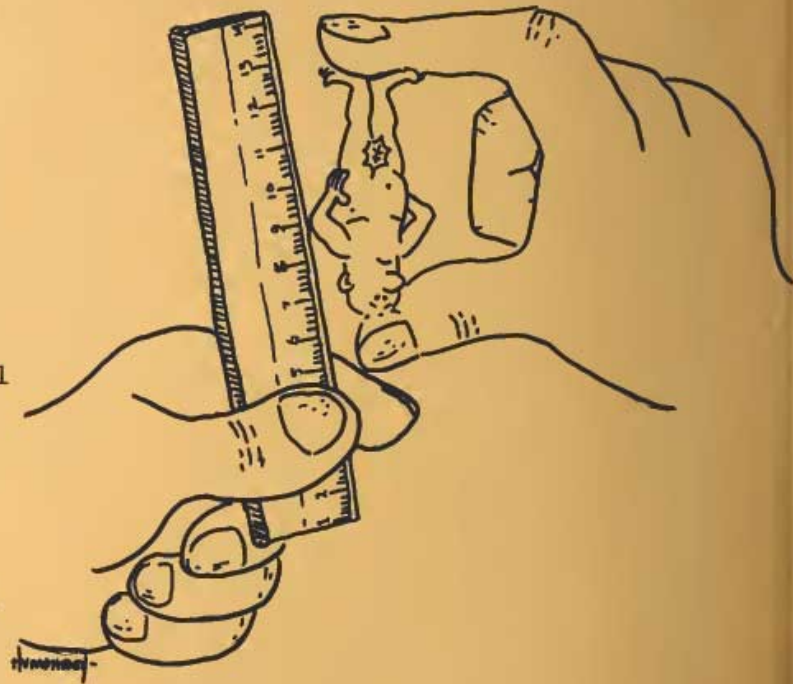
"We are inextricably part of nature, but human uniqueness is not negated thereby. 'Nothing but' an animal is as fallacious a statement as 'created in God's own image.' It is not mere hubris to argue that Homo sapiens is special in some sense -- for each species is unique in its own way; shall we judge among the dance of the bees, the song of the humpback whale, and human intelligence?" (Stephen Jay Gould)

Stephen Jay Gould. The Mismeasure of Man (New York: W.W. Norton and Co., 1981).

The Mismeasure of Man shocks, rankles, saddens, and enlightens. In his latest book, Stephen J. Gould provides a readable and detailed history of scientists' attempts to rank people by intelligence and explains how those attempts fail as science. The book epitomizes aggressive scholarship and lucidity. A significant achievement, The Mismeasure of Man merits the attention of anyone teaching science or social science today.

According to Gould, biological determinism suffers from both scientific weakness and overwhelming influence of political context. The book focuses particularly on scientists who have seen intelligence as biologically determined and on arguments that rest on the fallacies of reification and ranking. As Gould states, his book is "about abstraction of intelligence as a single entity, its location within the brain, its quantification as one number for each individual, and the use of these numbers to rank people in a single series of worthiness, invariably to find that oppressed and disadvantaged groups -- races, classes, or sexes -- are innately inferior and deserve their status" (pp. 24-25).

A basically racist mentality was already in existence in the nineteenth century with American polygenists arguing that humans can be divided into



separate species. The practices of craniometry (head measurement) added fuel. Gould specifically scrutinizes the work of Louis Agassiz, a well-known naturalist who couched his advocacy of a social policy of separation of the races in terms of a supposedly dispassionate inquiry into scientific fact. Gould uncovers just how passionate, unscientific, and unfactual that inquiry was. Gould then turns to Samuel Morton, "the empiricist

of polygeny" who attempted, through the analysis of 600 skulls (most of Native Americans), to rank the races by the size of their brains. Although widely hailed as the objectivist of his age who would "rescue American science from the mire of unsupported speculation," Morton unconsciously finagled his data to show blacks fare poorest, whites best. Gould re-examined Morton's raw data, as he did that of Paul Broca, famous for his nineteenth century anthropometry (body measurement studies). By returning to this raw data, Gould discovers how Broca assumed that "human races can be ranked in a linear scale of mental worth, not realizing that human variation might be ramified and random." Unfortunately anthropometry became for Broca "a search for characters that would display the correct ranking, not a numerical exercise in raw empiricism."

In the nineteenth century, some scientists misapplied evolutionary thought to justify ranking groups. Several scientists tried to prove that lower-ranking groups have more apeish physical characteristics. Cesare Lombroso, a scientist specializing in criminal anthropology, argued that criminals were less intelligent and "less evolved" than the normal population. Although the arguments seem outlandish and outdated, Gould shows how scientists in the 1970's and 1980's use similar arguments.

Not only have heads and bodies been mismeasured, but IQs as well. Gould concentrates on the Stanford-Binet test and the three pioneers of hereditarianism in America who encouraged the test's widespread use. H.H. Goddard brought Binet's scale to the U.S.A. and reified its scores as innate intelligence. Lewis M. Terman developed the Stanford-Binet scale and dreamed of a rational society that would allocate professions by IQ scores. Robert M. Yerkes persuaded the army to test 1.75 million men during World War I, thus establishing the supposedly objective data that vindicated hereditarian claims and led to the Immigration Restriction Act of 1924. Poor Binet would have been horrified since he meant the scores only

as a rough practical device for identifying learning-disabled and mentally retarded children, never for ranking normal children. Binet never suggested that the scores defined or measured intelligence let alone anything permanent or innate.

Throughout, Gould relates the earlier "mismeasurers" to the present day, examining the work of such people as Arthur Jensen. For example, Gould devastates the work of Sir Cyril Burt (1883-1971) who was responsible for the administration and interpretation of mental tests in London's schools and who was later professor of psychology at University College London (1932-1950). In the last five years, others have uncovered the fraudulent basis of Burt's twin studies, IQ correlations between close relatives, and his data for declining levels of intelligence in Britain. But Gould underscores how the hereditary quality of intelligence was such an *idée fixe* for Burt that it blinded his interpretation of data for intelligence and class associations and warped his use of factor analysis.

Arthur Jensen's work, which became a cause célèbre in this country a few years back, relies heavily on evidence from Burt's fraudulent twin studies and on the idea of a single factor or entity for general intelligence. Gould writes in his book that "Jensen would not only rank people; he believes that all God's creatures can be ordered on a "g" [general intelligence] scale from amoebae at the bottom to extraterrestrial intelligence at the top.... As a paleontologist, I am astounded. Evolution forms a copiously branching bush, not a unilinear progressive sequence" (pp. 317-318). In a final chapter, Gould discusses how sociobiology also falls prey to mismeasuring humans.

The Mismeasure of Man, however, is not a book of negative debunking. The end result is positive. Gould aims to rid scientific thought of the

fallacious but incredibly entrenched habits of reifying and ranking so that scientists (and by implication the general public) can make room for the new knowledge of human biology, evolution, and genetics. "The remarkable lack of genetic differentiation among human groups -- a major biological basis for debunking determinism -- is a contingent fact of evolutionary history, not a priori or necessary truth" (p. 322). To dwell on the difference between people often is a mischievous and malicious exercise.

Reading Gould's book provides valuable learning for today's anthropologists and teachers. Gould shows, by his own example, the enormous importance of going back to original sources and following the growth of intellectual ideas. Gould reports that most of the scientists examined (Burt is the notable exception) recanted many of their ideas on the reification of intelligence later in life, but unfortunately the impact of their earlier work continues. We learn from The Mismeasure of Man the tenacity of unconscious bias and the surprising malleability of "objective", quantitative data in the interest of a preconceived idea.

Overall, Gould tries to persuade us that even though a factual reality exists and that science can learn about it, science is not an objective enterprise. It is a "socially embedded activity" where culture influences what we see and how we see it. "Science must be understood as a social phenomenon, a gutsy, human enterprise, not the work of robots programmed to collect pure information" (p. 21). This is a healthy and revitalizing view for anthropologists who do research on human variation or human evolution, and for teachers who try to explain to their students what science is all about.

JoAnne Lanouette

(PRECOLUMBIAN SETTLERS... continued from page 3)

Stewart, T. Dale. THE PEOPLE OF AMERICA. New York: Charles Scribner's Sons, 1973.

Excellent source on the physical anthropology of American Indians including the question of origins and the physical characteristics of Indian populations at the time of European contact and today.

Wauchope, Robert. LOST TRIBES & SUNKEN CONTINENTS: MYTH AND METHOD IN THE STUDY OF AMERICAN INDIANS. Chicago: University of Chicago Press, 1962.

A highly readable discussion of the various nonscientific myths and theories by a well qualified archeologist.

THE CASE OF THE ANCIENT ASTRONAUTS, 1977. From Nova series. Available from The Pennsylvania State University, Audio Visual Services, Special Services Bldg., University Park, PA 16802; (814) 865-6314.

Film documents the unscientific inadequacy of Erich von Däniken's theory and book CHARIOTS OF THE GODS?

Ann Kaupp

ANTHROPOLOGY FOR TEACHERS

If you are a teacher, a graduate student at any area university, or a museum educator who has heard about the Anthropology for Teachers course, but has never had the opportunity to take it, next year is your chance!

Although National Science Foundation funding for all Pre-College Teacher Development in Science projects was cut, the Anthropology for Teachers program will continue next year in a slightly different form.

No longer limited to employed teachers, Anthropology 255-256, the graduate credit, two semester course, will now be offered to anyone interested in teaching anthropology in schools or museums. The George Washington University course will meet during the fall semester on Tuesdays 6:10 to 8:00 p.m. on the university campus and on four Saturday mornings at local museums. The course will be taught by JoAnne Lanouette and the Saturday sessions by Ruth Selig. The approach and organization of the course will continue as it has in the past. Monthly topics will be: Primate Behavior, Human Evolution, Civilizations of the Past, Anthropologists' Fieldwork, Growing

Up in Africa Between Cultures, Native Americans Past and Present, Human Variation, and Anthropology of American Life. Tuition will be charged for the 4 graduate credit course (3 credit option available). If you have any questions please call JoAnne Lanouette or Ruth Selig at the Smithsonian (357-1592) or at the Anthropology Department at George Washington University (676-6075).

Anthro·Notes editors are seeking funds to continue publication next year with four issues planned. The Anthropology Resource Center for teachers will remain in the Naturalist Center, Museum of Natural History, open Wednesday through Sunday (357-2804). Teachers can review materials and resources appropriate for the secondary level. The center houses curriculum units, education games, film and audio-visual catalogs, a Washington D.C. area resource file, paperback books, teaching units, and five Odyssey video-cassettes. Teachers and individual students can also take advantage of the other anthropology learning opportunities in the center such as the self-teaching labs in human bones and lithic technology.



ARCHEOLOGY ALIVE WITH ECOLOGY

When David Clark talks about environmental science and archeology, his enthusiasm makes clear why his program has grown successfully each year. Developed a decade ago, the Environmental Science and Archeology resource program today is an integral part of the science curriculum in four public schools in the District of Columbia.* Since Clark is a unique kind of teacher, often hired by P.T.A.s and other special groups, his program can easily expand into other counties. As a professionally trained archeologist (with a Ph.D. from the University of Pittsburgh, and presently a Research Associate and Instructor at Catholic University), Clark is a community resource teachers need to know about.

Clark's program grew out of a carefully thought through philosophy about the ways archeology relates to environmental science and the ways it can best be presented to young students. As Clark explained, "The most important goal of my approach is to study science within the context of the environment. The basic principle is that all things around us, either natural or artificially produced, are parts of the environment and scientific study in general attempts to uncover information about the environment. In this way the study of science and the environment are more meaningful to the student because one is shown to be closely related to the other."

During the year Clark teaches his program to kindergarten through the eighth grade in several schools. Each class meets for two hours, two days a week, usually one hour in the classroom and one hour outside. Since the program

runs approximately six weeks, Clark can teach all grade levels during the year.

How does archeology fit into the scheme? As Clark explained, "Archeology is the study of people, past or present, based on the analysis of 1) things they have left in the ground, and 2) the parts of the environment altered by their presence. Humans are biological animals with a high degree of cultural complexity. Ecologically, humans are one part of the complex environment and interact with living (biotic) and non-living (abiotic) parts of it. Basically, humans affect the environment they live in and the environment affects them. The physical structure, the behavior, and the culture of people can be directly or indirectly linked to the environment. Culture is one way of adjusting or adapting successfully to the environment and human groups have been very successful at adapting to an incredible variety of environments throughout the world. Humans have gone beyond simple utilization of the natural environment by producing resources and materials artificially. In many cases, these artificially produced materials are supplements for resources of limited quantity in the natural environment."

We asked Clark how he translates these rather abstract concepts into actual classroom teaching and how he incorporates archeology in the process. Clark structures his course by having students first study the non-living (water, rocks, sediments), then the living (plants, animals, and humans) environment. Archeology is approached as one link between the living and nonliving. For example, when the non-living environment is introduced, students study the geologic formation of rocks. The form, origin, composition, and characteristics of rocks are examined. Students study the ways rocks are used today in their school

* Many thanks to the P.T.A., teachers, and the Principal (Miss Betty Brooks) of the Key Elementary School for the opportunity to pilot teach the full program in elementary school classrooms in 1979 - David Clark

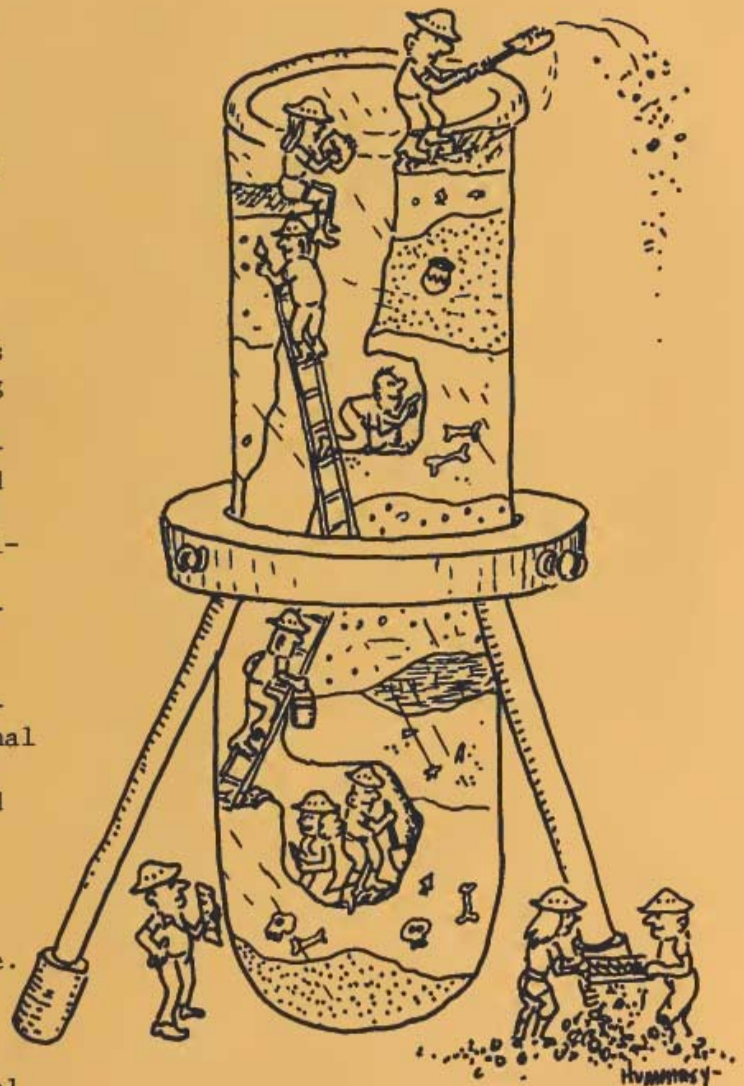
neighborhood and at home. Finally they study the ways rocks were used in the past, during the historic and prehistoric times. Students learn how stone was used architecturally, and in the stone milling industry. To study prehistoric times, Clark has developed a stone technology unit. Students, wearing safety glasses, experiment and test various rocks to understand their differences for stone implement manufacturing. In the classroom Clark actually manufactures stone tools, while students record the manufacturing process step-by-step. When possible, teacher and students try out the implements to verify their utility.

Archeology is further considered when plant and animal topics are covered. Clark explained that "prehistorically plant and animal exploitation was very important. People had to know basic information about plant and animal structures and communities in order to know about the availability of these resources within a particular environment." During class periods, students conduct biogeographical surveys where they record habitat characteristics of various plants and animals they observe. In class students examine plants and animal skeletal material which Clark provides to study the Native American use of the natural environment.

Because of Clark's extensive archeological experience (his specialty is faunal analysis), and his access to actual collections, he can bring to class plant and animal bone refuse from archeological sites. Students work to interpret the environment, reconstructing parts of the environment from the types of plant and animal remains identified from the refuse. Throughout, the emphasis is on human adaptation to the environment.

Clark stressed that his Environmental Science and Archeology Program emphasizes that "people must maintain some form of balance with the environment and learn to live in harmony with the natural world. In the elementary and middle schools, archeology and science should

work together to create an awareness of this balance. In addition, young students can gain some appreciation of Native Americans who believed in the essential harmony in the natural world. In this way, we may be able to create a future generation sensitive to the ecological needs of tomorrow."





Do You Know?

- the March 29th issue of Newsweek has a well-written feature article on paleontologist Stephen Jay Gould, "perhaps America's foremost writer and thinker on evolution."
- two directories of practicing anthropologists are available: 1) a national directory from the American Anthropological Association consisting of AAA members professionally employed, excluding colleges, universities, and museums (call 232-8800; AAA members \$4.00, non-members \$6.00); and 2) a local directory of practicing anthropologists in the nation's capital, other than researchers and teachers, available from WAPA (Washington Association of Professional Anthropologists), Box 8709, Washington, D.C. 20011 for \$4.50.
- available now are three books with a female perspective on human evolution written by women anthropologists: Sarah Blaffer Hrdy, The Woman that Never Evolved; Nancy Tanner, On Becoming Human; and Helen Fisher, The Sex Contract: The Evolution of Human Behavior.
- in the March issue of Natural History magazine, Peter G. Veit discusses the social structure of the mountain gorilla (near Karisoke Reserve in Rwanda) by focusing on female reproductive cycles and changes in group composition.
- the Smithsonian Institution is testing and evaluating the Smithsonian Family Learning Project developed at the Chesapeake Bay Center for Environmental Studies. It consists of "a unique set of activities for families that use such ordinary, everyday objects as apples and celery, lawns, houseplants, and even the family pet to teach young and old about science and the environment." For further information and availability of this "fun-to-do" project, write to the Smithsonian Family Learning Project, P.O. Box 28, Edgewater, MD 21037.
- observations of nonhuman primate sexuality can provide not only insight into contemporary human sexual response but also clues to early hominid behavior. See "Hominid Promiscuity and the Sexual Life of Proto-Savages: Did Australopithecus Swing?" by Richard G. Whitten, Current Anthropology 23 (February 1982): 99-101.
- Anthro·Notes welcomes your suggestions for teaching anthropology, editorials, upcoming events and appropriate books for the pre-college classroom.

UPCOMING EVENTS

March 12 - August 12: "Contemporary North American Indian Art", exhibit at the Museum of Natural History, third floor.

April 17 - June 13: "The Tarahumara" exhibit at the Museum of Natural History, third floor rotunda.

April 21 - June 2: "Pre-Columbian Art and Archeology of Peru" by Elizabeth P. Benson (Research Associate, Institute of Andean Studies). For information on the Smithsonian Resident Associate Program lecture series, call 357-3030.

May 4 - June 8: "The Tribal Eye: Case Studies in Art and Anthropology". Lecture series by Smithsonian ethnologists specializing in Polynesian (Adrienne L. Kaeppler), Tobelorese (Paul M. Taylor), African (Gordon D. Gibson), Canela (William H. Crocker), Mayan (Robert M. Laughlin), and North American Indian (William C. Sturtevant) societies. For ticket information see April 21st.

May 13 - May 14: "Immigrants and Refugees in a Changing Nation: Research and Training Needs". Conference to be held at Boystown Center, Catholic University. Interested persons should call: Lucy M. Cohen, Department of Anthropology, Catholic University of America, at 635-5080.

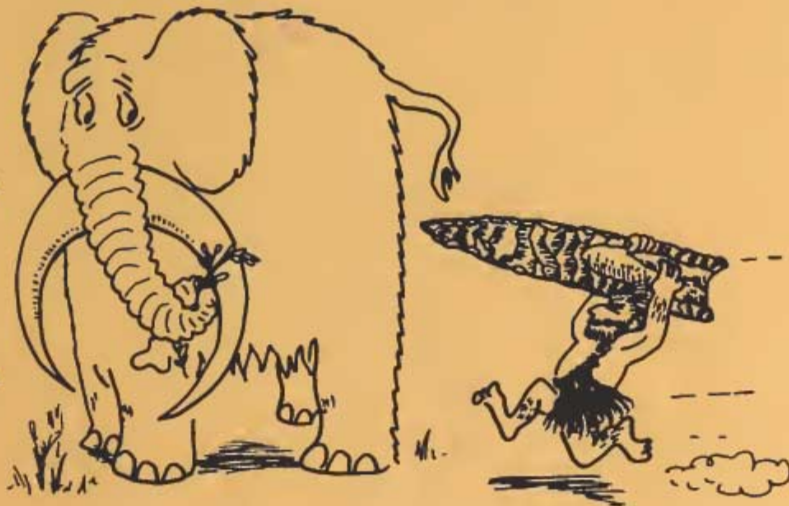
May 15: "Humans and Apes: Pathways in the Search of Human Origins". A symposium in New York City sponsored by the American Museum of Natural History and the L.S.B. Leakey Foundation. Speakers will be Jane Goodall, Dian Fossey, and Birute Galdikas with Donald Johanson as moderator. For ticket reservations and information call the American Museum of Natural History Membership Office at (212) 873-1327.

June 19: "Art and Culture of the Bering Sea Eskimo". A day-long seminar sponsored by the Smithsonian Resident Associate Program office. Speakers

include William Fitzhugh, Susan Kaplan, Saradell Ard Frederick, George Swinton, and James W. VanStone. For ticket information call 357-3030. (See article on Eskimo exhibit, p. .)

June 24 - 28; July 1 - 5: Festival of American Folklife. This season Oklahoma is the featured state presenting ethnic music, crafts, and occupation folklore of the oil industry. Korean and Korean-American craftsmen, singers, and dancers will be presented along with numerous other events occurring during the festival hours of 11 a.m. to 5:30 p.m.

August 26 - February 21, 1983: "Celebration: A World of Art and Ritual" exhibit at the Renwick Gallery. Second floor exhibits open covering religious celebrations, storytelling, dance, games, and sports. First floor exhibits on rites of passage, masks, costumes, and sound and music, opened March 1982.



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