iowa archeological society
newsletter

Vol. 39 no.2 1989 Issue 130

FROM THE PRESIDENT:

At the April 1, 1989, annual meeting I, once again, accepted the honor of representing the IAS as your president. Ferrel Anderson, who filled this position admirably for the last two years, stepped down due to overwhelming commitments elsewhere. It is hoped that he will make himself available in the future to that we may benefit from his talents.

Many thanks go to Ron Wilson and to those who assisted him at the University of Northern Iowa Museum, Cedar Falls, for the excellent 39th annual meeting of the Iowa Archaeological Society.

Richard Slattery

HUMAN, GEOLOGIC PROCESSES AFFECT PREHISTORIC RECORD

(Continued from the last Newsletterr)

By E. Arthur Bettis III and David W. Benn

12,000-7000 BP:Paleo-Indian, Dalton and Early Archaic perods

The most complex processes of valley bottom formation occurred during this time span, making this a difficult period to study geomorphologically and archaeologically. Between ca. 12,000 and 10,000 LB.P. a braided Mississippi River deposited sandy valley train outwash across a broad floodplain (Figure 2). The present-day landscape of Muscatine Island and the Vast Sand in Iowa, and the sandy ridges of the Bay in Illinois are remnants of this former floodplain.

The character of the river changed after ca. 10,000 B.P. to something approaching the modern pattern (i.e. braided island channel) of a single channelbelt. The channelbelt abruptly switched position several times, leaving remnants of low, sandy Wisconsinan terraces circumscribed by abandoned channels (paleochannels on Figure 2). Between about 10,000 and 7000 B.P. the Iowa River was several miles south of its present location and joined the Mississippi channel at a mid-valley position (Figure 3). Tributaries on the Illinois side (i.e. Edwards River, Pope and Henderson creeks) entrenched into the Yellow Banks terrace and fed a series of linked wetlands at the base of the bluffline on the Yellow Banks terrace.

Fine-grained overbank deposits accumulated on the floodplain during floods and overlapped portions of the low late Wisconsinan-age terrace. The floodwaters flowed through and ponded in backchannels and lakes that occupied abandoned Mississippi channel areas. Many of the latest Wisconsinan and early Holocene-age paleochannels survived into the Historic period as areas of rich riparian resources (e.g. Muscatine Island, the Bay). Hardwood forest dominated by oak and elm with minor amounts of hickory replaced the late glacial vegetation (Nations and Baker 1988).

The 1987 survey found five Paleo-Indian sites (ca. 112,500-10,000 LB.P.) on sandy ridges of latest Wisconsinan age (Figure 4). A hasty conclusion about this settlement pattern would be that Paleo-Indian sites were situated on well drained landforms on the valley floor. However, one site is on a very low sand ridge nearly covered by younger loamy sediments. Other equally obscure surfaces of terminal Wisconsinan age exist, e.g. in the Kingston bottom on the Iowa side, and vast tracts of the late Wisconsinan floodplain are buried beneath fans at Copperas Creek and in the Kingston and Muscatine Island transects. Furthermore, Woodfordian-age terraces are buried by fans along the base of the eastern bluff on the Illinois side of the valley. All of these pre-10,5000 B.P. buried surfaces have the potential for producing Paleo-Indian remains.

Dalton (ca. 10,5000-9900 B.P.) and Early Archaic period (10,500-8000 B.P. sites recorded on the valley floor number seven on late Wisconsinan-age sand ridges and two sites on alluvial fans. Another potential Early Archaic site is on an early terrace in the Iowa River meanderbelt. Three of these sites show the potential for buried deposits because they are on fans or floodplain landforms that continued to aggrade throughout the early-middle Holocene. The veneer of late Holocene alluvium on the valley floor not only conceals early Holocene sites on the floodplain but also prohibits tracing the relationship between site locations and sources of water, one of the fundamental relationships used in developing settlement patterns.

Some of the early Holocene landscape is missing due to more recent fluvial activities (voided areas on Figure 2). Allowing for a paleochannel, it is estimated that 12% (40/330 mi^2) of the 10,5000-7000 B.P. floodplain has been eroded. Since nothing is known about contemporary settlements on the floodplain, the potential number of sites destroyed by river movement cannot be estimated at this time.

7000-3000 BP:
Middle & Late Archaic periods

Several new land areas evolved in the valley during this period (Figure 5). The Mississippi meanderbelt was confined to its present position in the center of the valley in the northern reach and southern half of the project area, but the channel moved a great deal above the Iowa River confluence. The bulk of Mississippi River alluvium was deposited as sandy, lateral accretion deposits producing ridge-and-swale topography. Intersecting patterns of paleochannels, backwater sloughs and low terrace escarpments criss-cross the surface of the laterally accreted landscape. Portions of the larger islands in the present channelbelt evolved during this period.

Loamy overbank deposits overlapped the floodplain adjacent to the meanderbelt and accumulated to a thickness of about one meter. One or more paleosols occur in the overbank deposits, but some laterally

accreted deposits isolated from the meanderbelt have one thick, well expressed surface soil that developed during the time span represented by the multiple paleosols.

Three aspects of the middle-late Holocene valley floor were important for human occupation. First, there was a major vegetation change when the prairie community invaded the well drained terraces after ca. 7500 B.P. (i.e. the Altithermal). The distribution of prairie probably approached the 80% figure recorded by the Government Land Survey in the early historic period. Second, sandy terrace deposits of late Wisconsinan and early Holocene periods were elevated above the level of most floods, and these prominent terraces were surrounded by active sloughs, shallow backwater lakes and small tributary streams. Third, the Iowa River continued to dump a huge sediment load into the Mississippi River system. This resulted in accumulation of a fluvial fan at the confluence of the Iowa River and caused the Mississippi River channel to meander more widely north of the Iowa River.

Forty-four Middle-Late Archaic sites are recorded in the project area. The distribution of sites presents one obvious pattern: well-drained landforms along backwater sloughs and lakes were locations preferred by humans for their largest and more permanent Archaic sites. Fewer small sites were occupied within the contemporary Mississippi meanderbelt. Some sites appearing to be on paleochannels were, in fact, occupations positioned along recently abandoned Mississippi channels that had become sloughs and lakes.

Given that Archaic people did not live along the main river channel, it can be inferred that minor lateral movements by the Mississippi River since Archaic times would not have destroyed many sites. This inference applies to the northern sixth and southern quarter of the project area where the meanderbelt has been relatively stable for about 7000 years. It does not apply to the 12-mile reach of th river north of the Iowa River mouth, where the channel has swung laterally 2 to 3.5 miles as the Iowa River has moved north. Approximately 10% (34/330 mi^2) of the valley floor was reformed by the movement of both rivers. Judging by the high frequency of backwaters in floodplain terrain, the zones of wide lateral river movement would have been prime territory for Archaic occupations.

3000-1500 BP: Early & Middle Woodland periods

The valley landscape of this period was very similar to the present day configuration (Figure 6). The Mississippi River meanderbelt was in the same place with some chutes and levees still forming along terraces. The older islands were already in place. A zone of active channel migration still occurred at the confluence of the Iowa and Mississippi channels east of present day Toolesboro. Here, the Iowa River continued to move north and hydraulically dammed the Mississippi during high water stages. Large amounts of fine grained sediment were deposited several miles above and below the Iowa River mouth, resulting in the accumulation of significant vertical accretion deposits on the low terraces in the Lake Odessa and southwestern portions of the Bay transects. Vertical sedimentation happened episodically, as indicated by paleosols in the fills.

Many Early and Middle Woodland components are at the same locations. Most of the sites have high visibility because they are in the plowzone on prominent sand ridges, Wisconsinan terraces and fans. These locations represent a preferred settlement pattern of the Havana tradition. One enigmatic site pattern presumed to have been caused by fluvial activity is noteworthy. For many years archaeologist have observed that there is no major Havana village at the base of the bluff below the Toolesboro mound group (13LA1). No large village exists on the bluff top either. The answer lies in northward migration of the Iowa River. Prior to about 1500 B.P. the river was south of Toolesboro, and a large alluvial fan probably existed at the base of the bluff below the mound group. After about 1000 B.P. the river moved against the bluff directly below the Havana mounds, eroding as much as a square mile of terraces, colluvial slopes and alluvial fans where the Havana village was presumably situated.

Many buried Woodland sites occur in a zone of vertical accretion deposits north of the Iowa River mouth. The writer has recently discussed the soil/cultural stratigraphy of this zone (Benn ed. 1987:238-9), pointing out regularities in the co-occurrence of paleo- and modern soil horizons and Late Archaic through Woodland artifacts. These relationships are termed the Odessa sequence. Essentially, the Odessa sequence encompasses 2 to 3 vertically stacked soils developed in alluvium that was deposited during the last 4500 years. The surface soil, which often occurs beneath a mantle of post-settlement alluvium (PSA), contains the late Late Woodland, Oneota and Historic components (ca. 1500-100 B.P.). The Early and Middle Woodland components (ca. 2500-1500 B.P.) are found in the A horizon of the first buried soil below the surface. At the Sand Run sites (Ibid.) the Weaver component (ca. 1550-1350 B.P.) was on the surface of the buried soil, and the Havana component (ca. 2200-1550 B.P.) filled up the buried A horizon because it was dispersed by the activities of the subsequent Havana component. Late Archaic and late Middle Archaic components (ca. 500000-2500 B.P.) occur beneath the buried soil either in a second buried soil or in sandy, lateral accretion deposits.

1500-100 BP: Late Woodland, Mississippian & Historic

The valley landscape and activities of the rivers were nearly the same for this period as the previous one (Figure 6). The Iowa River moved even farther north into the Lake Odessa bottom, then returned south to its present location. Another, thin layer of vertically accreted sediment was deposited around the mouth of the Iowa River.

More than 100 Late Woodland sites are distributed on all types of landforms throughout the project area. The relatively higher density of sites appears to be related to the intensity of survey coverage and the visibility of Woodland ceramics, which decompose rapidly in the plowzone of sandy soils. Alluvial burial of sites probably is not a significant factor in site visibility, although as much as 50 cm of PSA (post-settlement alluvium) is present in some locations. Most Late Woodland sites occur along sloughs and backwater lakes, while very few are within the modern channelbelt. Therefore, destruction of sites due to river migration probably has not had a significant impact.

The distribution of Oneota and Mississippian sites is different. Sites appear to be clustered. Oneota sites are near the surface of all landforms on the Iowa side, but a cluster of Mississippian sites occurs along Eliza Creek and the Edwards River on the Illinois side. These clusters may represent mutually exclusive relations be-

tween the two cultures, with the Oneota dominating the region during a longer period of occupation.

The patterning of recorded historic archaeological sites has a lot to do with geomorphic factors and little to do with actual settlement patterns. The survey recorded fragments of the historic settlement pattern in cultivated fields, but few historic sites were located on the forested floodplain. Nor were surveyors able to locate floodplain sites mentioned in the literature. Since navigation and flood controls were introduced beginning in the 1880s in the form of wing dams, levees, dredging and locks, the channelbelt has been aggrading with one or more meters of PSA being deposited on landscapes between the river levees. As increments of PSA have accumulated, the floodplain forest has grown over new surfaces, so vegetation patterns cannot always be relied on to distinguish older landscapes or even historic sites. The PSA is too deep for the shovel-test survey correlation is confused further in archaeological deposits within laterally accreted deposits.

For analytical purposes it is better to abandon the fetish of measuring depth below the present ground surface and replace it with a more sophisticated conception of alluvial landscapes. We favor perceiving alluvial fills as sedimentary units with predictable structures and ages. Such units have been modified by weathering and by fluvial processes. This approach views an archaeological site in alluvium as a geological context that happens to contain evidence of human activities. By knowing the structure of the geological context, we can separate the facts about natural site formation from the cultural reasons for the presence of human evidence, and thereby begin the process of identifying cultural facts that will contribute to an anthropological study of the past.

method to be utilized on many floodplain landscapes, except at the center of some large, older islands.

Conclusions

We found in this survey of two Mississippi River pools that the geomorphic record for the past 18,000 years is detailed and so varied that it may completely alter our view of culture patterns for a given time period. Generally, the late prehistoric settlement pattern is easier to reconstruct because it is nearer the surface than some Archaic sites. However, this correlation between relative depth in alluvium and cultural age is contradicted by historic period evidence, which is beneath deep PSA in the modern floodplain. The

Figure 3: High altitude photography of the Oakville transect, IA., showing the patterns of landforms: 1) low, saydy late Wisconsinan terrace; 2) Mississippi paleochannel area: 3) alluvial fan; arrows point to the southern boundary of early and middle Holocene-age Iowa River meanderbelt deposits; north is at the top.

REFERENCES CITED

Benn, David W., E. Arthur Bettis, III and Robert C. Vogel
1988 Archaeology & Geomorphology in Pools 17-18, Upper Mississippi River. Springfield: Center for Archaeological Research Report No. 714. Southwest Missouri State University.

Benn, David W., ed.
1987 Archaeology in the Mississippi River Floodplain at Sand Run Slough, Iowa. Springfield: Center for Archaeological Research Report No. 714. Southwest Missouri State University.

Nations, Brenda K. and Richard G. Baker
1988 Klum Lake pollen cores. Appendix F in Benn, Bettis and Vogel 1988.

Wendland, Wayne M.
1978 Holocene man in North America: the ecological setting and climatic background. Plains Anthropologist 223(82) pt. 1:278-287.

Figure 4: A Goshen projectile point of Paleo-Indian age recovered from the surface of a sandy, Late Wisconsinan terrace in the Bay on the Illinois side of the river; note the oblique collateral flaking on the blade and multiple flutes at the base; this point is in a private collection.

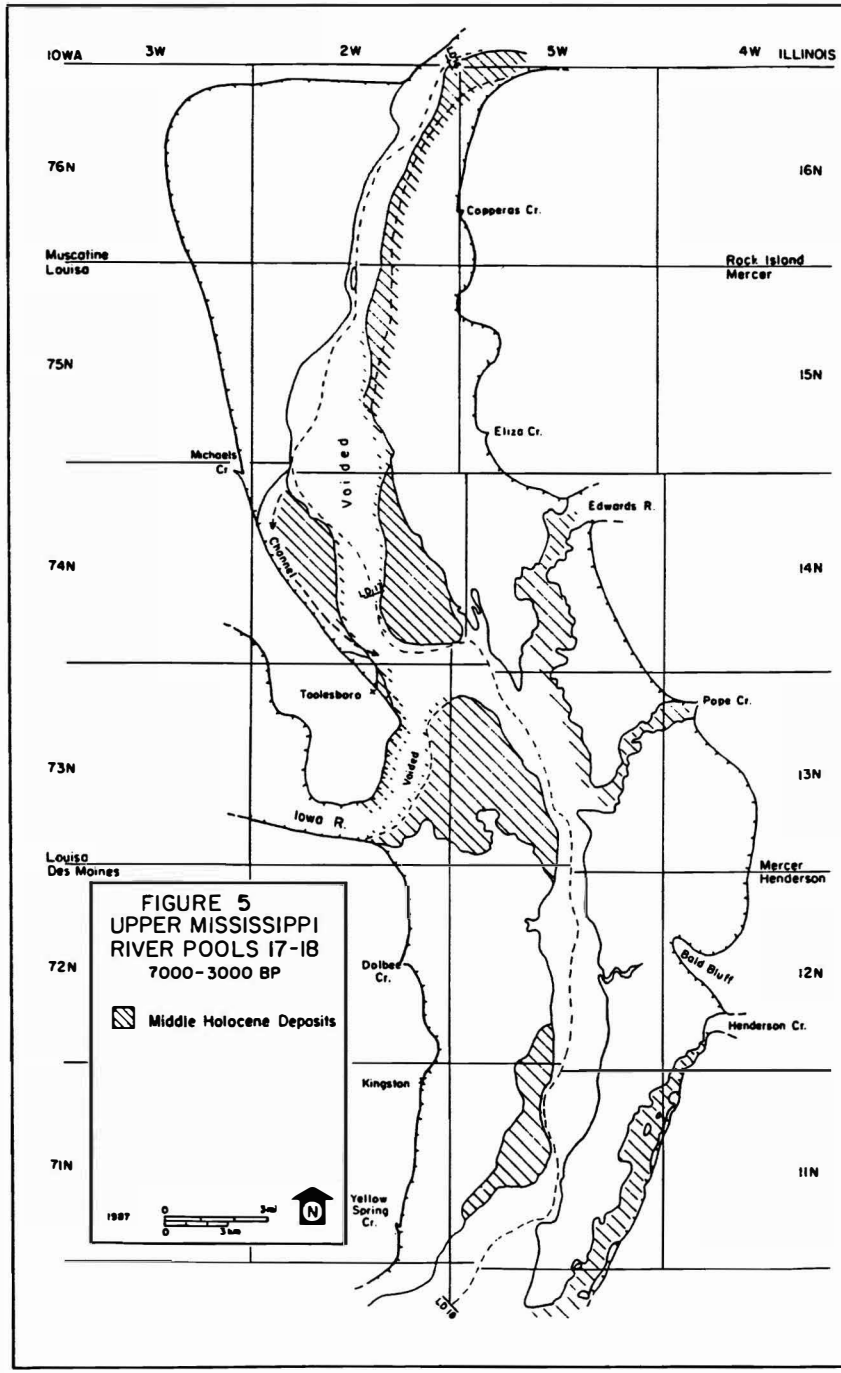

FIGURE 5
UPPER MISSISSIPPI
RIVER POOLS 17-18
7000-3000 BP

Middle Holocene Deposits

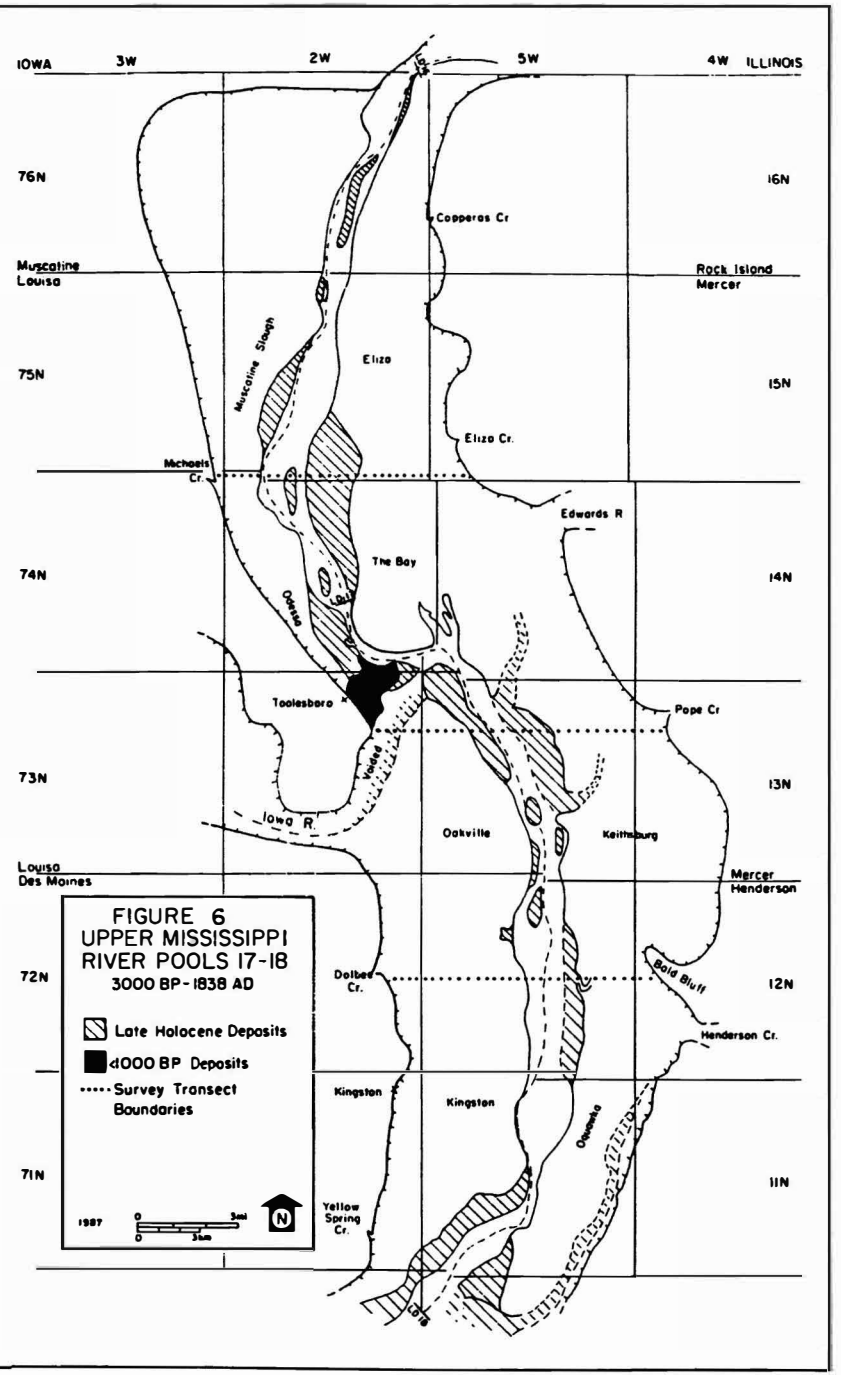

FIGURE 6
UPPER MISSISSIPPI
RIVER POOLS 17-18
3000 BP-1838 AD

Late Holocene Deposits

<3000 BP Deposits

Survey Transect Boundaries

'89 FIELD SCHOOLS UNDERWAY

IOWA ARCHEOLOGICAL SOCIETY FIELD SCHOOL:

The plan is to explore for sites June 13-23 and then conduct test excavations near Siouxland Sand and Gravel from July 3 through 7. The program may be extended to include the following week July 10-14. This project will be in Monona and Woodbury counties.

IAS members should have received a separate mailing, complete with forms, about this field school. But if it was not received (or even later lost!) contact:

Steve Lensink
Office of the State Archaeologist
Eastlawn Building
University of Iowa
Iowa City, IA 52242
Or: Telephone: (319) 335-2390.

BUCHANAN SITE

John Bower, professor of Anthropology at Iowa State University, will conduct archaeological excavations at the Buchanan site (13 SR 153) June 5-July 14, 1989. Contact Professor John Bower:

Anthropology Program
319 Curtiss Hall
Iowa State University
Ames, IA 50011
(515) 294-8033

ARCHAEOBOTANY COURSE TO BE AT LAKESIDE LAB

Iowa Lakeside Laboratory will offer a new five-credit course on Archaeobotany by State Archaeologist William Green. The focus will be on the relationships between ancient peoples and plants, especially the cultivated and wild plants used by northwestern Iowa Indians of the last 1000 years. For five weeks, July 10-August 11, students will collect, process, sort, analyze and interpret botanical remains from archaeological sites through both field and lab work.

IAS members, now enrolled in a college or university, are encouraged to apply. For additional information and applications, contact:

William Green, State Archaeologist
Eastlawn
University of Iowa
Iowa City, IA 52242
Telephone: (319) 335-2389

FORT RANDALL ARCHEOLOGICAL PROJECT IN FINAL SEASON

The final session of excavation at the Fort Randall Archeological Project will be August 3-13. Contact:

Ft. Randall Project
P.O. Box 109
Pickstown, SD 57367

Iowa Archeological Society Officers, Directors and Editors as of April 1989

President:
Dick Slattery 1989-1990
4106 El Rancho Drive
Davenport, IA 52806

Vice-President:
David Carlso 1989-1990
Route 1, Box 113
Otho, IA 50569

Secretary:
Kay Simpson 1989-1992
Historic Preservation Bureau
State Historical Society
Capitol Complex
Des Moines, IA 50319

Treasurer:
Deb Zieglowsky 1989-1992
315 Eastlawn
The University of Iowa
Iowa City, IA 52242

Directors: 1987-1990
Roger Natte
2340 19th Avenue North
Fort Dodge, IA 50501

Jerry Phillips
Greenbriar Apts., #91
Council Bluffs, IA 51501

Mary Helgevold
1901 Avenue F
Hawarden, IA 51023

Directors: 1988-1991
Terry Walker
Sanford Museum
117 East Willow
Cherokee, IA 51012

Yvonne Chadek
Route 2
Mt. Vernon, IA 52314

Dennis Miller
Route 1, Box 37A
Silver City, IA 51571

Directors: 1989-1992
Dale Henning
Anthropology Department
Luther College
Decorah, IA 52101

Shirley Schermer
1008 North Angus
Maquoketa, IA 52060

David Swinehaart
2506 Timber Drive
Cedar Falls, IA 50613

Editors:
Newsletter - Sheila Hainlin 1989-1992
1434 44th Street
Des Moines, IA 50311

Journal - Steve Lensink 1989-1992
Office of State Archaeologist
Eastlawn
The University of Iowa
Iowa City, IA 52242

MEMBERS ATTEND ANNUAL MEETING

About 100 people attended the April 1-2, 1989 Annual IAS meeting in Cedar Falls, hosted by the Black Hawk Chapter. It was held at the University of Northern Iowa Museum. After a welcome by the museum's director, Ron Wilson, papers were given Saturday afternoon. Steve Lensink reviewed evidence regarding the Mill Creek Culture, Loren Horton entertained members with an account of cemetery research, Deb Zieglowsky summarized a visit to Paleo-Indian sites in the High Plains and many other interesting and informative papers were given.

OSA OFFERS NEW PRINTING OF MALLAM BOOK

CORRECTION:

The report of mound salvage excavations at the Blood Run site (IAS NEWSLETTER 38(2):1) gave an incorrect provenience for material in the subfloor pits. The correct provenience should read: "Three bison scapula hoes were placed in the smaller (north pit,..."

This was my mistake. Thank you for helping me to correct it.

Dave Benn
Center for Archaeological Research
Southwest Missouri State University
Springfield, MO

CALENDAR:

April 7-8 [TENTATIVE DATE], 1990 Iowa Archeological Society Annual Meeting, at Luther College, Decorah.

April 20-21, 1990 - Society of American Archaeology meetings, Las Vegas, Nev.

April 20-21, 1990 - Iowa Academy of Science, Drake University, Des Moines, IA.

October 13-15, 1989 - **Midwest Archaeological Conference**, hosted by the Office of State Archaeologist and The University of Iowa, Iowa City, IA.

Oct. 13 at the University of Iowa Memorial Union and Oct 14-15 at the Holiday Inn.

Abstracts for symposia (and all symposium paper abstracts) due August 4, 1987; abstracts for contributed papers due September 8, 1989. For further information, please contact William Green or Stephen Lensink, OSA, Eastlawn, University of Iowa, Iowa City 52242; Tel. 319/335-2389.

October 18-21, 1989 **Plains Conference,** Rankota Inn, Sioux Falls, South Dakota.
For further information contact:
Office of State Archaeologist
Eastlawn Building
University of Iowa, Iowa City.
Telephone: (319) 335-2389.

EFFIGY MOUND BOOK OFFER

The Office of the State Archaeologist announces the availability once again of The *Iowa Effigy Mound Manifestation* by the late Dr. R. Clark Mallam.

Out of print for several years, this book is a landmark study of Late Woodland peoples and their relationships to each other and to the natural environment.

The new printing of Mallam's Effigy Mound study permits students, amateurs, and professionals to add this important book to their archaeology libraries.

The book may be ordered at $10 a copy from Department of Publications, University of Iowa, Iowa City, IA 52242.

ANNUAL MEMBERSHIP DUES

VOTING:

1.Active	$10
2.Household	$17
3. Sustaining	$25
4. Benefactor	$250 minimum

NON-VOTING:

1.Student(under 18)	$7
2.Institution	$10

SEND DUES TO:
Deb Zieglowsky
310 Haywood Drive
Iowa City, IA 52240-1051

The Iowa Archeological Society is a non-profit, scientific society legally organized under the corporate laws of Iowa. Members of the Society share a serious interest in the archaeology of Iowa and the Mid-west.

The Newsletter is published four times a year. All materials for publication should be sent to the editor:

Sheila Hainlin, 1434 44 St., Des Moines, IA 50311

IOWA ARCHEOLOGICAL SOCIETY

Contents: Printed Material