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ANCIENT MAN IN AMERICA — DOES HIS CULTURE EXIST IN THE STATE?

WILLIAM E. SANDERS

Where an ancient people construct lodges, build houses, establish shrines, rear temples, bury their dead, create art or preserve a tradition, it is often possible by an analysis of these elements to reconstruct an outline of their culture and form some opinion of when it prevailed.

When, however, one undertakes to rewrite the history of a long since vanished savage people such as the nomadic hunters of America undoubtedly were, the student is forced to rely upon the few preserved portions of his skeletal remains and the meager assemblage of his small store of utilitarian implements which have been recovered from beneath the soil.

It is to a few such recoveries that I direct your attention with special emphasis to their geographic distribution and the geologic implications they are assumed to entail.

Realizing that the factual basis upon which the assumed antiquity of man and his relics in America rest are the exclusive problem of highly trained scientists possessing a special knowledge of paleontology and geology which I hasten to disclaim, I shall content myself with a brief review of the evidence, and a few comments upon what seems to me to be very broad generalizations upon insufficient samplings.

1. In the auriferous gravels in Calaveras County, California, there was recovered more than fifty years ago, a human skull associated with the fossils of such mammals as the mastodon, elephant, ancient horse and the camel. Because of the geologic formation and the extinct animal fossils this calaveras skull was declared by Whitney, at that time state geologist, to be the remains of Tertiary man. At that time it was believed that the elephants lived in Pliocene time before the lava outflow from Sierra Nevada which laid down Table Mountain in this region. This skull, and the geology of the region, was the subject of discussion by W. H. Holmes, in 1899, and is now preserved in the Cambridge Zoological Museum in Massachusetts. Its measurements and appearance indicate that it belonged to a prehistoric or possibly a historic Indian. (1) (13).

2. The LaBrae asphalt pit at Los Angeles yielded along with a rich assemblage of mammalian and other fossils some human remains. These were located at a depth of only six or eight feet and were the subject of a paper by J. C. Marriain in 1914. There is no reason to assume that these represent ancient man in as much as this pit appears to have been the burial place of any animal which chanced to fall into it throughout Pleistocene and recent time. Most of the extinct species revealed here are common to the Aftonian stage elsewhere. Both Dr. Stock and Dr. Hay believe that the *Nothrotherium* sloth in California belong to the first interglacial or post Kennedy assemblage. (1) (13).

3. More than a hundred years ago a Danish Naturalist (1) exploring the mouth of the Confins Limestone Cave in the State of Minas Geraes, Brazil, discovered in the pluvial deposits near its mouth the fossil remains of glacial mammals, associated with the bones of man which probably belonged to the historic period. These caves lie half way up the side of a Salurian limestone rock rising a hundred feet above the present surrounding ground level.

After about a century Dr. Padberg Drenkpol of Rio de Janeiro (a) (17) undertook further excavations here which resulted in the discovery of the bones of the giant sloth, the mammoth, other extinct mammals, and certain gastropods.

Buried beneath more than two meters of calcarious rubble, cemented earth, stalagmites and silt he came upon the extended partial skeleton of a human being lying upon the floor of the cave. This Cathon and Mattos (a) consider a paleo American.

No implements were found.

The skull has been restored and measured and proves to be of the long head type with a pronounced prognathous upper jaw, and is known among anthropologists, as the Skull of the Confins Man.

It will be the subject of special discussion at the International Congress of Anthropologist and Ethnologist which meets in Copenhagen this August.

Hrdlicka (b) who has made a special study of these long headed American skulls considers them simple mutant forms of the single Mongolo-American Stock, of the Western hemisphere.

4. Located in irregular sand lenses overlying the Anastasia shell stratum of eastern Florida, and covered with a few feet of alluvium have been found at the town of Varo fragments of human remains associated with the fossils of several extinct mammals. (d).

These sand disks seem to represent the coastal fringe of the Malbourn bone bed formation so rich in Pleistocene fossils. The

fossils of the overlying alluvium, both animal and vegetable are predominantly those of still surviving species common to this region.

The bones of both the man and the mammals are quite detached, scattered or fragmentary, strongly suggesting that they were carried downward to the estuary of the Indian river by fluvial action.

Regardless of this fact this association has been advanced as an evidence of the coexistence of man and extinct mammals in coastal Florida.

Such an inference would be strengthened if some archeological implements had also appeared in this stratum as they did in the overlying layer.

5. In the museum of the University of Minnesota (4) is a well preserved skeleton which was exhumed by road graders nine and a half feet beneath the surface of the ground, near Pelican Rapids several years ago.

The ideal relationship of these remains to the Wisconsin drift within the area of the once Great Agassiz Lake gave color to the claim that here at last was the long sought skeleton of the glacial man.

The late geology of this region was again reviewed in 1936, (5) but unfortunately the stratigraphy of the soil was not documented at the time of excavation of the skeleton and accordingly the most convincing evidence is forever lost.

No artifacts were found. The good state of preservation and the completeness of the skull and teeth made anthropometric studies quite simple. Informed opinion now hold that this is the skeleton of a modern female Indian, probably a Sioux.

This skeleton was the subject of critical discussion in the anthropological section of the A. A. A. Sc. at its Minneapolis meeting in 1935.

6. The Swedish explorer, Nordenskold (2), who investigated the Eberhart Cave at Ultimo Esparanza in Patagonia about forty years ago, discovered evidence of human remains associated with dried skin, skeletal part and excrement of the *Glossotherium*, a long since extinct ground sloth.

The state of preservation of this animal's remains gave rise to the belief, that there had been a coexistence of man with this mammal which seems to have disappeared rather early in the Pleistocene.

7. In a gypsum cave in the Frenchman Mountains near Las Vegas, Nevada, a similar association was revealed a few years

ago (2). In trenchings fourteen feet deep and sixty-five from the mouth of the cave were revealed among small fragments of limestone intercalated with veins of sand, the skeleton, parts of skin, and dung of a ground sloth, the remains of an unknown species of horse, the bones of a small camel and of a mountain sheep.

At about this level which is probably near the floor of the cavern lying upon a gypsiferous layer which is covered by sloths dung associated with ashes and charcoal was found an atlatl, or worked throwing stick, a stone dart point, and perhaps other artifacts but no human skeletal parts. The more superficial deposits of the cave are said to have yielded definite evidence of Pueblo, or Basket Maker Cultures. Harrington (2) claims that the deeper artifacts are cruder than these. The association of these implements with the evidence of subsequent occupancy by these extinct mammals has been advanced as evidence of contemporaneous man and extinct mammals in Pleistocene time.

8. Several years ago workers in the old back bay district of Boston discovered the upright parts of an ancient fish wier 32 feet below the present street level and fourteen or fifteen feet below the present water level of the bay.

This was firmly set in a stratum of blue clay definitely indicating the bottom of bay when the post was placed there. It was overlain by fourteen or fifteen feet of silt upon which artificial fill had been dumped to establish a street level for traffic.

This was heralded as an evidence of an ancient culture in New England and has since been the subject of serious etherological study.

It is now believed that it represents a rather ancient Eskimo culture which flourished here in the last millenium B. C. (3).

Even in historic times among the Biothuk of New Foundland an island of survival of a closely related people seems to have remained but has now disappeared. The implements of the Biothuk were the objects of special study by J. P. Howley in 1915 (3).

Kaj Birket-Smith (c) suggest that evidence of a proto Eskimo culture such as presumably existed about Boston near 3000 years ago may still be seen among the inland Caribou tribe west of Hudson Bay.

9. Artifacts from ancient shell heaps along the coast of California are intimately related to implements which still prevail there among some of these costal tribes. They are strikingly similar to those which have been discovered in the Great Basin region. They are known as early Basket Maker, the evidence of which

was noted in the upper levels of the Gypsum Cave in Nevada by Stock and Harrington (2).

This Basket Maker I as is now rather generally accepted may date to 1500-2000 B.C. and until within the past ten years was considered the earliest evidence of man in America.

10. Since the discovery of evidence of human culture by W. D. Strong (6) at Signal Butte in the Panhandle of Nebraska in 1931 the rock shelters and terraces of western Nebraska, especially along the canyons of the Cheyenne Plains have become an attractive field for the study of ancient man.

The rock caves (7) or shelters of the eroded escarpments along the North Platte and its tributaries in this area are found in the soft strata of the Ogallala formation which is the uppermost remains of the Pliocene and from which has no doubt been worn away the overlying heavy loess deposits and possibly local islands of drift.

The present altitude of these terraces is 4 or 5 thousand feet. The former presence of early Pleistocene strata is indicated by their fossils which are Nebraskan rather than later Pleistocene. The Mammoth Occidental Bison, and the Musk Ox, which predominate elsewhere in the Kansas drift are not found here.

11. Further north along the White River terraces Yarmouth fossils resembling those of the Asphalt Pits of Los Angeles abound. Some even as late as the Peorian interglacial but definitely antedating Wisconsin such as the camel, mammoth and extinct Bison still prevail.

Along these terraced culture sites (f) are found hearths, fire pits and various artifacts some places at levels of 45 and 25 feet above the stream beds. The hearths and fire pits of these two levels are apparently identical but in some places the upper one contains pottery fragments also.

On one North Platte terrace human artifacts associated with the remains of the extinct occidental Bison have been exposed.

The implements and pottery found in the Rock shelters are closely related to the Dismal River culture further east and are probably late intrusion by hunters from that region.

12. At two different culture levels of a twenty-foot escarpment at the junction of the east and west branches of Greenwood creek as it approaches the North Platte river north of Sidney, Nebraska, have been found chipped implements. The upper level is located just beneath an old surface soil zone which is now covered by a later sodded terrace 7 or 8 feet thick. Three chipped flints defin-

itely considered scrapers (7) have been removed from this zone just below the old soil surface.

The deeper level is five feet lower and only a few feet from the present stream bed.

It consists of sand and gravel formation from which a single roughly chipped implement regarded as a scraper has been excavated. Although the authors consider these definite human artifacts, one might believe them to be naturally fractured Pleistocene fragments carried down from some former drift all evidence of which has long since disappeared.

The recent observation (8) that forest fires in addition to other hitherto accepted natural forces, may readily fracture and fragment rocks might here be invoked, to explain these uncertain artifacts, as well as some of the so-called *pebble industry* now intriguing archeologists.

The remaining evidence of ancient man in America may be roughly divided into two cultures lying respectively north and south of a line extending from San Francisco Bay to the Gulf of Mexico.

Striking evidence of what appears to be an archaic culture antedating Basket Maker I in this S. W. triangle is to be found in Southern California, South Eastern Arizona, East Central New Mexico, and the contiguous Texas high plains.

13. The Arizona focus evidences what appears to be the most ancient food gathering culture so far revealed in America, the antiquity of which rests upon geologic evidence in a recognized driftless area.

This of course involves deductions from stratigraphic evidence revealed in a region subjected to enormous erosions throughout tertiary and quaternary times.

The focus known as the Cochisa (1) culture is located a few miles N.E. of Douglas in a sand stratum overlying an eroded moist clay bed which forms the bottom of what is for the most part a dry canyon in a desert terrane.

The profile of the canyon wall reveals three successive erosion zones. The upper one lying only about a foot below the present soil surface shows fragments of pottery of middle Pueblo time. The ancient Cochisa horizon is a sand stratum covered by about 5 feet of laminated marl from which University of Arizona workers removed the skull of a mammoth some years ago.

This sand has revealed chipped stone implements, charcoal, hearths and most important of all a flat topped milling stone with

pestals, upon which an early agriculture is based. The assumed antiquity of this culture is no doubt based upon the associated pleistocene fossils, viz.: the horse and elephant which are elsewhere commonly encountered in the high plains to the north as well as in the southern desert of Arizona. In the brown clay near the surface soil at this site are many bones of domestic cattle said to have been introduced by the Spaniards into this region in the 18th century.

Closely related implements, almost invariably associated with milling stones are found in the plateau region of western Texas where they are locally known as Abaline and Edwards culture.

14. The antiquity of the Mohava Lake (f) implements in southern California rest upon entirely different evidence. This is now a dry desert lake bed which formerly contained considerable water which it received from the San Bernardino mountains lying to the southwest.

An old shore line of this ancient lake indicates a rather long period of existence as a *dead sea*. Evidently long before this the water level was much higher and a terraced shore line indicates the elevation at which it then overflowed into Death Valley.

Along *this* beach have been found chipped stone implements including scrapers, choppers, and knives but no milling stones, which it is inferred indicates a hunting culture which climatic conditions here could not have sustained in recent times.

These deductions are based upon an estimated rate of evaporation from the lake and the reduced flow of the tributary streams arising in the mountains to the southwest.

It is generally recognized that the water level in the soil of southern California has markedly fallen even in historic times. To one who has traveled these deserts in mid-summer even in recent years, and who realizes that the annual precipitation is negligible except in the high mountains to the west it is evident that surface water recession would naturally proceed quite rapidly and induce corresponding changes in climate, vegetation and human occupancy as has been proven in the Pueblo regions of the southwest.

Accordingly these cultural elements which occur only along the overflow terrace may not be nearly so ancient as they are inferred to be.

15. North East *the Folsom and associated hunting cultures* prevail.

Along the eastern piedmont of the Rockies from east central

New Mexico to the Black Hills have been found within the past ten years evidence of an ancient and in some respect superb hunting culture which with the present vogue for remote antiquity has been heralded by some enthusiasts as evidence of the existence in North America of glacial man.

Such inference rests in part upon the nature of the artifacts themselves; in part upon their relation to later and better understood cultural horizons, but more particularly on paleontologic evidence documented by an association with the remains of extinct pleistocene mammals and in some instances other animal and vegetable fossils.

The stratigraphic geology, and physiography (9) of this region naturally occupies an important place in this problem.

The artifacts themselves consist exclusively of chipped stone tools suitable to a hunting complex in which scrapers, choppers, flint knives, and above all most exquisitely wrought leaf shaped barbed point abound. The latter are bilaterally fluted evidently for a unique method of hafting. This flint has come to be known as the Folsom Point from the town in N. E. New Mexico near which it was first found.

16. Here in an exposed eroded wall of a small tributary to the Cimarron River, associated with the bones of an extinct species of bison and a gigantic elk the discovery of this flint was first made in 1925 (g).

The associated fossil identifications were made at the Colorado State Museum, and very soon attracted geologists and paleontologists from the east.

A reworking of the dirt previously removed revealed two similarly chipped flints.

A little later a triangular flint was discovered near by but not directly associated with the original find which fitted exactly with the original fragment first found.

Later additional points were found, one inbedded in clay lying between two parallel bison ribs. These were removed *en bloc* and remain undisturbed in the state museum at Denver. The association of these artifacts with geologic fossils gave to the discovery an intriguing interest for archeologists.

17. In the wind eroded dry basins of the Staked Plains about Clovis and Portales in eastern New Mexico stone scrapers, knives, projectile points, and bone implements have been found associated with the remains of the mammoth and extinct bison.

18. In the Burnet cave in the Guadalupe Mountains further

south similar fluted points are found in the deeper strata associated with the fossils of extinct bison and a musk ox-like animal (g). More superficial and evidently a later horizon in this cave have yielded Basket Maker elements formerly considered our most ancient people.

19. For more than ten years a particularly rich field of Folsom culture has been known near the Wyoming line north of Ft. Collins, Colorado. At this site on the Lindermeier ranch a peculiarly chipped type of point has been picked up as surface finds for several years. It was soon recognized that these flints were fundamentally different from the usual Indian arrow points commonly found in this region.

Major Coffin of the Geologic Division of the State Agricultural College and his brother who is an owner of the ranch frequently resorted here and made collections of these surface artifacts. They submitted some of these fluted points to Prof. Renand of Denver who at once recognized them as of the Folsom type.

Through the interest thus aroused the Colorado College at Ft. Collins (10), the University of Colorado, the Colorado State Museum, and Smithsonian Institute have coöperated to make this the most fruitful field in America for the study of the culture of ancient man.

Two or three thousand implements have already been collected, and the site and its artifacts have been the subject of noteworthy contributions by Roberts, Coffin and others who have participated in this work.

For 3 or 4 summers the Smithsonian Institution has carried on systematic and extensive excavations here, not alone with respect to the cultural complex but the physiography and geology as well (h).

The artifacts consist of chipped stones of various compositions the material for some of which is near at hand in the rocks of the surrounding foothill, while for others no such stone is now known within several hundred miles (10).

The culture is almost exclusively of the hunting complex consisting of scrapers, chisels, graters, cutting knives, and the unique fluted points. An apparently decorative or ceremonial piece or two occurs. A few bone implements have also been found.

These presumably utilitarian implements seem to have been worked here as numerous chippings and several incomplete or broken fragments have been found.

Exploratory excavations over a considerable area indicate that

the implements are spread over several acres at least and are found associated with numerous skeletons of the extinct bison laying upon a six or eight inch dark humus zone of deeply submerged soil.

This little valley in the foothills where the site is found extends from west to east at a rather steep gradient, gradually spreading out fan-like about half a mile to suddenly break off into an abrupt eroding declivity forming the western escarpment of a secondary valley lying to the east.

The primary valley site is deeply bisected by a dry canyon, the bottom of which cuts well into the Brule silt. The still uneroded summits of the surrounding hills or mountains are capped with Arikaree volcanic tuff the outwash of which forms the limy clay surface soil of the region.

The profile of the canyon wall at the culture site reveals an old lightly humused soil surface superposed upon the undisturbed Brule. This old humus layer is the culture horizon, and is covered by from 2 to 12 feet of soil composed of Brule and volcanic talus wash covered by a humus zone lightly turfed. The thickness of the old and new humus layers are about equal, suggesting that each represents a comparable period of vegetation if the climate conditions remain about the same. The culture zone reveals aside from the artifacts numerous fossils of the Bison *Taylori* and it is said a single bone of the foot of an ancient camel. Kirk Bryan (1) has suggested that this ancient Brule is a critical horizon for these artifacts and fossils and claims to have documented it at Dent sixty miles S. E. where similar implements are found.

The nearest known glacial moraine to the Lindermeier site is far up the Poudre canyon, a hundred miles away.

A closely related laurel leaf shaped biconcave point is common on the high plains about Yuma in eastern Colorado (11). The method of chipping is slightly different (12). These two flints, Folsom and Yuma as they are now known embody the highest artistry, in chipping in the western hemisphere and indeed are not excelled in Europe or elsewhere.

It will be interesting to know if the Yuma points or the Panhandle implements in Nebraska occupy geologic horizons comparable to the Brule at Lindenmeier and Dent.

These beautiful Folsom or Folsom-like points, which are the critical artifact for this ancient hunting culture found along the piedmont of the Rockies, are also encountered rarely as surface finds as far east as New England and southeast along the Atlantic

seaboard. A particularly rich focus occurs in Ohio and a few have been found beyond the continental divide in Colorado.

They were probably picked up at such rich foci as Lindenmeier and diffused in trade or war by later Indians.

If they were ever used later as arrow points the method of hafting which they required has not been revealed in any bow and arrow culture with which we are familiar.

From the discoveries here reviewed it is evident that the much heralded remote antiquity of man in America rests not at all on the nature of the implements discovered, or the remoteness of the cultural attainment they are presumed to imply. These stone implements are not more Paleolithic than many in common use by the nomadic Indians in early historic times.

We have here evidence that at least some of these natives collected and flaked various kinds of stone remarkably well. How this beautiful symmetrical fluting was done remains a lost art which perhaps was never practiced except by a very select few. He worked bone horn and undoubtedly wood remarkably well. Undoubtedly his culture contained many unpreserved noteworthy elements, which we may never know. None of his implements so far discovered either proves or definitely suggests that he hunted large long-since extinct mammals along the glaciers of the foothills in Post Pleistocene time.

All this assumed antiquity rests alone upon the finding of his tools in caves, pits, gravels, terraces, along lake shores, or in river alluvium associated with the fossils of glacial animals which geological evidence indicates lived not later than pleistocene time.

In our own state where the glacial records are perhaps the best preserved not a single element of his culture has been found. True the mammalian remains with which they have been found elsewhere are common throughout the middle Mississippi and lower Missouri River drainage basins.

The fossils of the ground sloth, the horse, the camel, the elephants, the musk ox, and the extinct bison are all well represented in our state. All of these except the last three seem to have disappeared almost everywhere by the third interglacial period.

In Iowa and Minnesota where the Wisconsin sheet is unusually well represented the remains of 14 elephants, 3 or 4 extinct bison, but no sloth, horse, or camel have been found within this stratum. A single extinct bison is reported in Iowa in Pottawattomie Co. which has been allocated to the Peorian loess. The 3 or 4 in Min-

nesota are in Crow Wing Co. along the Mississippi in a drift 30 feet thick covered with peat and are associated with modern bison (13). They are found in northern Ohio in what is said to be Post Wisconsin.

In Indiana these extinct mammal remains are commonly found in the glacial strata and extinct sloth and mastodon fossils are said to have been recovered here as late as the Wabash Post Wisconsin deposits.

In California sloth remains, one of which is the *Nothrotherium*, are found in the La Brae pits. Two have been recovered in the Samwell cave in the Sierra Nevada Mountains associated with the western horse by which it is assumed the whole assemblage is early rather than late Pleistocene.

While we must admit that a critical discussion of the relationship of these fossils to ancient man is the exclusive problem of the technically trained specialist yet one can not deny the fact that where the stratigraphy of the late Pleistocene is best verified both the animal fossils and the human artifacts are least in evidence.

Paleontological maps of the Wisconsin and Post Wisconsin drifts are conspicuously void of unquestionable evidence of the remains of these mammals. They are so far as I can judge always marginal and doubtfully documented.

It has been claimed that although they were undoubtedly living upon the last major drift their remains have all decomposed from surface exposure. If this is true why did they survive the exposure of the former interglacial periods and why are they found so rarely if at all in the loess.

It has been seriously suggested that perhaps a few glacial stone age hunters slaughtered them all. No bones of these extinct mammals have been found associated with the early Basket Makers of the Southwest or with the artifacts of the earliest known Indians of Central North America.

Sir Archibald Geikie declared fifty years ago that "to assert that one formation is older than another because it contains bones that the other does not is a conclusion based upon a preconception."

In Europe it appears that the last ice sheet stood in the Southern Scandinavian peninsula about 15000 years ago.

Kay, Antevs, Leverett, and (7) others believe that the Labrador and Keewatin ice fronts stood respectively at North Bay, Ontario, and about the site of Winnipeg in Manitoba 10000 or 12000 years ago. It is interesting to note in the latter connection that the remains of extinct bison are said to have been discovered

in the alluvial terraces near the mouth of the Saskatchewan River, even further north (13). The situation in the Canadian Rockies is not so well determined but it probably would have been a long and painful trek over the Wisconsin ice sheet from Bering Strait to have reached the United States by that time.

So why not admit that conjecture is not knowledge and that the brilliantly successful geologic method of stratigraphic superposition is inapplicable to the reconstruction of the pre-history of ancient man in America.

Fossil Pleistocene mammals and ancient human implements will no doubt continue to be found spatially related; but to correlate the one with the other in time is entirely impossible.

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