

RESEARCHING PREHISTORIC INDIAN LIFE IN SOUTH CENTRAL ILLINOIS

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There are several places in south central Illinois where the summer tourist can not only observe anthropology research in progress but also begin an interesting educational journey of his own into the study of early Indian cultures.

Compared to the one or more million years of man's existence on earth, his first appearance in this hemisphere was in relatively recent times. Man first entered North America from Asia during the Ice Age by way of the Bering Land Bridge that once connected present day Siberia and Alaska. These migrations probably occurred in several stages between 10,000 and 30,000 years ago. The melting of the glaciers which began about 9000 B.C. slowly raised the sea level by some 300 feet submerging the land bridge and separating the continents. The early Indian arrivers then headed southward to what is now the midwestern part of the United States through the ice free corridor along the Mackenzie River Valley.

The earliest Indians who lived in North America till about 7000 B.C. belonged to what has been labeled the Paleo Culture. Succeeding cultures have been termed Archaic (7000 B.C. to 1000 B.C.), Woodland (1000 B.C. to about 800 A.D.), and Mississippian (800 A.D. to a gradual fading out in the 1500s).

Some of the most exciting recent work on early American Indians has been directed for the past several summers by Dr. Stuart Struever of Northwestern University. The sleepy town of Kampsville, Illinois, (on the Illinois River 25 miles upstream from where this river flows into the Mississippi) has served as headquarters for an army of workers consisting of Struever's staff, other faculty, graduate students, undergraduates, and high school students. The project's most famous and largest dig is located nine miles away at the Koster site. Her excavations have revealed 13 separate "horizons" or layers of successive human civilizations stacked one on top of the other like a giant fossilized layer cake with each civilization separated from the next by dust that has blown down or washed down from the river bluffs above. The giant hole is about 35 feet deep. Horizon 13 material which dates back to before 6500 B.C. represents early Archaic Indian Culture. Based on present findings, man has been living in this Illinois River Valley for 9000 to 10,000 years. It is possible that further work at a deeper level may show that this site was also home to the Paleo Indians during the Glacial Period.

The Northwestern Project represents a truly multidisciplinary approach to the study of man in an attempt to determine a total picture of the people and their lifestyle. There are ten specialized laboratories in Kampsville where material from the digs is analyzed and studied. All bits of data are then fed into a computer for storing and cataloging. Zoologists and botanists study the remains of food materials which include various seeds berries, nuts, fish, mussels, deer, rodents, ducks, geese, etc. Physical anthropologists and anatomists analyze the human remains. Shell and pollen specialists contribute information on climate fluctuations. Other specialists include cultural anthropologists, archaeologists, and geologists. The program calls for hard physical labor on the part of those working at the dig sites. Workers spend eight or more hours each day on their hands and knees, scraping and digging in the hot summer sun with the humidity, as well as the temperature, frequently in the nineties.

Apparently the incredibly rich food resources of the river floodplain produced a serene and peaceful life, at least up to the level of horizon one which represents the Mississippian Culture (900 A.D.). The old impression that all early men had to struggle from dawn to dusk simply to survive is not supported by the Koster findings. It appears that this was not a place of hardship but a land of plenty.

Excavations focusing on horizons 12 and 13 at the Koster site will begin again on June 8, 1977. Interested persons should begin their visit at the museum in Kampsville and then travel to the Koster site where guides explain the particulars of the program.

The largest concentrations of prehistoric Indians were located along the major rivers which served as "superhighways" connecting where the Illinois and the Missouri Rivers flow into the Mississippi River.

America's first city - a large city of the Mississippian Culture - was located downstream in the Mississippi River Valley between what is now Collinsville and East St. Louis, Illinois. Construction of the city began around 900 A.D. when the Mississippian Culture replaced the former primitive Woodland Culture. It appears that about this time a new strain of maize (corn) became available that was better suited to the region's environment and the hoe replaced the digging stick as an agricultural tool. The Indians became skilled farmers with corn becoming the principle crop and beans and squash as other important crops. The social structure became stratified into working and elite classes.

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The Mississippians were the mound builders. No where in North America is this aspect shown more clearly than at Cahokia - a city which covered six square miles and included from 30,000 to 40,000 inhabitants. Originally there were about 120 earthen mounds within the city although many have recently been destroyed by cultivation and urban construction. Cahokia Mounds State Park preserves the remains of the central section of the city. There are about 40 mounds within the park.

Most of the mounds at Cahokia are termed platform mounds and are characterized by having a flat top with sloping sides. These mounds apparently supported ceremonial buildings or places of residence for the elite. The largest platform mound at Cahokia (and the largest in North America) is Monk's Mound. The base covers some 15 acres. On the fourth (and highest) terrace at 100 feet once stood a stockaded building 100 feet long and 50 feet wide which apparently served as a temple and/or residence. Monk's Mound was built in successive stages between 900 and 1250, and its total volume has been estimated at 22 million cubic feet.

Only a few of the mounds served as burial sites. One such mound - mound 72 - has been thoroughly investigated and contains some 300 ceremonial and sacrificial burials added in successive burial episodes. The most intriguing aspect of mound 72 was the discovery of certain artifacts which accompanied the burial of an apparent chief or priest. The prominent leader was interred on a blanket of thousands of shell beads from the Gulf of Mexico, mica from the Carolinas, copper from the Lake Superior area, and chert from Oklahoma. Cahokia must have been the center of an important trading network that extended from the Great Lakes to the Gulf Coast.

Excavations at Cahokia have also revealed the intellectual complexity of the Mississippian Culture. At least four "woodhenges" or sun calendars have been located. These sun calendars were constructed in about 1000 A.D. of massive wooden posts oriented in a circle around an off-center middle post in order to sight the angle of the rising and setting sun. Such a calendar was useful to an agricultural society in determining the time of planting and harvesting.

Excavations have been carried out at Cahokia by several universities and museums over the years. This coming summer, work will be continued by the Illinois State Museum. An excellent museum within the park is open to the public free of charge.

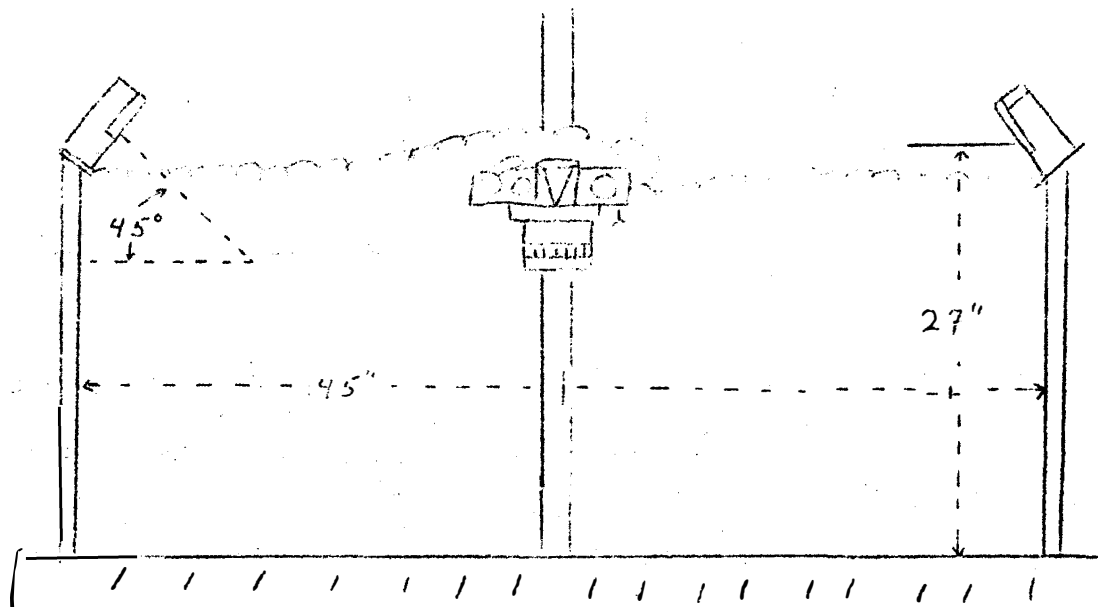
Another interesting Mississippian cemetery is found at Dickson Mounds near Lewistown, Illinois, on a bluff of the Illinois River. Here visitors can view 234 skeletons and accompanying grave goods situated for viewing exactly as they were uncovered. A new anthropology museum adjoins the burial site.

The Polaroid MP3 camera and copy stand were significant developments in slide preparation. By using 140L film for line drawings and 46L for half tones, unbreakable slides may be prepared very quickly. However, the investment cost of this equipment is significant and the per slide cost is great. Furthermore the permanency of the polaroid slide is questionable.

In spite of their undesirable features, the lantern slide remained the standard until the introduction of the 2x2 slide projectors equipped with slide trays. The Kodak Carousel projector, perhaps more than any other, dealt the lantern slide its death blow.

The 2x2 slide is small, lightweight, unbreakable and relatively inexpensive. Basically three options are available in the 2x2 format for preparing black and white slides. First one may use a commercially available 35 mm color film. We have found that black and white illustrations can be copied for slides with good success using standard daylight 35 mm film. Our copy stand is equipped with two inexpensive flash units (Vivitar 152 or equivalents). Both units are coupled to one another and to the camera so that a simultaneous flash occurs. To avoid shadows the flash units, camera and copy must be in a precise geometry as shown in Figure 1.

Figure 1

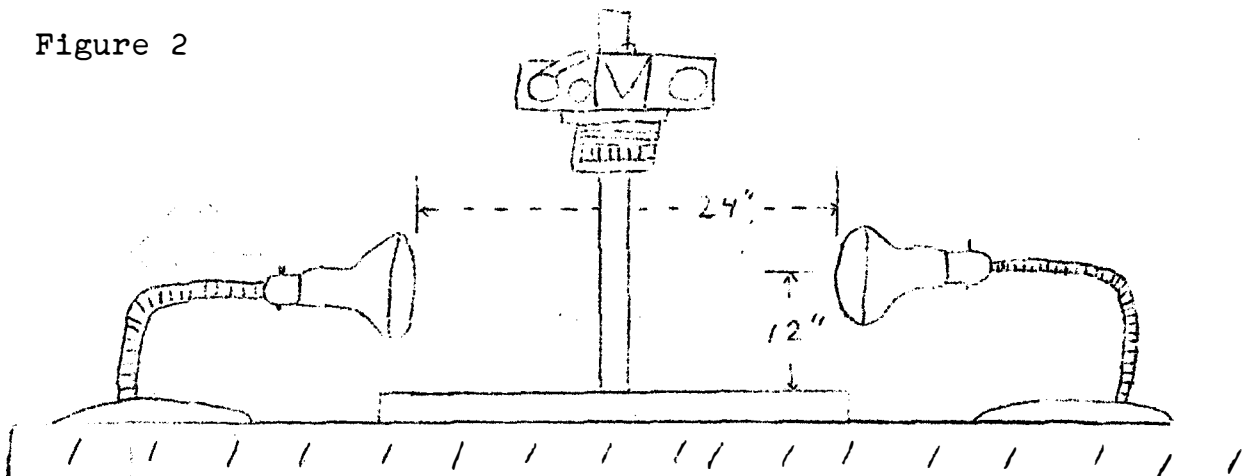


It is advisable to use a series of test exposures with each kind of film that is routinely used. With Kodak Kodachrome 64, we have determined that a 1/30 second exposure calls for a lens opening of f8. If a good deal of white is present in the copy, stopping down one setting is desirable. The exposed film may then be taken to a commercial film processor or sent directly to a Kodak Laboratory by use of a prepaid mailer.

Although this is the only alternative for copying colored art, it is less than ideal for black and white materials. The expense is great (see Table 1) and it takes the better part of a week before the processed slides are returned. Also the contrast on graphs and charts is often not high.

The second method that may be employed with black and white materials makes use of Kodak High Contrast Copy Film 5069. This film is available in 36 exposure, 35 mm cassettes or may be purchased in 50 ft. bulk reels. The exposed film is processed in D19 Developer. When it is dry it may be mounted directly in Kodak Ready Mounts. When the electronic flash units are used an exposure of f8 at 1/30 sec. is ideal. If one uses two gooseneck lamps equipped with 75 watt floodlamps the best exposure is f8 at 1/2 second. (See Figure 2.)

Figure 2



The resulting slide has of course white letters on a black background. By using felt tip pens with transparent waterproof ink, areas of the slide may be emphasized. Although the results using this technique are quite acceptable, some kinds of copy produce glaring slides that are difficult to view for more than a few moments at a time. Also these reversed image slides are more suitable for a small classroom than they are for a large lecture hall.

For positive image slides, that is black characters on a bright background, two options are presently available that make use of monochromatic film. One may employ Kodak Direct Positive Panchromatic Film, 5246 which is available only in 100 ft. reels.

Alternatively one may use the more convenient Kodak Plus X Pan Film, 5068 which is supplied in 20 and 36 exposure cassettes as well as 100 ft. bulk reels. With Plus X Pan an exposure of 1/30 second at f22 using two gooseneck lamps having 75 watt floodlamps produces good quality slides.

Whichever of these films is used, one must make use of a Kodak Direct Positive Developing Kit. This processing procedure requires a number of steps and about 45 minutes. Most of the steps require complete darkness. We have found that a pre-recorded tape cassette specifying the time when each solution needs to be changed is a must in the darkroom. If one adds their favorite music as a background to the directions given on the tape, the ordeal of direct positive processing can be made more tolerable. The results of this process are somewhat variable depending on the age and the extent to which a batch of chemicals has been used. The cost of the kit dictates (see Table 1) that it must be used to the maximum possible extent.

Table 1. Cost of Various Slide Preparation Materials.*

Item	Cost
Kodak Kodachrome 64 (36 exps.)	\$ 3.80
Kodak Slide Processing or Prepaid Mailer (36 exps.)	5.15
Kodak High Contrast Copy film (36 exps.)	2.15
(100 ft. reel)	10.50
Kodak Direct Positive Film (100 ft. reel)	20.58
Kodak Plus X Pan Film (36 exps.)	1.95
(100 ft. reel)	13.05
Kodak High Speed Duplicating Film (100 ft. reel)	11.70
Kodak Direct Positive Developing Kit (1 qt.)	9.15
Kodak D-19 Developer (1 gal.)	2.20
Kodak Fixer (1 gal.)	1.60
Kodak Ready Mounts (100)	3.75

*all prices are suggested retail prices as of December 1, 1977

This means that unless compensations are made for chemical depletion, the first roll developed will be very much better than the last. The method also produces much better slides of halftones than it does for line drawings. Charts and graphs tend to be somewhat muddy and washed-out in appearance.

Recently we have been using still another technique for black and white slide preparation. This method is fast, easy, inexpensive and results in slides of uniformly high quality. The film is Kodak High Speed Duplicating Film, 2575. Unfortunately the film is available only in 100 ft. rolls from dealers having a graphic arts distribution franchise. The low cost per bulk reel and its good keeping qualities negate the normal disadvantages of bulk film for low volume users. We have kept the film for 2 years in a freezer with no apparent loss in quality.

Exposures may be made using a copy stand or a tripod. In either case a pair of gooseneck lamps equipped with 75 watt floodlamps is used for illumination. (See Figure 2.) At f5.6 ideal exposure times are between 45-60 seconds. If halftones are being copied flashing the copy with a white 4x8 card for 20 percent of the exposure time results in a softer image with better grays. Following exposure the film is developed in Kodak D19 for 3 minutes independent of temperature. After 30 seconds or so rinse in a stop bath or water, the film is fixed in Kodak Fixer for 3-5 minutes. After washing in running tap water for 15-20 minutes, the film is ready to dry. We have found that water spotting is much less of a problem if the tap water is replaced with distilled water containing 2-3 drops of Kodak Photoflo 200 per tank just before drying. After drying exposures are cut apart and mounted in heat sealed cardboard frames or plastic mounts.

One caution should be noted regarding 2575 film. The Estar support for the emulsion is a bit thinner than that of the other films. For this reason a 36 exposure roll has a tendency to be difficult to wind on a "walk-on" type developing reel. The tail end of the film also has a tendency to "float off" the reel during agitation. These problems may be eliminated by rolling a lesser number of exposures (e.g., 30). We have encountered no difficulty of any sort using a Nikor reel and tank.

This method produces high quality slides that project very well even in a large lecture hall. The technique requires no special equipment and it compares very favorably with other techniques in terms of expense (see Table 2).

Table 2. Comparable Cost of Mounted Slides

Film	Cost per slide
Kodachrome 64 (36 exps.)	\$.25
High Contrast Copy Film (36 exps.)	.10
(100 ft. reel)	.06
Direct Positive Film (100 ft. reel)	.13
Plus X Pan Film (36 exps.)	.15
(100 ft. reel)	.12
High Speed Duplicating Film (100 ft. reel)	.06

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