Central Asiatic Expeditions under Roy Chapman Andrews,\textsuperscript{78} are described as having been widespread in Mongolia. The type site at Shabarakh Usu showed evidence that Mongolia once had a much more hospitable climate, which became more and more arid, and finally resulted in desert. These "Dune Dwellers", none of whose skeletal remains were found, left quantities of artifacts resembling those of the Mousterian culture through Upper Palaeolithic to Neolithic types, some of the characteristic forms being small thumb-nail scrapers, flake knives and drills.

Nelson suggests that many of the types were left by a people who may have migrated to Europe as Azilians. One wonders whether they may not have migrated to America, as well, and whether the correspondence of certain types of artifacts from somewhat similar sand dune areas in our Great Plains region is a mere coincidence or whether further investigation is not warranted.

**ANTHROPOLOGICAL DISCUSSION**

This brings us to a consideration of what the physical anthropologists have to say about the affinities of the early peoples of Asia and America. Hooton\textsuperscript{79} says "that if man did reach the New World in palaeolithic times, he must have come in such small numbers as to leave almost no trace of his culture, and that the ancestors of the present-day Indians, for the most part, must have migrated from Asia within the past ten or twelve thousand years. . . . At a rather remote period, probably soon after the last glacial retreat, there straggled into the New World from Asia by way of Bering Straits groups of dolichocephals in which were blended at least three strains: one very closely allied to the fundamental brunet European and African long-headed stock called 'Mediterranean'; another a more primitive form with heavy browridges, low broad face and wide nose, which is probably to be identified with an archaic type represented today very strongly (although mixed with other elements) in the native Australians, and less strongly in the so-called 'Pre-Dravidians', such as the Veddas, and also in the Ainu; thirdly an element almost certainly Negroid (not Negro). These people, already racially mixed, spread over the New World carrying with them a primitive fishing and hunting culture. Their coming must have preceded the occupation of eastern Asia by the present predominantly Mongoloid people, since the purer types of these dolichocephals do not show the characteristic Mongoloid features.

"At a somewhat later period there began to arrive in the New World groups of Mongoloids coming by the same route as their predecessors.

\textsuperscript{78} Andrews, 1932.

\textsuperscript{79} Hooton, 1930, pp. 333, 361–362.
Many of these were probably purely Mongoloid in race, but others were mixed with some other racial element notable because of its high-bridged and often convex nose. This may have been either Armenoid or Proto-Nordic (or neither one). These later invaders were capable of higher cultural development than the early pioneers and were responsible for the development of agriculture and for the notable achievements of the New World civilization. In some places they may have driven out and supplanted the early long-heads, but often they seem to have inter-bred with them, producing the multiple and varied types of the present American Indians—.

Many extravagant claims have been made of the finding of human skeletons in America purported to be of great antiquity. Dr. Hrdlička⁶⁶ has spent much time for a good many years carefully examining these claims, and the results of his work have shown very conclusively that no human skeletal material so far discovered differs radically enough from our Indian skeletons to prove that we had here a primitive type comparable to Neanderthal Man in Europe.

There is one discovery, however, that deserves rather more than ordinary consideration, and that is the finding of the Punin skull. This skull was found by a palaeontological expedition of the American Museum of Natural History of New York in 1923. Prefacing his statement that he agrees with Dr. Hrdlička, Sir Arthur Keith⁶¹ says that none of the human remains yet discovered in Pleistocene deposits of either North or South America indicates a type which differs materially from that which is represented by the American Indian. However, he makes one exception, and that is the Punin skull. The skull was embedded in a stratum of volcanic ash high in the Andean region in Ecuador just south of the equator. It was said to be in the same state of fossilization as the bones of Pleistocene fauna, including the extinct Andean horse, camel and mastodon which were embedded in the same stratum. Sir Arthur Keith agrees with the conclusions reached by Drs. Louis R. Sullivan and Milo Hellman.⁶² They believed that the resemblance to the skulls of native women of Australia is very marked in the case of the Punin skull, the points of resemblance being too numerous to permit of the supposition that the skull represents a sport produced by an American Indian parentage. Sir Arthur continues: "The discovery at Punin does compel us to look into the possibility of a Pleistocene invasion of America by an Australoid people."

The earliest people in our Southwest about whom we have any very

⁶⁶ Hrdlička, 1907; 1918.
⁶¹ Keith, 1931.
⁶² Sullivan and Hellman, 1925, p. 313.
definite knowledge are the long-headed Basket Makers, Hooton\textsuperscript{68} describing them as a sub-race of the American, under the name of Palae-American. They show markedly dolichocephalic head-form, short stature and slight build, and black wavy hair. Today he considers that this type is probably represented in mixed form in many of the Amazonian tribes, possibly among the Yahgans of Tierra del Fuego and also in Central America among the Lacandones. Many of the early dolichocephals show no evidences of Mongoloid head-form, and Hooton thinks they may have spread over North and South America before the period of the Mongoloid invasions.

In Europe man of more or less the modern type put in his appearance about Aurignacian times, which Peake and Fleure\textsuperscript{64} place at approximately 11,000 B.C. At the same time, however, it is recognized that man of a modern type probably existed earlier, and in fact seems to have coexisted in Europe with Neanderthal Man, though this is still in dispute.\textsuperscript{65}

It is perfectly possible, therefore, for man to have existed in America for a comparatively long time without much deviation from the type of the earliest known "long-heads". Dr. Hrdlička\textsuperscript{66} makes the statement: "The early Old World ancestry of the American Indians connects, it is ever more strongly indicated by the accumulating evidence, with the Aurignacian and Magdalenian Man of Europe and Northern Asia." Some day, no doubt, we may be able to correlate our glacial geology with that of Europe, but it is uncertain what correlation with the cultural stages can be made. In our present state of knowledge it is probably wiser to refrain from attempts to connect the cultural sequences in Europe with those in America. Nevertheless, one is tempted to point out that many have observed the close resemblance between some of the Folsom and Yuma artifacts and those of the Solutrean of Europe.\textsuperscript{67}

The fact that the evolution of the Solutrean peoples is thought by European anthropologists to have taken place outside of western Europe,\textsuperscript{68} probably in Asia, lends some weight to the possibility advanced by Harrington of there having been two streams of migration from Asia, one to Europe, and one to America, carrying with them the pressure-flaking technique of chipping stone artifacts.

This Solutrean industry exhibits three phases, according to Peake and Fleure. All show the new technique of pressure-flaking—the removal of small thin flakes by pressing near the edge with a bone tool rather than by

\textsuperscript{68} Hooton, 1931, p. 521.
\textsuperscript{64} Peake and Fleure, 1927, Vol. II.
\textsuperscript{66} See Taylor, 1934, p. 241 for one interpretation of these relationships.
\textsuperscript{66} Hrdlička, 1932.
\textsuperscript{65} Renaud, 1934; Harrington, 1933.
\textsuperscript{68} For chronological table of European Prehistory see Burkitt and Childe, 1932.
striking with another stone. The characteristic artifact is the laurel-leaf blade. To quote Dawson:89 “The great characteristic of the Solutrean period is the perfection that it attained in the working of flint, above all in the famous ‘laurel-leaf’ javelin points, which surpass in regularity and delicacy of workmanship every other product of palaeolithic industry. They have been compared with the finely worked flint implements of Neolithic or Aeneolithic date from Elam and Egypt, but it is doubtful whether the resemblance is close enough to justify any theory of interconnection unless perhaps there was a common West-Asian tradition of flint working, which maintained itself with modifications through the ages.”

There are examples of these types shown by Obermaier.90 Renaud and Harrington, in references already given, show figures comparing the Solutrean technique with that of the Folsom. A large thin blade found in a gravel pit near Clovis, New Mexico, may be seen in Plate xxix. This shows some resemblance to the large Solutrean blades, and has already been referred to. The evidence in central Europe, to refer to Peake and Fleure again, shows that the Solutreans were hunters of horses and wild cattle, and that they kept chiefly to the plains. When the climate began to grow damper and forests encroached on the steppes they seem to have followed their prey back to the east where the climate remained drier. About all that can be said is that it would seem important to gain further knowledge of Asia, because any cultural relationship which may seem to exist between the Solutrean or Aurignacian peoples of Europe and the early people of America is more likely to have been derived from a common Asiatic source than from Europe.

Harrington’s91 observations upon the Aurignacian-like flint work of Cuba, Haiti, and Santo Domingo may furnish an interesting clue to some of the types of flint work within the United States about which so little is known as yet.

Cultural sequences have been worked out in great detail in some regions of the Americas, though it must be admitted that many of these are isolated, and the larger picture is not altogether in agreement. It is not part of this paper to examine this subject except in the briefest way. Roberts92 has reviewed this in admirable fashion in a recent publication. Gladwin93 has also made an extensive study of our Southwest. The Prehistoric Pueblo cultures have been studied in the greatest detail, and under the guidance of

90 Obermaier, 1925.
91 Harrington, 1933.
92 Roberts, 1935.
93 Gladwin, 1934; Gladwin, W. and H., 1934.
Dr. A. E. Douglass the dating of ruins continues as more extensive tree-ring series are developed. Of the people who antedated the Pueblos in our Southwest, namely the Basket Makers, not such a clear picture exists, though a rather satisfactory idea of how they lived can be gathered from a study of the material recovered from dry caves. Kidder has furnished us with the details. A large part of the first Basket Maker collection made is in the University Museum at Philadelphia, and was collected by the Wetherill Brothers over forty years ago.

It should be noted here that there is a small school that does not recognize the Basket Makers. They have, however, become generally recognized as an earlier people than the Pueblos in spite of the inappropriate nomenclature. The relationship to the Hohokam not having been worked out sufficiently yet, it cannot be definitely determined, but interesting results along this line, on the part of Gladwin at Gila Pueblo, are promised. As he appears on the scene, whether it be around the beginning of the Christian Era or some 1,500 years before, the Basket Maker was already an agriculturist. He was a cave dweller, and probably utilized caves, even after he began to make pit-houses. He had no pottery at first, but made use of well-made coiled baskets. They were made of yucca with willow and similar splints for foundation, and of a variety of shapes from shallow tray-like baskets to deep bowl-like ones.

Pottery, in the course of time, developed from crude unfired vessels tempered with vegetable fibres, and often with basket impressions on the exterior. In place of the bow and arrow he used, at first, the spearthrower. He made sandals of yucca and other fibres, typically square-toed at first, and he made fine twine-woven bags, hair cord for a variety of uses, flat cradles of grass, bark and twigs, to which was fastened the infant Basket Maker. He had bone awls and needles, flint knives and spearpoints, shell, seed, and stone ornaments, and, in fact, utilized about everything he could in his semi-arid environment. He buried his dead in dry caves in flexed positions, usually in rock-lined cists, and often covered the body with a basket. His range, as judged by cave exploration, is more or less limited to southeastern Utah and the adjoining states of Arizona, New Mexico, Colorado, and Nevada, though a cave-dwelling people having a number of cultural characteristics similar to the typical Basket Maker can be found at greater distances from the San Juan centre. With these Basket

94 Douglass, 1929.
95 Kidder, 1924.
96 Hewett, 1930.
97 Weltfish, 1930.
98 Loud and Harrington, 1929.
Makers, then, we have a point of departure to inquire into the question of the still earlier peoples who lived in North America.

Though, as already mentioned, there is ample evidence to show that there are man-made objects antedating the known Basket Maker culture, human skeletal evidence of an earlier people is rather rare, and much of this has been in dispute. It can be said, in fact, that no skeletal remains of a people earlier than the Basket Maker have been accepted by everyone as such. There are those who have questioned both the geological and anthropological evidence, and there is, therefore, no clear-cut indisputable case recorded, unless it be the latest discovery by Dr. A. E. Jenks,99 and this may be too recently announced to have attracted criticism. This discovery was of human bones found in association with a Folsom-like point in Minnesota. Of the skeleton called “the Brown's Valley man”, Dr. Jenks states that it seems to be somewhat similar to the earlier reported ancient marginal Amerinds, from which it may be assumed to be a long-headed type.

There have been other dolichocephalic types found in North America which are supposed to be ancient,100 such as those found in lower California, Texas, and Utah, but physical anthropologists cannot be expected to set up a “Folsom-Man” type, or whatever this pre-Basket Maker comes to be called, without having much more evidence, in the shape of human skeletons, than has so far come to light. Undoubtedly, as more work along this line is done and the geological “set-up”, together with all other correlated data, begins to fit into place, we may be able to talk more confidently of “Folsom Man”. Today, however, the evidence rests largely upon the discovery of stone tools that “early man” left in association with bones of extinct animals and also upon the geological position of the deposits where these have been found.

As for the rest of the New World, there seems to be no indisputable evidence in Central America nor Mexico of the association of man with extinct animals.101 So far as South America is concerned, we have already mentioned the “Punin Skull”. There have been other “finds” which have created considerable interest, particularly the Santa-Lagoa skulls from Brazil. Dr. Hrdlička102 has carefully reviewed these discoveries, and it seems unnecessary to do more than call attention to the conclusions he has reached, namely, that none of the evidence from South America offers proof of any great antiquity.

99 Jenks, 1934.
100 Ray, 1932; Hooton, 1933; Hansen, 1934.
101 Palacios, 1934.
102 Hrdlička, et al., 1912.
Since the publication of Hrdlička’s report, Uhle\textsuperscript{103} has reported upon an occurrence in Ecuador of mammoth remains associated with pottery. On the basis of the pottery, the “finds” are dated to the beginning of our era. There seems to be some doubt as to the association, however, and therefore little further light can be thrown on the subject since Dr. Hrdlička’s review of the South American evidence.

Be that as it may, it would seem to be important, in view of accumulating evidence for the contemporaneous existence of man with extinct animal forms, to re-examine some of the more important discoveries previously made within the United States. The problem is not closed, and, in the interest of open-minded discussion, such a discovery, for example, as that at Vero, Florida, reported upon by Sellards,\textsuperscript{104} and that at Melbourne by Gidley\textsuperscript{105} should not be relegated to oblivion without further examination of the geological evidence.

The anthropological evidence as deduced by Dr. Hrdlička\textsuperscript{106} shows that two skeletons found at Vero exhibited characteristics that were more like those of our recent Indians than of any other types, and this has not been disputed. However, one must inquire why a “long-headed” type of man, such as found at Vero, could not represent one of the men who lived in that region with the animals found there, in spite of the fact that the skeleton shows distinctly modern characteristics. In other words, how far back in time is it necessary to go in America before one should expect to find physical characteristics differing very much from the modern Indian? Dr. Hrdlička\textsuperscript{107} has this to say on the subject: “On the basis of what is positively known to-day in regard to early man, and with the present scientific views regarding man’s evolution, the anthropologist has a right to expect that human bones, particularly crania, exceeding a few thousand years in age, and more especially those of geologic antiquity, shall present marked morphologic differences, and that these differences shall point in the direction of more primitive forms.”

And again: “The antiquity, therefore, of any human skeletal remains which do not present marked differences from those of modern man may be regarded, on morphologic grounds, as only insignificant geologically, not reaching in time, in all probability, beyond the modern, still unfinished, geologic formations. Should other claims be made in any case, the burden of definite proof would rest heavily on those advancing them.”

Referring to Europe he says: “It is only when the Cro-Magnon and the

\textsuperscript{103} Uhle, 1930.
\textsuperscript{104} Sellards, 1916.
\textsuperscript{105} Gidley, 1926; Gidley and Loomis, 1926.
\textsuperscript{106} Hrdlička, 1918.
\textsuperscript{107} Hrdlička, et al., 1912, pp. 1–9.
latest Grimaldi skeletal remains are reached, both regarded as of the latest 'diluvial' age and possibly more recent, that we find forms corresponding closely to historic man.” He further points out the changes discernible in Egyptian skeletons from one period to another over the last 5,000 years, and also the cranial alterations that have taken place in certain European countries in the last 2,000 years, changes that he believes cannot be attributed to migrations or admixtures.

On the other hand, there are many recognized authorities who are not so emphatic in denying the possibility of the presence of a modern type of man in deposits, the age of which are measured in thousands and not hundreds of years. Dr. William K. Gregory, for example, in reply to our inquiry on the subject says in a letter: “I should say that the question whether human skeletal material of approximately ten thousand years could or could not be distinguished from modern types would be solely a question of fact. Of course ten thousand years is only a brief moment in the evolution of mammals but in the case of man it would assuredly be long enough for isolation to produce new family strains by inbreeding or for migrations to produce new hybrid populations. As a palaeontologist and comparative anatomist I know of nothing inconsistent with the presence of ‘modern’ Indian types in deposits ten thousand years old. Indeed ‘modern’ types often turn out to be ‘living fossils’ of far greater age than this.”

Therefore, we have, on the one hand, man-made objects in America associated with extinct animals, and, on the other hand, according to conservative anthropologists, no human remains so far found that show morphological modifications sufficient to differentiate them altogether from the modern Indian. How can these apparently conflicting factors be reconciled? It would seem to be entirely possible to do this if we remember, first, that so far no definite date can be fixed for the extinction of the animals referred to. This means that it is quite possible for certain forms to have lived later in some regions than others. Secondly, it must be evident that, with the relatively small amount of skeletal material available for such study, physical anthropologists have not undertaken to say with any degree of certainty that man, without much change in his physical make-up, could or could not have existed in our particular American environment for ten thousand years or even longer. Thus could these viewpoints meet on common ground.

It is true Professor MacCurdy, who visited the site at Vero shortly after the discoveries were announced, is of the opinion, after considering all the evidence, that the skeletal remains found there are not over three or four

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198 MacCurdy, 1917.
thousand years old at a maximum. He calls attention to the diversity of views of those who visited the site upon Dr. Sellards’ invitation, including Drs. R. T. Chamberlin, O. P. Hay, Ales Hrdlička, and T. W. Vaughn, a diversity of opinion due, he believes, to lack of coöperation among the standards employed by the various observers. However, he points out that all the evidence may not be in, and it is this which would seem to lend encouragement to a reopening of the discussion, particularly since much more information of a similar kind has become available in recent years from other parts of the country.

Regarding the finds at Vero and Melbourne, Romer\textsuperscript{109} admits the complexity of the Vero finds, but of those at Melbourne he accepts Gidley’s statement\textsuperscript{110} that human remains were definitely present in the Melbourne beds and that this formation contained a large number of extinct mammals. Romer sees no strong reason why “a human association with this animal fauna might not have occurred in post-glacial times, no reason to assume that such an association need be dated farther back than 10,000 to 20,000 years ago.”

Recalling the history of unravelling the problem in Europe, where work of the most intense kind went on for years before the facts became clear, we should feel encouraged to continue open-mindedly our searches for a solution to the problem here. Based on such facts as are now available, one might postulate a dolichocephalic type of people, falling, perhaps, into Hooton’s Palaeo-American category, as already mentioned, and living in America several thousand years ago—not so far back as to have undergone radical morphological modifications since that time, nor so recently as to make it necessary to postulate the extinction of the so-called Pleistocene animals at a period which cannot satisfy the geological and palaeontological evidence.

There are a number of other discoveries that have been made in North America that should probably be reëxamined, in the light of the present status of the problem, but, for lack of space, we can only point out some of the more important ones. Harrington\textsuperscript{111} lists a number in his Gypsum Cave report, and for a comprehensive review of the earlier discoveries of what was then called “Glacial Man” reference can be made to Wright,\textsuperscript{112} Winchell,\textsuperscript{113} and others.

Unfortunately, many of these earlier “finds” lack sufficient information to draw very definite conclusions, but it seems quite likely that some con-

\textsuperscript{109} Romer, 1933, p. 79.
\textsuperscript{110} Gidley, 1929.
\textsuperscript{111} Harrington, 1933.
\textsuperscript{112} Wright, 1899; 1892.
\textsuperscript{113} Winchell, 1911.
clusions may be deduced from the evidence indicated by the more recent discoveries. The “finds” at Natchez, Mississippi, made as long ago as 1846, are an example of association with the same types of extinct animals as have been found in the last ten years in other parts of the country, also associated with human bones or artifacts of distinct types. The pelvic bone found at Natchez shows the same state of mineralization as the bones of the ground sloth and other extinct animals, and though it must be admitted that this may not be taken as conclusive proof of contemporaneity, it at least indicates such a possibility.

Another early discovery which at first passed unnoticed in this country was that made in 1839 by Koch in Gasconade County, Missouri, along the Bourbeuse River. Here he found the remains of a mastodon, the greater part of which had been burned, evidence of fire not extending beyond a few feet from the bones. Though he does not mention what the evidence was, Koch says it was sufficient to show that the fire had not been accidental. The fore and hind legs of the animal were in a perpendicular position in the clay, with the toes attached to the feet. In fact, he says, all the bones which had not been consumed by the fire had kept their original position, standing upright and undisturbed in the clay. The surface of the clay was covered, as far as the fire had extended, by a layer of wood ashes, mingled with larger or smaller pieces of charred wood and burnt bones. The layer of ashes varied from two to six inches. In addition to a number of broken rocks found mingled with the ashes and bones, Koch says that he found “several arrowheads, a stone spearhead, and some stone axes which were taken out in the presence of a number of witnesses.” The clay layer was devoid of any rocks otherwise. The ash layer, he says, was covered by strata of alluvial deposits consisting of clay, sand and soil from eight to nine feet thick.

About a year later, in Benton County, Missouri, Koch made a somewhat similar discovery. Here he found, along the Pomme de Terre River, several stone arrow-heads mingled with the bones of nearly the entire skeleton of a mastodon. One of the arrow-heads lay underneath the thigh bone of the skeleton, “the bone”, he says, “actually resting in contact upon it, so that it could not have been brought thither after the deposit of the bones; a fact which I was careful thoroughly to investigate.” The bones and artifacts were deeply buried in five or six feet of vegetable mould, over which were six distinct layers of undisturbed clay, sand and gravel, twenty feet thick.

Koch concludes: “If we consider the manner in which these river bottoms have been formed . . . the layers of vegetable mould appearing to have been

114 In the Academy of Natural Sciences, Philadelphia, Pa.
115 Koch, 1856–60.
formed at the bottom of lakes, or in swampy depressions, left filled with water on the retreating of the greater overflows, or on a change of the bed of the river, at distant periods of time, and that in these lakes and depressions a deposit, at first, of clayey sediment, and then, of decaying vegetable matters, gradually accumulates to a considerable depth, before another overflow covers the whole, again, with a layer of sand and gravel, it would seem necessarily to be inferred, that this animal must have perished in such a lake, or swamp, and that the skeleton, being thus quietly deposited, was slowly covered over in course of the gradual formation of the vegetable layer; and that it could not have been drifted by the high waters of the river from another and older position to be re-deposited upon the arrowhead at a period later than that in which the Mastodon lived."

Another somewhat similar occurrence was that reported by Williston. The skeletons of five or six extinct bison were discovered in 1895 on Twelve Mile Creek, about half a mile north of the Smoky Hill River in Logan County, Kansas. With the bison, and underneath the right scapula, embedded in the matrix, but touching the bone itself, was found an arrowhead, the bone deposit being about two feet deep, composed of fine, silty material of a blue-gray color. Overlying this were twenty feet of marl, and below the bone deposit was a four-inch layer of sandy conglomerate, resting directly upon the Niobrara chalk. In the same deposit, not far away, Williston obtained Elephas bones. The artifact appears from the photograph in his report to resemble a rather crude type of Folsom-like point, but this is not certain.

In 1879 Cope made a trip to Silver and Fossil Lakes in Oregon, where he found camel, horse, elephant, and ground sloth bones in a slight depression covering some twenty acres that he thought might be a dried-up lake. The bones and teeth were on or in a loose friable deposit of sand and clay. Portions of the surface were white with shells, and scattered everywhere in the deposit were obsidian implements of human manufacture, some crude and others fine in workmanship, and many covered with a patina. One of these implements is a leaf-shaped point of obsidian with a partly rounded base and a few narrow short flakes struck from the base. It is in the United States National Museum (#148127).

In 1885 Russell reported the finding by W. J. McGee of an obsidian spearpoint in the Lahontan Basin in Nevada associated with the bones of an elephant. The drawing of the artifact shows no unusual type, but Russell seems to have been in no doubt as to the association.

116 Williston, 1902a.
117 Williston, 1902b.
118 Cope, 1889.
119 Russell, 1888.
There are a number of other occurrences, as we have said above, that should probably be reexamined. The difficulty lies in the fact that many of the earlier finds were reported upon in such a way that many essential facts were passed over with little notice, and the specimens referred to can no longer be located. Coming, however, to more recent times there are quite a number of reliable occurrences that have been reported. One or two cases may well be reexamined rather critically. Such is that of the association at Frederick, Oklahoma. The geological data seem quite clear and the faunal assemblages are not questioned; but the artifacts said to have been found there were seen in place by only one man, who owned the gravel pit where they were found.\textsuperscript{120}

However, without going into detail, on account of lack of space, we should list the following as furnishing important links in a growing chain of evidence that is carrying man in America well before the Basket Maker stage.

We may begin with the finds in 1923 reported by Nelson J. Vaughn to J. D. Figgins, Director of the Colorado Museum of Natural History.\textsuperscript{121} This was the discovery of artifacts (of a Folsom-like appearance) associated with extinct bison bones along Lone Wolf Creek, near Colorado, Texas.

Next would come the important discovery near Folsom, Union County, New Mexico. This discovery was made in 1925 by local residents of Raton, New Mexico, and reported to J. D. Figgins. In the course of the next few years careful work was carried on at Folsom by the Colorado Museum of Natural History, and by the American Museum of Natural History, under Barnum Brown.\textsuperscript{122} Three or four dozen skeletons of an extinct bison (Bison taylori) and a number of highly specialized spearpoints (mostly broken) were found in association, (see Plate XXXIII) under eight to twelve feet of restrafracted deposits.

The overlying sediments, according to Brown\textsuperscript{123} were highly restrafracted earth of a nature that indicates great antiquity, dating back to the close of the Pleistocene. In the discussion following Brown's paper,\textsuperscript{124} above referred to, Kirk Bryan says: "There is no question as to the association of the beautifully made implements with the bison bones. Both occur in undisturbed ground and there is no possibility of intrusion." He further observes that lava formed a dam across the valley in which the site of these finds was located, and he concludes that on the basis of the physiographic evidence, the age of the deposits containing the bones and the implements must be late Pleistocene or Early Recent.

\textsuperscript{120} Spier, 1928.
\textsuperscript{121} Figgins, 1927; Cook, 1927.
\textsuperscript{122} Cook, 1928; Brown, 1929; Hay and Cook, 1930; Figgins, 1931.
\textsuperscript{123} Brown, 1929.
\textsuperscript{124} Brown, 1929.
In 1930 a cave was excavated by an expedition from the Los Angeles Museum. The cave was brought to the attention of the Museum by Roscoe P. Conkling, of El Paso, Texas, after excavation work had progressed to the point where Mr. Conkling at once recognized its importance. The cave is located in the eastern slope of a spur of the Organ Mountains (on the west side of these mountains) below Las Cruces, New Mexico. It has a small opening (since made larger) which at the time of the first excavation work was about eight feet above floor of reddish wind-blown sand. Since then the excavation of the cave has lowered the floor perhaps six feet more, from where the cave branches off into several small rooms leading down as far as fifty-two feet from the present level of the valley floor outside, or approximately seventy feet from the entrance.

An interesting fact, revealed during excavation of the cave, was that approximately forty feet below the entrance a layer of cemented sand, two feet thick, extended across the cave, and thus completely sealed off everything below that point from the present opening. Below this “sandstone seal” were found the remains of camel, horse, ground-sloth, extinct antelope, wolf, California condor, and human skeletal material. Above this layer were found sloth, bear, camel, horse, and human bones. Though search was made at the time for another opening to the cave, none was found. In any case, if there were another opening on the valley side, which now may be buried, the age of these associations might then involve the deposition of the valley floor outside.

Gypsum Cave, near Las Vegas, Nevada, was explored by M. R. Harrington, of the Southwest Museum, Los Angeles, in 1930, though he had been to the cave several times before. Evidence was found here of an association of man and the ground-sloth. Harrington recapitulates in his report the more important finds in the cave as follows: “We have in Room 5 the association, under apparently undisturbed strata, of bits of cane, distinctly burned at the ends as if from use as a torch, with the bones of a baby sloth. The torch and bones seem to have been deposited about the same time.

“In the passage between Rooms 5 and 4 we found a number of sticks burned at one end in a sort of pocket directly below a solid unbroken layer of sloth dung; and, on the opposite side of the passage, a wooden foreshaft for an atlatl dart beneath a layer of sloth dung overlaid by a gypsum deposit containing a thin solidified layer or septum; and there was also a piece of

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125 Bryan, 1929.
126 Conkling, 1932.
127 Stock, 1930.
128 Harrington, 1933.

[ 146 ]
polished wooden dart-shaft imbedded in sloth dung, all suggesting association of man and sloth.

"Room 4 yielded one outstanding archeological find—a stone dart-point imbedded in a partly consolidated gypsum layer between two layers of burnt sloth dung. Near it, in the same layer, was a sloth leg-bone, and in the layer above, only a few feet away, some bones of a small slender species of camel. Apparently the point was just as old as this particular sloth, and older than this individual camel.

"In Room 3 we have another good find in the form of a perfect stone dart-point imbedded in an old floor deposit containing bits of burnt sloth dung. Above it lay a rockfall deposit, in the top of which, beneath a large slab, lay a ground-sloth skull, nearly perfect.

"Room 2 yielded several pieces of painted dart-shafts, of the old type, found at depths ranging from 8 to 10 feet from the present surface, between the rocks forming the original floor of the chamber and below a layer containing sloth dung and sloth hair. In this case the shafts were obviously older than these relics of the sloth.

"In Room 1 a number of crucial finds were made, including a worked stick and a flint scraper-knife in a layer containing sloth dung, and two fireplaces without structural features, in one of which wood and dung had apparently been burned, in the other sloth dung only. These fireplaces lay at a depth of nearly eight feet from the surface, one of them beneath two layers of sloth dung, the other beneath a single but very compact dung layer. Between the two layers of dung was a small deposit of wood charcoal. The worked stick and the flint knife seemed to be contemporary with the sloth; the fires were kindled and extinguished a long time before the sloth abandoned the cave.

"If there had been only one of these finds, or even only two or three, some doubt might remain; but with twelve distinct finds, we can hardly doubt that man existed in Gypsum Cave before the ground-sloth Nothrotherium and several types of native horses and camels had become extinct. In other words, answering our original question, we can say that man met these creatures face to face."

Harrington estimates the date of Gypsum Cave at 13,000 to 10,000 years B.C.

As the result of interest on the part of local residents of Scottsbluff and Bridgeport, Nebraska, particularly S. R. Sweet, R. C. Swanson, and T. L. Green, important "finds" have been made in the western part of the state by the Nebraska State Museum, under the direction of E. H. Barbour, with C. B. Schultz as field director. Artifacts have been found in association
with bison and other animals under deep, undisturbed, loess deposits, where, on account of proximity to glacial outwashes and moraines, a better chance may be offered than in other localities of fixing the age of some of these finds and similar ones made elsewhere.

Near Dent, Weld County, Colorado, Figgins has reported upon the discovery of Folsom-like artifacts found five and a half to seven feet below the surface in association with mammoth bones. The site of the discovery is midway up a steep bluff forming an escarpment of the South Platte Valley, about twenty-seven feet above the valley level. The deposit consists of water-worn pebbles, sands and gravels, evidently deposited at a time when the South Platte carried a much larger volume of water.

The associations of artifacts and extinct animals from Yuma, Colorado, and from Dallam County, Texas, have already been discussed, as well as the recent work at Ft. Collins, Colorado. The latest find of a similar nature is that announced by Floyd V. Studer, Director of Archaeology and Paleontology of the Panhandle-Plains Historical Society of Canyon, Texas. The discovery was made by Judge J. A. Mead near Miami, Roberts County, Texas, of a stone dart point lying directly between two ribs of an elephant, and associated with teeth and other bones of this animal. Studer states that the bones were found in a blue-green clay, lying undisturbed about eighteen inches below the present soil level, and that, while the spearpoint did not have a groove down its entire center, it seemed to be characteristic of certain weapons ascribed to that age.

Somewhere in between what we may call the "Folsom pattern" and the Basket Maker will probably fit a number of types of artifacts such as those found in the lower levels of Signal Butte, Nebraska, by W. D. Strong of the Smithsonian Institution, and possibly types which have been discovered by Mr. and Mrs. William H. Campbell. There are also the types from the burned-rock mounds of Texas to be fitted into the general picture of these earlier times, though the relationships are not yet clear.

E. B. Sayles and C. N. Ray, of Abilene, Texas, have been working for a number of years in stream and terrace deposits along the forks of the Brazos River near Abilene, where even earlier evidence for man in America may be satisfactorily proved upon the completion of further studies of that whole region.

129 Schultz, 1932; Barbour and Schultz, 1932; Meserve and Barbour, 1932
130 Figgins, 1933.
131 Science News Letter, 1933b.
132 Strong, 1933; 1935.
133 Campbell, E. and W., 1935.