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NEW DISCOVERIES IN PALEOANTHROPOLOGY: WHAT'S NEW, WHAT'S TRUE, AND WHAT'S IMPORTANT?

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The headline announces: "New fossil shakes up our family tree."

The evening news features an intense, lean and sun-tanned academic pointing out the features on this new lump of bone that will change everyone's view of human evolution. Thousands of young listeners imagine themselves walking across the desert, stumbling by chance on an important skull.

The last four years have witnessed an avalanche of new discoveries from fieldwork, paralleled by new discoveries in the lab. The new laboratory discoveries stem partly from more careful analytical techniques (e.g. refitting of bones and stones or cut mark analyses) and partly from a technological revolution in human origins studies, including computerized data bases, CT scans, extraction of ancient DNA, studies of modern DNA as a key to the past, studies of sediment chemistry, and new dates and dating techniques. Few realize that most of what's new in human evolution actually comes out of the lab, after months or years of painstaking research.

Are we better off now than four years ago when it comes to answering the big questions of human evolution: What makes us human? What is unique about our species (*sapiens*) or our genus (*Homo*)? What is shared with older ancestors or with the African apes? What made us emerge as human? How did humans evolve in time and space? Why did we evolve the way we did? What allowed us to expand out of Africa and colonize so much of the world's surface that we now endanger

the world itself? What gave us the edge over the Neanderthals? With the help of the new technologies and an expanding data base, we are now in a better place to begin to answer these questions than ever before, and we are also better able to understand the stories we read in the daily newspapers reporting "the latest finds."

FROM FIELD TO FRONT PAGE

Few fossils come to light intact or even in large pieces, and rarely does an excavation of an archaeological site yield any human fossils at all. Most hominid fossils have been found by chance or by walking over the landscape in large-scale surveys of fossil-bearing sediments determined by scientists to be of an appropriate age for hominids to have lived there. Field workers learn to recognize tiny fragments of skull or long bone as potentially human. They learn to detect the gleam of tooth enamel in the slanting light of the afternoon sun and to follow a trail of fragments uphill until it disappears into the hillside. The fossil on the table probably shattered and was dispersed as it eroded out onto the surface where a paleontologist could spot it.

One bit of human bone may result in a massive earth-moving operation, as the surrounding earth is scraped and sifted to recover every possible piece no matter how small. At the end of a day or after a week sifting, the archaeologist's bone bag bears little resemblance to the reconstructed skull on the newsroom table. Only after months of preparatory work — finding which pieces join together and modeling the

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missing parts—does the skull begin to take shape. Only then can it begin to undergo the comparative study that can answer the question: Is this really something new, something that means a new species or a new genus? Or is it the same as an earlier find, only bigger, perhaps a big male? While the palaeontologists piece together the fossil, other laboratory scientists are hard at work figuring out its age, its environment, and its behavior. These studies are based on the bones, stone tools, and associated sediments from which the fossils or tools eroded.

Publication of a new hominid species usually occurs in either the British journal *Nature* or the American journal *Science*. The controversy often begins immediately. Is the fossil actually associated with the material used to date it? What are the possible sources of error in the dating method used? Is it really different enough from existing fossils to justify assignment to a new species?

The question about a new species is especially difficult. In living organisms, a species is defined as a group of organisms that can mate and produce fertile offspring. But with fossils, unlike living organisms, there are no 'tests' for determining whether something new is or is not a separate species, and many morphological species indicators like plumage or coat color are missing. Designation of fossils at the genus level is even more controversial, as genus implies both shared morphological pattern, implying a common adaptive strategy and common descent from a distant common ancestor.

This article discusses new finds affecting our family tree, including two new species, one from Europe (Spain) and one from Africa (Ethiopia). A second major section, "News From the Lab," focuses on the re-analysis of research data using new technologies, reflected in news stories about chimpanzee learned behavior, large-scale mammalian extinction, and the relationship between brain size and body mass in understanding our early ancestors. Finally, a new look at *Homo habilis*, *Homo erectus* and the Neanderthals emphasizes once again that what we know in science always keeps growing as new information and technologies improve with time.

CORRECTION: The last issue of *AnthroNotes* should have been Volume 21 No. 1, not Volume 22.

OUR FAMILY TREE: NEWS FROM THE FIELD

Two new species joined the family tree between 1997 and 1999: *Homo antecessor* from Spain and *Australopithecus garhi* from Ethiopia.

Homo antecessor: A New Species From Europe

Homo antecessoris based on fragments from the TD6 level at the Gran Dolina cave, near Atapuerca, Spain. Its approximate date of 800,000 comes from the fact that the fossils lie below a magnetic change point. The sediments above have a magnetism similar to that of today's Earth, but the sediments below have a reversed magnetism, that is the "north" recorded by the sediments is actually "south" today. Evidence of magnetic reversals occurs in sediments all over the world and the most recent shift from "reversed" back to "normal" has been dated by argon laser techniques (see page 3) to 780,000-791,000 years. The fragments include the lower face of a child with several teeth, a fragment of frontal bone (forehead region), a small piece of a jaw and several long bone fragments. At least six individuals are represented, and some of the bones show cut marks made while the bone was fresh, a possible sign of cannibalism.

The discoverers of *H. antecessor* (Bermudez de Castro *et al.*) argue that the shape of the nose region is not that of *H. erectus* but instead resembles some features of *H. sapiens* and Neanderthals; hence the name "antecessor". They argue that it is the ancestor of both Neanderthals and modern humans before the two lines diverged. Others suggest that it may be the ancestor of a Neanderthal lineage that split off from the modern human lineage before *antecessor*. Without more pieces from Gran Dolina or other European fossils from the same time period, however, it is difficult to say whether its separate status will continue. It could also prove to be just an early form of a European species known as *H. heidelbergensis* that lived in Europe from about 500,000 to about 200,000. The dating is also only approximate since we do not know how much time elapsed between the burial of the fossil and the magnetic shift at 780,000.

The interesting question raised by the naming of a new European species at an early date is the antiquity of the separation between a European human lineage leading to Neanderthals and an African human lineage leading to modern humans. Were Neanderthals, who do

not appear until around 200,000 years ago, the final branch of a large European tree, all adapted to colder and more seasonal conditions than elsewhere in the Old World? Did the split between the two lineages occur after or before *antecessor*? In either case, if the split is ancient, how do we explain the later development of behavioral similarities between Neanderthals and their African and Near Eastern cousins? Could this be a case of parallel evolution? Or is this new member of the family tree just a temporary offshoot that died out without descendants?

A Second New Species

In Africa, another much older new species, *Australopithecus garhi*, was named by Asfaw *et al.* in 1999. The word *garhi* means 'surprise' in the local Afar language. *A. garhi* comes from a region on the west bank of the middle part of the Awash River, in the northern Rift Valley of Ethiopia. The partial cranium and possibly associated jaw and limb bones from a different site are dated to 2.5 million years ago by a highly accurate technique that uses lasers to release and measure tiny amounts of argon gas trapped in small crystals of volcanic sediments.

A. garhi was a surprise because it displayed a combination of features not seen before. Big cheek teeth (molars and premolars) with thick enamel and what may be a sagittal crest recall the robust australopithecines (*Paranthropus*) and place the fossil in the genus *Australopithecus*. The brain case is quite small (ca. 470 cc). However, unlike the robust australopithecines, *A. garhi* does not have reduced incisors, and the face does not have the bony reinforcements in the cheek that give the australopithecine face a concave or "dished" appearance. Arm and leg bones found 300 meters away from the skull are from a single individual, who may or may not belong to the same species as the skull. But the limbs are unique for the time period — arms as long as Lucy's for climbing, but much longer legs for walking bipedally, suggesting that bipedal walking was well-established before humans gave up the trees altogether. *A. garhi* possibly could be the ancestor of our own genus, but at least one skeptic has suggested it may be a female robust australopithecine.

Did Bipedalism Develop From Knuckle-Walking?

Recently researchers working in the collections of ape skeletons at the Smithsonian were studying a ridge on the wrist end of a forearm bone (radius) found in knuckle-walking apes. On a whim, they decided to see if this ridge was present in the 'Lucy' skeleton. To their surprise, Lucy and other australopithecine fossils had the ridge, suggesting that we may be descended from a knuckle-walking ancestor. Other scholars, however, argue that the knuckles on Lucy's hand-bones are not broad for weight-bearing like the knuckles of apes, making it unlikely that australopithecines actually used this form of locomotion. This study helps to reconcile evidence from anatomy with the strong DNA evidence that chimpanzees are more closely related to humans than to gorillas. It also raises the question of why upright walking would evolve from an ancestor that was already adapted to life on the ground.

"Always Something New Out of Africa" (Ancient Greek Proverb cited by Pliny the Elder and C. Darwin, 1859)

Although 2.5 million years ago (mya) is a critical time in the transition to a human way of life based on meat-eating and stone tool manufacture, it is not a well-documented period in human evolution. Relatively few fossils from this time period have been found in East Africa. *A. afarensis*, whose skeleton is known to the world as 'Lucy' but to Ethiopians as 'Dinkanesh', had disappeared by about 2.7 mya. Of the existing fossils dating to around 2.5 mya, most belong to a group called "robust australopithecines." These are sometimes grouped in the genus *Paranthropus* and are distinguished by their massive molars and premolars, used to chew tough vegetable foods. In South Africa, where the first



australopithecines were discovered back in the 1920s and 1930s, *Australopithecus africanus*, the first named species of *Australopithecus*, is the only known hominid in this time interval. *Australopithecus africanus* had large chewing teeth relative to *Homo*, but smaller teeth and a less massive jaw and face than the robust group.

Around 2.3 to 2.1 million years ago, a few fossils with larger brains and/or smaller chewing teeth have been included in our own genus *Homo*, in part because of the change in tooth and brain proportions, and in part because they were associated with crude stone tools. One of the most recently found and the oldest member of this group is a fossil upper jaw described by Kimbel *et al.* from the Hadar area of Ethiopia, also in the Awash Valley, associated with early flake tools and dated to 2.3 mya. Unfortunately, scientists have not found any part of the braincase, associated limbs, and other features that would help to determine its lifestyle and evolutionary relationships.

Another new, early African fossil is making headlines while still in the ground. Fossil foot bones from a very old layer—perhaps 2.8-3.1 mya—at the Sterkfontain cave near Johannesburg, South Africa, were published four years ago. Last year, the rest of the skeleton was discovered beneath where the foot bones were found. It is apparently an entire skeleton of an *Australopithecus africanus* that fell into the cave and lies crumpled on the floor head down and feet turned up. It will be years before scientists study all the details of this fascinating find, as the bones are encased in solid rock that formed around them and must be carefully picked apart.

Oldest Stone Tools

The oldest known stone tools come from Ethiopia, about 100 km to the north at Gona, near Hadar. Although a firm date of between 2.5-2.6 mya and a brief description were published in 1997, debate on the nature of these tools is suspended until they are published in more complete form by their excavator, S. Semaw. Other stone tools from the Lake Turkana basin in northern Kenya date to 2.3 mya. These tools from the site of Lokalelei were described in 1999 by Roche and coworkers as surprisingly elaborate, involving the removal of as many as 30 flakes from a single core. The record suggests that stone tools appear with and may even precede the appearance of members of our own

genus, *Homo*. Previous work had suggested that the earliest toolmakers were not capable of elaborate toolmaking sequences involving many steps, but this new research suggested that toolmaking abilities were somewhat sophisticated even by 2.3 mya. The analysis of the older tools from Gona will be extremely interesting, particularly as no members of the genus *Homo* are known from this age.

No stone tools were found in direct association with *A. garhi*, but there was indirect evidence of their use. In the area that yielded the limb bones, there were a number of bones of extinct horses and antelopes that showed sign of butchery. Deep scratches with the characteristic sharp edges of stone tool cut marks indicate where meat and sinews had been sliced from the bone, and hammerstone impact fractures made while the bones were fresh show how they had been broken open for marrow. If this behavior can be attributed to *A. garhi*, then this hominid clearly shares behavioral features with later humans, even though its brain was still small and the teeth still large. It may be an early indicator of what we now recognize as a common pattern of *Homo*, in which new behaviors drive and select for changes in morphology—tools before brains.

Behavioral innovation in early hominids may not be so surprising. Assembly of a large database of chimpanzee behaviors allowed researchers to demonstrate last year that chimpanzees display a wide range of different behaviors across Africa, all of them learned and transmitted from one generation to the next. Some groups of chimpanzees use sticks to fish for termites; others use rocks and sticks to crack nuts. Some hunt small animals; others rarely do. To a certain extent, then, chimpanzee behavior fits the basic definition of human culture, habits and practices that are particular to each society and are passed on through learning.

OUR FAMILY TREE: NEWS FROM THE LAB

Some of the most important news on the hominid front does not derive from new fieldwork or fossil finds, but from laboratory experiments and from reinterpretations of existing finds using new technologies. These range from CT scans to statistical techniques made possible by huge computerized databases and new sophisticated computer modeling.

In a long-running laboratory experiment at Indiana University, a bonobo or “pygmy chimpanzee” named

Kanzi continues to learn stone tool making, although his favorite method is to throw the stone against something hard until it shatters. His abilities and the problem-solving experiments being conducted with oranges at the National Zoo in Washington, D.C. show that we have underestimated the cognitive abilities of our closest relatives. It also demonstrates how sophisticated the oldest tools at Lokalelei were, compared to those made by Kanzi.

A large database of mammalian fossils from the Turkana basin allowed researchers at the Smithsonian to test whether or not a major dry spell 2.5 million years ago caused the extinction of many East African animals and their replacement by savanna-adapted species, including early humans (e.g., *A. garhi*). The researchers found that the appearance of new species and the disappearance of old ones were spread throughout the 1 million year period between 3 and 2 mya in the Turkana basin, which offers the richest and best dated record of animal evolutionary change in Africa during this critical interval. Thus the hypothesis of a major "turnover pulse" at 2.5 mya was not supported by the data. The researchers found, however, that after a gradual rise in the number of species up to 2 mya, a significant drop in species numbers occurred, especially around 1.8 mya.

Recent research on the larger brain sizes that mark the emergence of *Homo* also utilizes new statistical databases and techniques for determining body mass from the upper leg bone (femur). When brain size is calibrated by body size, it turns out that brain size increases between 2.5 and 1.8 mya, but then remains relatively constant from 1.8 to 0.6 mya. Brains were not getting bigger through the early Pleistocene, people were! What is surprising, after more than a million years of roughly the same brain size, is the dramatic leap in brain size at around 600,000–700,000 years ago, as new species like *H. heidelbergensis* take over. What was the reason for this huge increase in relative brain size? New environments colonized? More variable environmental conditions? New social structures and ways of making a living? The data are unclear but new work in the Middle Pleistocene is suggesting an earlier and earlier emergence of complex abilities.

NEWS OF *HOMO HABILIS*, *HOMO ERECTUS*, AND THE NEANDERTHALS

Is *Homo habilis* really *Homo*?

The earliest members of the genus *Homo* are *Homo habilis*, defined on the basis of Olduvai Gorge specimens in 1964, and *Homo rudolfensis*, defined on the basis of East Lake Turkana specimens in 1986. Since 1985 accumulating evidence has demonstrated that at least one of these species still maintained a number of specializations for life in the trees, like long arms, short legs and curved fingers. In addition, these hominids exhibit very little of the marked reduction in tooth size that characterizes our genus and leads to our smaller faces. *Homo* was supposedly characterized by large brains, language, tool-dependence, and manual dexterity. New data have shown that the brains of these fossils are not large compared to their body mass, and that we cannot determine whether or not they had language abilities to a greater extent than the apes. Tools now appear before the first fossil attributed to *Homo* and occur with *Australopithecus* and *Paranthropus* as well. New studies of hand function show that either the hand of *H. habilis* was not as fully modern as we had supposed or that apes possess many of the same manipulative abilities. In a major review of these issues, Wood and Collard suggest that *H. habilis* and *H. rudolfensis* do not share the adaptations characteristic of later members of the genus *Homo* and should be grouped instead with *Australopithecus*.

Homo Erectus: Fuel for Thought?

If Wood and Collard's proposed reassignment of *H. habilis* and *H. rudolfensis* to the *Australopithecus* genus is widely adopted, the first member of the genus *Homo* will be the species *H. erectus* or its African relative *H. ergaster*. These fossils are best represented by the almost complete skeleton of an adolescent boy from Kenya dated to 1.5 mya. He was tall and larger-brained and had reduced chewing teeth. A controversial recent article cites these features to suggest that cooking was already part of the *erectus* cultural repertoire and may have been an essential adaptation allowing *H. erectus* to spread out of Africa. There is no direct archaeological evidence for cooking at early African sites, with the possible exception of some burned bones from South Africa (see *AnthroNotes* 18(2) Spring 1996.) At Koobi Fora, on the

east side of Lake Turkana, other support for early human use of fire comes from burned patches whose magnetic properties studied in the laboratory may indicate the use of fire by humans, since human-tended fires have a higher temperature and longer "burn-time" in a very small area than most bush fires. Natural bush fires, however, cannot be entirely ruled out as causes of either the burned features or the charred bones.

Even thick beds of what appears to be ash may not indicate fire. "Ash" from Zhoukoudian in China, the *Homo erectus* site listed in most textbooks as the oldest site with controlled fire, may not be the remains of fire after all, although it is only about 500-300,000 years old. The sediment, studied by a new infrared technology, does not have the chemical constituents or characteristics of wood ash. Some of the bones, however, were charred and may have been burned somewhere else and carried or rolled into the area of the cave sampled, indicating that fire was at least in use by this time.

When did *H. erectus* arrive in Asia? Or was it an earlier species that made the trip? Stone tools reported from the southeast Asian island of Flores in 1998 would seem to suggest that not only was *erectus* in the region by 1.5 mya, but also came in boats or had the capacity to make them! This is a good example of a story that has not been widely accepted. Are the stone tools really tools? Or just chipped rocks from a stream bed? Is the date a good one? (The *next oldest* tools in southeast Asia are less than 700,000 years old and may be only 40,000 years old!). There is mounting evidence from both Java and China, however, that hominids were in east and southeast Asia by about 1.5 mya.

Another new Asian find that is challenging current models are the stone tools from the Bose basin, South China. For over a half century, archeologists have thought that large bifacial handaxes characterized the stone technology of Africa and western Asia and Europe for most of the Pleistocene, while simpler stone technology typified East Asia. The boundary between western bifaces and the more casual flake-and-core industries in the east is known as the "Movius line," after the Harvard prehistorian who first described it in the 1940s. The Movius line has been used to suggest that Asian populations of *Homo erectus* and later hominids did not have the same capabilities as hominids in the west. Excavations by Potts, Huang, and their

team from the Smithsonian and the Chinese Academy of Sciences have shown, however, that large bifaces were made in South China around 800,000 years ago. The total collection of stone tools from the Bose basin differs in detail from the Acheulean handaxes collections in the west. But in stone flaking ability and the overall shape and size of the large tools, the Bose tool collection is strikingly similar to stone technologies made at the same time in Africa.

Further damage to the Movius line comes from two sites in northern Japan, Takamori and Kamitakamori, dated to more than 250,000 years ago and possibly more than 500,000 years ago, in an island region of the world once thought to be occupied only towards the end of the Pleistocene. Located in the mountains west of Sendai, the tools include well-made symmetrical axes or adzes, chipped on both sides. This symmetrical and bifacial approach to tool-manufacture is characteristic of the Acheulean industry found from India to England and south to the Cape of Good Hope after 500,000 years ago. Such tools are not found in southeast Asia, at least not until very late in the Pleistocene.

The Japanese tools are not "Acheulean," and do not share the stylistic or functional attributes of "hand-axes," but they do exhibit similar capabilities. In addition, some of the small bifacial tools are grouped in discrete pits and include pieces of several different colorful raw materials. Not only have the raw materials been transported over many kilometers, but the arrangement suggests to the excavators (Kajiwara and others) an early example of symbolic behavior, indeed one of the earliest examples anywhere in the world. Others have questioned the age determination, the stratigraphy, and the association between the dated material and the artifacts, but a recent fact-finding expedition to the sites by an international team could not find any problems with the dating or associations. The combined Japanese and Chinese finds indicate that the Movius line model is flawed, and at the very least we must look for new interpretations of *H. erectus* behavior in Asia.

Neanderthal News

At the more recent end of the human evolutionary story, the finds are equally dramatic and equally split between new field results and restudy of older materials with new techniques. Views of the Neanderthals themselves have

been shaken up by a new fossil child from Portugal. Dated to only ca. 25,000 years ago, long after the Neanderthals are thought to have disappeared from Europe, the fossil child is said to display some Neanderthal features in its skeleton. In a heated exchange in the pages of the *Proceedings of the National Academy of Sciences*, Erik Trinkaus, the senior morphologist in the study, suggested it was an example of hybridization between Neanderthals and modern humans, while Ian Tattersall, another authority on Neanderthals, argued that this is not demonstrated.

The genetics revolution has also had an impact on views of the Neanderthals as well as on other developments in human history. Two recent studies of mitochondrial DNA (passed only through the female line), which was extracted from the original Neanderthal fossil, show that it is *very* different genetically from ourselves. The differences between us and the Neanderthals are so great that geneticists estimate that our ancestors split off from them at least 600,000 years ago!

More and more Neanderthal sites show evidence of cannibalism— human bones smashed and cut and treated like other faunal remains. This may confirm an analysis of the bone chemistry of Neanderthals published in 1992 that indicates they were almost exclusively carnivorous. The debate over Neanderthal language continues. One study by Kay *et al.* suggests that the bony canal containing the nerve for the tongue muscle used in speech was as large in Neanderthals as in ourselves and shows that they spent a lot of time in oral communication.

In Africa, the contemporaries of the Neanderthals were early *Homo sapiens*, with more modern morphology. One aspect of this morphology, perhaps *the defining* aspect, was the repositioning of the face beneath the braincase instead of out in front, creating a new relationship between the tongue and the back of the throat that facilitated speech. This new relationship as discussed by Lieberman can be most clearly seen in the morphology of the sphenoid, the bone that divides the braincase from the face and cradles the pituitary gland just behind the nose. Since most of this morphology is *inside* the skull, studying it requires CT scans of the fossils, a new application of this technology. Most hospitals have down times late at night when they are willing to allow use of their machines by paleontologists.

The Smithsonian's division of physical anthropology has its own CT scanner. Some CT scans of important fossils are even available on the web [www.anthro.univie.ac.at/bodo/bodo/html.]

Africans may have looked modern when Neanderthals still occupied Europe, but whether or not their *behavior* was also modern is a major debate involving Brooks and others. New evidence from South Africa itself suggests that these early members of our species already were catching ocean fish and making bone-tipped spears, much like the inhabitants of several sites excavated by Brooks in the eastern Democratic Republic of Congo, dating from ca. 80,000. Other early sites of around this age have engraved and notched ostrich eggshells and bones, as well as masses of red ochre. Evidence for other sophisticated and complex behaviors by the African contemporaries of Neanderthals is accumulating rapidly as new regions of Africa are explored.

Journalists know the public is hungry for news about our human origins, and stories of our distant past appear with increasing frequency. The need to educate our students and the general public more broadly about science and anthropology has never been more clear.

FOR FURTHER READING

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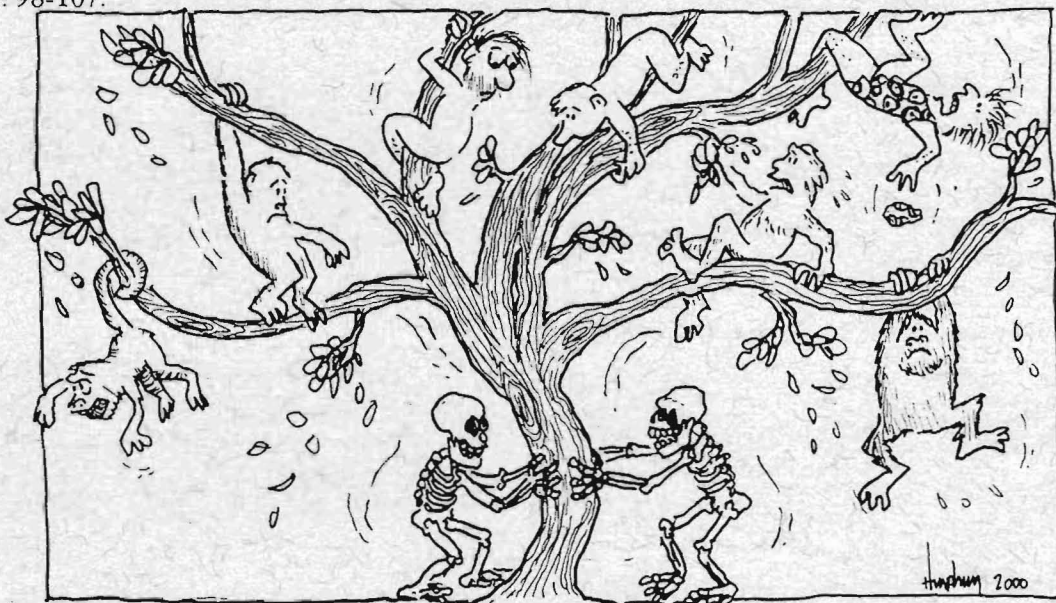
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www.paleoanthro.org (abstracts of papers for paleoanthropology meeting in Philadelphia April 4-5, 2000 and "Palaeoanthropology in the News" featuring current and recent newspaper stories.)

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TEACHER RESOURCES

Web Sites Relating to Human Evolution

Web sites compiled by the Smithsonian's Human Origins Program of interest to teachers and students:

www.indiana.edu/~origins/

Consists of full text lectures with photographs and images. Includes links to other sources of information. A great site for students.

www.wsu.edu:8001/vwsu/gened/learn-modules/top_longfor/lfopen-index.html

A good introductory page with plentiful information presented clearly.

www.mc.maricopa.edu/anthro/exploratorium/hominid_journey/central.html

A site with excellent graphics that touches upon most of the major topics on human evolution.

www.sscf.ucsb.edu/~hagen/crania/

A site put together by Philip Walker and Edward Hagen with some amazing 3-D skulls using Shockwave plugins. Download time for the Shockwave files can be a bit long on a 28.8 modem, but the effort is worth it.

www.emory.edu/LIVING_LINKS/

A useful site for those interested in primatology in general. The research center focuses around a population of chimpanzees at the Yerkes Primate Center at Emory University in Atlanta. Offers some great videos showing basic chimpanzee behavior.

www.indiana.edu/~origins/

Full text lectures with photographs and accompanying images. Includes a number of links that students will find useful.

www.wsu.edu:8001/vwsu/gened/learn-modules/top_longfor/lfopen-index.html

A good introductory page with abundant information presented clearly.

www.mc.maricopa.edu/anthro/exploratorium/hominid_journey/central.html

This site, with great graphics, touches upon just about all of the major topics of human evolution.

Other Recommended Sites:

Harvard University Biology links

mcb.harvard.edu/BioLinks.html

Ask Eric Virtual Library

ericir.syr.edu/Virtual/index.html

Education Index Anthropology Resources

www.educationindex.com/anthro/

Stones and Bones Physical Anthropology Center, LAUSD

www.lalc.k12.ca.us/catalog/providers/170.html

The National Museums of Kenya

www.museums.or.ke/

The Olorgesailie Site Museum, National Museums of Kenya. www.museums.or.ke/psmolor.html

www.cruzio.com/~cscp/econ/htm

This site has new information about China; argues against the out-of-Africa theory of modern human origins.

The Paleoanthropology Society

www.paleoanthro.org/

This web page of the professional organization for palaeoanthropology has a number of good links, field schools, etc.

Jeanne Sept's links to other sites

www.indiana.edu/~origins/links/evolinks.html

Most of these links have been reviewed by the University of Indiana faculty.

Institute of Human Origins

<http://www.asu.edu/clas/iho/index.html>

Highly recommended. Focuses on new work in Ethiopia and elsewhere.

The Neanderthal Museum
www.neanderthal.de/
An excellent site.

Scientific American Discovering Archeology Magazine
www.discoveringarchaeology.com/index.shtml
This is actually an excellent news source and has an up-to-date newspaper and an AP citation file. Editors include faculty from Harvard and elsewhere

Pictures of Record
www.picturesofrecord.com/
A commercial site for ordering images and slides.

Ancestors Unearthed Fieldnotes, Carnegie Museum of Natural History
www.clpgh.org/cmnh/exhibits/ancestors/index.html
This site relates to their new exhibits.

TOWN MEETING ON TEACHING EVOLUTION

In light of recent statewide decisions affecting the teaching of evolution, the American Institute of Biological Sciences (AIBS) and the National Association of Biology Teachers held a town meeting on March 22 in Arlington, Virginia. The evening event was held in conjunction with the AIBS annual meeting, which was co-sponsored and hosted by the Smithsonian Institution.

The meeting room was packed with scientific researchers and educators from across the country who heard from the following speakers: Rodger Bybee (executive director, Biological Sciences Curriculum Study); Eugenie Scott (executive director, National Center for Science Education); David Wake (professor of integrative and comparative biology, Univ. of California, Berkeley); Brad Williamson (AP biology teacher at Olathe East High School, Olathe, KS); John Herron (Univ. of Washington, Seattle); and moderator M. Patricia Morse (Zoology Department, Univ. of Washington).

While 66% of Americans want evolution to be taught as science, textbooks are putting in the disclaimer that evolution is "theory not fact." Rodger Bybee,

author of *Achieving Scientific Literacy: From Purposes to Practices* (1997), summarized four challenges in teaching evolution: 1) to introduce the scientific concepts of evolution; 2) to develop an understanding of inquiry and the nature of science for students; 3) to develop new materials and approaches for teaching about evolution and the nature of science; and 4) to support science teachers.

The speakers agreed that good curriculum materials on evolution are lacking. Using the National Science Education Standards, teachers and researchers need to become partners to produce stimulating materials for classroom use—and even bring back living organisms into the classroom for teaching evolution, advocated Brad Williamson, Kansas high school biology teacher.

Audio tapes of the town meeting are available for \$10.00. Call (202) 628-1500 ext. 261; fax: (202) 628-1509 or email: cmoulton@aibs.org.

Related Web Sites:

American Institute of Biological Sciences
www.aibs.org

National Association of Biology Teachers
www.nabt.org

Society for the Study of Evolution
An international organization of biologists actively studying evolution at major universities and research institutions throughout the world.
<http://lsvl.la.asu.edu/evolution/>

National Center for Science Education, Inc. (NCSE)
www.natcensci.org/
Provides advice and support for teaching evolution.

National Academy of Sciences "Teaching About Evolution and the Nature of Science." Available online.
www.nap.edu/readingroom/books/evolution98

www.talkorigins.org
This site counters creationist arguments against paleoanthropology, but includes generally interesting information on evolution as well. One particularly useful portion of this site is a FAQ (frequently asked questions) area devoted to human origins:
www.talkorigins.org/faqs/fossil-hominids.html

INDIAN LANGUAGE MAP

The University of Nebraska Press has published the map "Native Languages and Language Families of North America," compiled by Ives Goddard. It is available in two formats. The "Folded Study Map" (20" x 22 1/2") is identical to the map in the pocket of Volume 17, *Languages, of the Handbook of North American Indians*, except for being on heavier paper. The "Wall Display Map" (38" x 50" including text) is an expanded version of the same map; the larger size has provided enough room to indicate the location of every known Native language of North America, even where they are in such small areas that they could be mapped only at the family or sub-family level on the original map. This is the only published map that has located every language. Many major dialects are also included.

On both maps, 62 language families are distinguished by separate colors, making the linguistic diversity of North America strikingly evident. Areas with no surviving linguistic documentation are left white.

The maps are accompanied by a brief descriptive text and a complete classification that includes unmapped dialects and two post-contact mixed languages. The text for the smaller map is in a separate booklet. The one for the larger map is printed on the left side of the sheet and can be folded under or cut off to display only the 38" by 41" map, if desired.

The Folded Study Map (ISBN 0-8032-9269-4) lists for \$14.95. The Wall Display Map (ISBN 0-8032-9271-6) is provided rolled in a sturdy mailing tube and lists for \$19.95. To order from the University of Nebraska Press, call 1-800-755-1105; fax: 1-800-526-2617; outside the U.S. 402-472-3584; email: pressmail@unl.edu; web site: www.nebraskapress.unl.edu

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ANTHROPOLOGY CURRICULUM

Anthropology. 2000. Gene Boteler and Mary Boteler. The Center for Learning. 259 pp.

This curriculum is written by two former participants of the Smithsonian Institution/George Washington University Anthropology for Teachers Program who teach anthropology at the high school level. The authors have designed this spiral-bound manual as a primary teaching tool or supplementary resource.

Anthropology is organized into five parts. Part 1: "Studying the Human Story" introduces students to the study and fields of anthropology. Students conduct an anthropological study of their fellow high school students, determine what objects can tell us about culture, gain a perspective of the concept of time, and learn how natural selection works within nature.

Part 2: "Humanity's Closest Relatives" explores the origins of human physiology and behavior by focusing on the primates. Part 3: "Human Beginnings" explains how biological anthropology determines what makes us human. This section covers the fossil evidence, mitochondrial DNA studies and migration theories, and genetics.

Part 4: "Hallmarks and Touchstones of Culture" demonstrates the variety of the human condition and explores such topics as cultural change, kinship, gender roles, marriage, economic activities, environment, warfare, and more. Part 5: "Expressions of Culture" focuses on taboos, religion, language, art, potlatch, sports, and a Yanomamo case study.

This curriculum contains 40 creative lesson plans and 80 handouts. While it is geared for grades 9-12, it easily can be adapted for lower grades. The authors have made suggestions on handling such potentially sensitive or controversial topics as evolution and religion. While this book is an excellent text for anthropology, it also would be a valuable supplement for teaching classes on biology, history, world cultures, math, social studies, and art.

Order from: The Center for Learning, PO Box 910, Villa Maria, PA 16155; (724) 964-8083; (800) 767-9090; www.centerforlearning.org. The book is listed under senior high electives on the web site.

TEACHER'S CORNER: FAMILY FOLKLORE IN THE CLASSROOM

[Editors' Note: This article, compiled by *AnthroNotes* editor Ruth O. Selig, is based on the research and writing of staff that originally developed a Family Folklore Program for the Smithsonian Institution's Folklife Festival, as well as additional materials collected in Laramie, Wyoming, for a teachers' in-service workshop taught by Selig and Laramie High School English teacher, Karen Maxfield. Many of the ideas are drawn from *A Celebration of American Family Folklore* by Steven J. Zeitlin, Amy J. Kotkin, and Holly Cutting Baker.

Recently the National Endowment for the Humanities, in partnership with the White House Millennium Council, undertook a "millennium" project called My History, an initiative that "offers all of us a way to explore family history as we discover how our own family stories connect to the history of our nation." The NEH guidebook, *My History is America's History: 15 Things You Can Do to Save America's Stories*, offers specific ways to preserve family memories and treasures through activities that make history an exciting adventure.]

Introduction

Over the last few decades, historians, sociologists, anthropologists, and folklorists have begun to focus attention on community studies, teaching us much about the varied traditions flourishing in America. Within our country we must look to the experiences of ethnic and religious groups, the lives of women and children, the history of regional and occupational groups, and even to our own family folklore to find the creative and cultural expression of the American past. "For every famous literary and photographic work, there are hundreds of thousands of stories and snapshots in which Americans have invested a large portion of their creative genius. Family tradition is one of the great repositories of American culture. It contains clues to our national character and insights into our family structure" (Zeitlin, Kotkin, and Baker, p.2).

Family folklore, then, consists of family stories, expressions, customs, traditions, and photographs that characterize a family's life. Having students collect, record, and write about their family folklore can be an exciting and meaningful way for them to connect themselves to broader American culture and history, as

well as help them sharpen their skills in social studies and language arts.

How To Begin

Since family folklore consists of traditions, stories, artifacts, and photographs, each of the approaches described below can be the focus of class projects.

Holiday Analysis:

Explain to students that a family tradition is a special practice that a family reenacts in approximately the same way, day after day or year after year. A birthday celebration, Passover Seder, or Thanksgiving dinner may give rise to family traditions as may other holidays such as the Fourth of July or Labor Day.

On a chart, have students make a vertical list of all the holidays they or their families celebrate, and briefly describe in horizontal categories what traditions are associated with each. For example, students can list what foods are eaten, when and where the holiday meal is served, and who usually attends. What games, if any, are played? Are certain objects or dishes always present? Are gifts exchanged, and if so how, when, and where? Are songs sung, music played, dances danced, prayers offered, or speeches given? Is the national flag displayed? Is religious service attended?

After compiling their individual charts, students should be ready to discuss the origin of holidays and the various ways each is celebrated. It should become readily apparent that holidays originate for a variety of reasons, but that while students share some traditions with one another, other traditions are unique to each person's family. Some of this interesting variation arises from regional, ethnic, and religious background, but some of this variation also arises from family and community history. As students share their common and different experiences, a rich blending of family and cultural history should emerge, along with new understanding that both the yearly cycle and our personal lives are marked by continuing celebrations and rituals.

Interviewing Family Members:

The next project might be the recording of a student's own family history through information gained by interviewing another family member. Every interview will be different, and students should be encouraged to create their own questions. The "Interviewing Guide

and Questionnaire" offered at the end of this article should be useful in helping students conduct successful interviews.

Family Stories:

Once students have conducted interviews they will be in a good position to share and analyze their family folklore. Researchers have detailed certain recurrent themes in family folklore stories such as the "crossing over" stories recounting the migration west in covered wagons, crossing borders from one county to another, or remembering the ocean voyages ending at Ellis Island; stories of family heroes, rogues, or misfits; stories of parents' youthful antics or courtship and marriage; or stories of family misfortunes, feuds, or escape from near death. Ask students to share their stories and see if they can identify any of these or other common themes.

Planning a Family Folklore Unit:

After students have done a holiday analysis, interviewed older family members, and collected family folklore stories, a number of class projects and units are possible. Students can make a collection of photographs, objects, and recipes handed down in their families. The class may want to make an illustrated collection of particularly amusing or dramatic family stories. Photo albums can be shared, and photo-journals or scrapbooks can be created combining stories, reminiscences, family expressions, family photos, genealogy charts, and personal and family time lines marking and illustrating important family events and changes.

Through these and other projects described in the attached list, students should gain an appreciation of tradition and continuity from one generation to the next, and the value of preserving traditions, objects, and ideas from the past. Through family folklore a teacher can bring history to life and life to history, as well as help students connect their personal and family past to broader cultural and language arts study.

Family Folklore Projects

Classroom Exhibits:

Students can build classroom exhibits using posters, photographs, artifacts, and stories drawn from their own family folklore to illustrate topics such as "Western Expansion," "Immigration," "Victorian Era," "Jazz Age," or "The Depression."

Scrapbooks or Photojournals:

Scrapbooks or photojournals can be organized in a variety of ways using family trees, genealogical charts, photographs, family stories, jokes, expressions, games, nicknames, songs, etc. Much of what students learn through interviewing older family members can be included. Some students may choose to focus this project more on their own personal history if they cannot gather enough material on their larger families.

Heirlooms:

Have students find out what objects they have which are family keepsakes or heirlooms. Have them find out the history of these objects and the stories behind these family treasures. Students can then write descriptions or imaginary stories about these important and symbolic objects. How do the heirlooms connect past, present, and future? What do they reflect of the family and the larger culture? Students can make a "Class Collection" of objects which could become heirlooms for a future generation.

Crafts:

In many families hand skills are carried down through the generations. Students can try to learn a handicraft from an older member of their family or research an earlier method of production from a specific period they choose. Once the research is completed, students should try to replicate the method as closely as possible for such crafts as candle dipping, soap making, hide tanning, quilting, basket weaving, ham curing, vegetable canning, and jelly or bread making.

Calendars:

Students can make a family food calendar by interviewing parents or grandparents about their family food traditions and recipes, particularly favorite foods, traditional holiday foods, and birthday foods. Each student can then make a food calendar with a family recipe and drawing illustrating each month. On the calendar all the holidays of the year can be marked as well as any family birthdays and anniversaries.

Home Remedies:

Ask students to research how their parents and grandparents cared for a) hiccups, b) a cold or the flu, c) warts, and d) indigestion. Then students can share their "cures" in a class discussion focusing on "family folk medicine."

Names:

Students can collect information about their first, middle, and last names, as well as any family nicknames. In class discussion it should become clear that names originate in a variety of ways and that names often reflect complex family tradition, origins, and even naming fashion trends. Students can research naming ceremonies and customs from a variety of religious traditions and cultures. Finally, each student can create a personal Coat of Arms, Shield, or Name Crest illustrated with pictures symbolizing activities, values, or traditions important to their families.

Class Banquet:

Students bring in a variety of favorite family recipes, and together the class plans and prepares a "feast" made up of family foods and other traditional meal customs. Students who cannot contribute food can often contribute these customs, a prayer or recitation before the meal, or a game or song to come just after the banquet.

Guest Speakers:

Invite interested parents or grand-parents to the classroom to share their particular food or holiday customs, family stories, photo albums, or handicrafts. Invite a religious leader to discuss ceremonies and rituals which mark important "rites of passage" such as birth, marriage, and death.

Time Lines:

Ask students to make an illustrated time line of important moments in their own lives: birth, birthdays, first school, pets, hobbies, travels, new skills, etc. Then ask them to make an illustrated time line of their family's history beginning with the birth date of the oldest member of the family. The line should include important births, marriages, and deaths, but also significant events such as migrations or moves, occupational changes, educational achievements, travels, etc. Family photographs or drawings can be used for illustrations.

Local Historical Society:

Visit your local museum or historical society and have students identify connections they can see between their own family history and the history of their community as reflected in the exhibits.

Imaginary Family Folklore:

Divide the class into groups, each one responsible for creating an imaginary family folklore. Each group must 1) create an "ancestor" and a story of migration to America; 2) have a family story of a hero or rogue; 3) describe an heirloom; 4) create an unusual holiday tradition. Groups then share their "folklore."

Family Folklore to Teach Writing

1. Many descriptive and narrative writing assignments easily grow from a study of family folklore. For example, students can describe:

- a) a childhood memory, a holiday meal, a family heirloom;
- b) a scene or person in an old family photograph;
- c) the family history imagined for a person in a photograph book;
- d) an amusing family story elaborated and illustrated;
- e) a short autobiography or family history illustrated with drawings or family photographs.

2. History and research paper assignments might include:

- a) relating family history to broader political, social, or economic events by asking students to incorporate interview material into papers on such topics as the depression, women's roles in the 1950s, World War II, and the beginning of the space age;
- b) a research paper based on events during the week the student was born;
- c) a study of the 20th century, decade by decade, using old magazines and newspapers, along with family histories.

3. For any novel or short story your class is reading, students can imagine, create, and write the family folklore of a particular character.

4. Writing Proverbs:

- a) Students can write and illustrate a story explaining the proverb: "If you want to know the apple, you've got to study the tree."
- b) Students can read books of proverbs to choose two or three that relate to family folklore and then use them as a basis for a story and illustration.

- c) Finally, students can try to write their own family folklore proverb.

For most of the activities and projects described in this Teacher's Corner, it is useful to have students conduct family interviews. Below is a guide adapted, with permission from the authors, from *A Family Folklore Interviewing Guide and Questionnaire* by Holly Cutting Baker, Amy Kotkin, and Margaret Yocom, 1978.

Interviewing Guide

A word of Warning:

Because family folklore exists only within the context of a living family, it is constantly evolving. Each generation will forget or alter the lore that it has received, but that same generation will add new verbal lore and new traditions. A tradition does not have to be old to be worth recording. Collecting family folklore is one case in which too much is better than too little. Tapes can be edited and transcripts can be discarded, but the tradition, story, or expression that you neglect to record today may exist only in memory next week. No one can record all of a family's folklore.

Equipment:

Note-taking and tape recording are the usual means of recording family folklore. Both methods have advantages and disadvantages. When a choice is possible, you should use whichever will work best for your interview.

Note-taking can be distracting and make it difficult to participate in the conversation or activities involved with the interview. Also, the expressions of the voice of the informant are lost. A tape recorder may at first make the participants uneasy but they will soon become accustomed to its presence. A small cassette machine with a built-in, omni-directional microphone will give the best results. A ninety-minute cassette is a good choice since it will record substantial segments of an interview without interruption. The microphone should be placed so that all voices, including yours, can be picked up. Run a test before you begin the actual interview and adjust the machine accordingly. As far as possible, all extraneous noise should be eliminated.

Although not as essential as a tape recorder, a camera is a useful piece of equipment. Besides providing a visual record of the participants, it can also be used to

copy any documentary records that your informant might offer such as photographs or scrapbooks.

People to Interview:

Start with yourself. You will know a great deal about your family history. Questions you come up with will give you guidelines for how to interview other people.

The first outside person you interview should be someone with whom you feel very comfortable. A parent or sibling is a good choice. Don't neglect non-relatives. Your grandfather's best friend might tell you things about him no family member knows. Each interview will give you clues about whom you might interview next.

Place:

A spontaneous, natural context is the best to bring about the flow of memories--family dinners, talking with grandma while doing the dishes or cleaning out closets. If possible, plan to hold your interview while doing a familiar kind of activity like walking, baking, or visiting -- anything that might naturally bring up memories. You might use an heirloom or photographs to help move the interview along.

Ethics:

Because of the personal nature of folklore, students must be careful to protect the privacy and rights of all family members. Before initiating a unit in family folklore, it is a good idea to explain the class project to your students' families. Assure all involved that students will interview only willing family members. Explain the purpose of the unit; for example, that the class is studying family folklore as part of their study of American history and that students will learn about writing, analyzing, and reporting information gathered through research and interviews. Before any interview, students should explain to the person being interviewed the purpose of the research.

Planning an Interview:

Spontaneous interviews will have to be handled as they happen. However, if possible, students should plan their interviews. It is even possible to supply informants with questions ahead of time. Questions should be developed so that one follows another logically. A few well-prepared questions will work better than many poorly prepared ones.

1. Well-prepared questions are:
 - a. concise, to the point, and not ambiguous.
 - b. free of emotionally charged words. Be as objective as possible; avoid asking a question to get a specific response.
2. Helpful hints in formulating questions:
 - a. to get at facts, ask what? when? who?
 - b. to get at ideas or descriptions of relationships, ask how? why?
 - c. to get at analysis or critical thinking, use the words: please explain, can I have a reason for that, can you account for, what is the importance of, tell me why you agree or disagree, give illustrations for, how do you explain?
 - d. to get an evaluation or provoke further thought, try asking: explain, show me, clarify, how would you evaluate?
 - e. to get description, use the words: tell me, discuss, describe, illustrate, paint a word picture.
3. Realize there will be some information you will not be able to get. There may be sensitive material people do not want to discuss.
4. Be as low key as possible. Realize that you may be seen more as an interrogator than a son, daughter, or friend during the interview.
5. Show interest. Take an active part in the conversation without dominating it. Be a good listener.
6. Know what questions you want to ask, but don't be afraid to let your informant go off on a tangent. He or she may touch on important subjects you did not think to ask about.
7. Never turn off the tape recorder unless you are asked to. Not only does it break the conversation, such action suggests that you think some of your informant's material is not worth recording.
8. Use props whenever possible. Documents, letters, photo albums, scrapbooks, home movies, and other family heirlooms can be profitably used to stimulate memories.
9. Be sensitive to the needs of family members. Schedule your sessions at convenient times. Older

people tire easily; cut the interview off at the first sign of fatigue. Don't slight family members who show interest in your project. Interview them even if you have reason to believe their material will be of minimal value.

10. If possible, prepare some kind of written report for the family members you interview as a tangible result of their participation. Remember to save all your tapes, notes, and other documentation that you accumulated. Label everything with names, dates, and places.

A Possible Questionnaire

Every interview will be different, and students should be encouraged to formulate their own questions. Every family is unique, and every interviewer has his own interests and style. Thus no single set of questions will elicit all possible family folklore from all families. The most useful questions will be those developed through a person's own knowledge of his/her own family. However, the list below may be helpful and suggestive to students first embarking on family folklore interviewing.

Suggested Questions:

1. What do you know about your family's last name? Its origin? Its meaning? Did it change when your relatives first came to America? If it changed, what was it before and why was it changed? Are there any traditional first names, middle names, or nicknames in your family? How did they get started? When your parents married, did your mother keep her own last name? What does her last name mean? What is its history? How did your parents choose your name? What will you name your children?



2. What stories have come down to you about your grandparents or parents? For example, what do you know of their childhood, schooling, marriages, occupations, political activity, religious affiliation, hobbies? How many different occupations can you name from your family? Are there any special talents or hobbies which have come down in the family such as playing a musical instrument, needlework, painting?



3. How did your parents, grandparents, or other relatives come to meet and marry? Are there any family stories of lost loves, jilted

brides, unusual courtships, arranged marriages, elopements, runaway lovers?

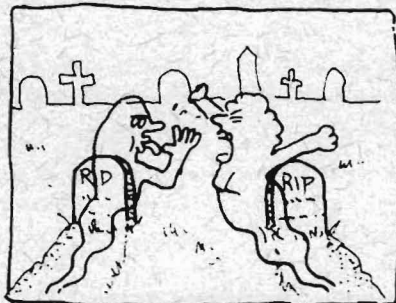
4. Ask some of your older relatives what they studied when they went to school. What did they dream of becoming when they grew up? What happened in their lives which made those dreams possible or impossible to fulfill? Where have they traveled? What unusual people have they met in their lives? What are the most important things they've learned in their lives?

5. What other people (friends, household workers, children) have been adopted into your family? Are they called cousins, aunts, etc.?



6. What important holidays are celebrated in the family and how? What are the different ways family members have celebrated national, religious, or family holidays? What are the traditional meals, decorations, and ritual customs associated with these occasions? What innovations have entered your family's holiday celebrations? Has your family ever created an entirely new holiday?

7. Is there a family cemetery or burial plot? Who is buried with whom? Who makes burial place decisions? What kind of information is recorded on the gravestones or grave markers? [See "Exploring Historic Cemeteries by Ann Palkovich in the Winter 1998 issue of *AnthroNotes*.]



8. Are there any family stories about mysterious, eccentric, notorious, or infamous characters in the family? Any family heroes from the past? What stories have been handed down about these special people? Do you think the infamy or fame of the ancestor has grown through time?



9. Have any historical events affected your family? For example, how did the family survive the Depression? How have past wars affected the family?

10. Does your family have any heirlooms, paintings of famous ancestors, objects of sentimental or monetary value which have been handed down? Are there stories connected to them? Do you know their origin or line of passage through the generations? Are there special tools that have been handed down? Does anyone use them today?

11. Does your family have photo albums, scrapbooks, slides, home movies? Do you know all the family members in these pictures? What can you find out about relatives who died before you were born? Whose responsibility in the family is the upkeep of the diaries, albums, etc.? When are they shared or displayed? Are they specially arranged, edited, designed?



12. Does the family hold reunions? When, where, and how often? Who organizes the reunion, and who comes? What occurs during the reunion and is a record kept?

13. Does the family have any special recipes that have been preserved in the family from past generations? Are there any stories connected to them?

14. Does the family have any unique expressions, folk sayings, or home remedies that have been passed down through the generations?



Basic Family Folklore Resources

Cook, Ann, Marilyn Gittell, and Herb Mark. 1976. *What Was it like When Your Grandparents Were Your Age?* Pantheon Books. (Text and numerous photographs depict life in the United States in the 1920s and 1930s.)

Dixon, Janet T. and Dora Flack. 1977. *Preserving Your Past; a Painless Guide to Writing Your Autobiography and Family History.* Doubleday and Co. (A how-to-do-it family history book with suggestions for the creative writing aspects of doing family history.)

The National Endowment for the Humanities. 1999. *My History is America's History: 15 Things You Can Do to Save America's Stories.* In partnership with the White House Millennium Council. (The guidebook includes 15 activity chapters; for example, "Playing Detective with Photographs," "Discovering Clues in Family Papers," "Uncovering History in the Attic," as well as a large section on ways to preserve family treasures and an excellent Resources Section.) For further information, visit the website: www.myhistory.org.

Zeitlin, Steven J., Amy Kotkin, and Holly Cutting Baker. *A Celebration of American Family Folklore.* Pantheon Books, 1982.

ARCHAEOLOGY SYMPOSIUM FOR TEACHERS

"Teaching the Past Through Archaeology" is a two-day symposium organized by the Smithsonian's Department of Anthropology and the Society for American Archaeology Public Education Committee, which will be held September 22 & 23, 2000 at the Smithsonian Institution.

Through a combination of lectures and workshops, teachers will learn exciting and creative ways of introducing archaeology into various social science and science curricula such as geography, history, social studies, and biology, as well as the importance of preserving our cultural heritage.

Lectures will cover the following topics: The Impact of El Niño on Prehistoric Populations in Amazonia; Bones Tell Tales: Searching for the Earliest Americans from Human Remains; The Vikings in the New World; Unveiling the African American Past; and Ancient Diseases, Ancient Civilizations.

The four workshops from which teachers will choose three are: Intrigue of the Past; The Uluburun Shipwreck Project: Interconnections Through Trade in the Late Bronze Age Mediterranean World; World Trees and Tree Stones: Classroom Lessons on Maya Archaeology; and Teaching with Historic Places.

The symposium will also include a panel presentation that will focus on archaeological resources, Internet communications, and ways to incorporate archaeology into the curriculum. The second day will conclude with a discussion period followed by a reception at the Smithsonian Castle.

The registration fee is \$75.00. To receive a program and an application form, contact: Ann Kaupp, Department of Anthropology, Smithsonian Institution, Washington, D.C. 20560-0112; (202) 357-1592; fax: (202) 357-2208; email: kaupp.ann@nrmnh.si.edu.



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ANTHRONOTES has a three part mission:

1. To more widely disseminate original, recent research in anthropology in order to help readers stay current in the field;
2. To help those teaching anthropology utilize new materials, approaches, and community resources, as well as integrate anthropology into a wide variety of subjects; and
3. To create a national network of anthropologists, archaeologists, teachers, museum and other professionals interested in the wider dissemination of anthropology, particularly in schools.

This newsletter with its cartoons may be reproduced and distributed free-of-charge by classroom teachers for educational purposes. *AnthroNotes* is now available on the WEB (<http://www.nmnh.si.edu/departments/anthro.html>).

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