

## PART I. ARCHAEOLOGICAL AND ENVIRONMENTAL PERSPECTIVES

### A COMMENTARY ON EARLY MAN STUDIES IN THE NORTHEAST

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This paper examines some of the earlier ideas, attitudes, and discoveries of investigators in the pursuit of the earliest human inhabitants of the northeast. Some digression from that area is necessary, and since the boundaries are not well defined I shall be limited by my own inclination, experience, time available, and space. This review should be regarded as a contribution to some larger more detailed analysis to be made in the future and to be weighed along with other earlier or contemporary reviews.

In the early days of the search for early man in North America, the observers and investigators were even less well trained than they are now to understand the meaning of their observations, and a great many false starts were made. Probably the most valuable result was that gradually a series of criteria were established as progress was made in the new sciences of geology and anthropology. The admonition "Seek and ye shall find" was happily carried out in the search for early man in the nineteenth century, and some of the results would have made such modern proponents of Pleistocene man as George Carter quite happy. During this period, the State Geological Survey of California, in the person of its director, J. D. Whitney, supported the idea that evidence of man could be found in Tertiary and later gravels. From the west coast to the east there were scattered finds attributed by a number of well-meaning individuals to Paleolithic or Pleistocene levels.

The most famous location in the east was near Trenton, New Jersey, in gravel deposits where crude argillite implements and even some human skeletal material were found over a period of years.<sup>1-3</sup> These finds were approved and supported by Frederick W. Putnam<sup>42</sup> of the Peabody Museum at Harvard, who was responsible for the extensive work there by Volk.<sup>57</sup> Putnam was convinced that the ancestors of the American Indian had indeed been on the Atlantic coast during glacial times. He set up an exhibit of "Paleolithic" implements in the museum, to which were later added specimens from other localities in the east and from the Ohio Valley. Putnam's support carried considerable weight for he was connected with a reputable institution and was permanent secretary of the American Association for the Advancement of Science. Others shared Putnam's views. Thomas Wilson, curator of archaeology at the United States National Museum, became convinced that a general formal similarity between some of the Western European hand axes found in the gravels there and forms in the United States meant that the latter were also "Paleolithic" in age.<sup>59,60</sup> There was considerable support for this position from others such as W. J. McGee of the U.S. Geological Survey, Professor S. W. Williston<sup>58</sup> of the University of Kansas, who reported on "Lansing Man," and Professor G. Frederick Wright,<sup>64,65</sup> who espoused man's presence in Ohio during the Paleolithic.

There were, of course, individual scientists who expressed doubt on some or all of these purported finds, but two deserve the most credit for long systematic study of such claims, and of later ones. Their work served to eliminate many erroneous interpretations and to establish guidelines for identification of

chronology in archaeology and for reasonable views on the physical type expectable for early man. W. H. Holmes of the Bureau of American Ethnology spent considerable time in the field and in comparative study of the geology of locations from which "Paleolithic" implements had come and on the whole question of the flint-working industry. His contributions are of lasting value.<sup>27,28</sup> I know of no instance where a locality he checked out as postglacial or Recent in age has proven otherwise, or of artifact types he incorrectly diagnosed. If the studies of other commentators last as long they will be unusual.

Certainly there were finds attributable to ancient man during the first quarter of the century, but none excited as much interest as the discovery of fluted points with extinct forms of bison at Folsom, New Mexico.<sup>13</sup> The several histories and accounts of the Clovis to Folsom occupations in the High Plains and western United States are readily available in some of the publications which will be cited later in this paper. The main purpose here will be to give a bit of background on the continuation of studies of early man in the northeast and how eastern indications of fluted-point occupations have been viewed by various commentators.

In a paper published in 1937, John Cotter<sup>11</sup> referred to the points now called Clovis and other names as "Folsom-like." The relative absence of Folsom and Folsom-like forms west of the Rocky Mountains was noted, as was their presence in considerable numbers in the eastern United States. He was aware of their distribution in the northeast and prepared a rough map depicting it. I wish to emphasize two of his conclusions:

"These surface finds, especially those of Folsom-like types, range throughout the entire central and eastern portion of the United States, and well into eastern Canada, and show marked concentration along the chief drainage courses of the Missouri, Mississippi and Ohio rivers. . . ."

"Evidence of general distribution over a major portion of the country indicates either a widespread sub-stratum of the Folsom complex or a general dispersion of the technique by diffusion or of the artifacts themselves by trade."<sup>11</sup>

The implication of a widespread fluted point complex over most of the country is very clearly present in Cotter's remarks.

The interest in the distinctive spear-points from Folsom stirred Henry C. Shetrone<sup>55</sup> to embark on a study of the 140 fluted points and some 215 additional unfluted specimens that he believed to be related from the collections in the Ohio State Museum. He observed that none of these specimens were made of Flint Ridge flint, but that Upper Mercer flint was by far the most common. Harold S. Gladwin correlated a center of long-headed populations in Ohio with the large number of fluted points and, in addition, suggested southeastern Asia as "the possible home of an Old World Folsom industry, since it is there that we find many analogies with the culture which followed Folsom in North America."<sup>18</sup>

Frank H. H. Roberts not only did extensive fieldwork but was well aware of the overall distribution of fluted points in the east and even that they had been called Seneca River points in New York. He apparently did not know of the Coldwater type in Mississippi.<sup>6</sup> In a summary published in 1939,<sup>51</sup> he referred to smaller centers of fluted-point concentrations outside of the High Plains as being in western New York, Ohio, Tennessee, and along the boundary between Virginia and North Carolina. Various views on the significance of fluted-point distribution were presented as follows:

"The significance of the fluted points occurring east of the Mississippi River is

open to question. There is still no evidence suggesting their possible age or place in the main archaeological picture. The vast majority are surface finds and although there seem to be several centers, as mentioned previously, where they are picked up in comparatively large numbers, nothing has come to light that would indicate their relationship to the cultural remains present in those areas. The fact that the eastern examples bear a striking resemblance to those in the West does not make them of equal antiquity. They may represent a survival of a highly specialized implement in later horizons. Some students take a different view and regard the individuality of the form together with its apparent absence from the recognized complexes in the East as a manifestation of its greater age. On the basis of the distribution concept as an index to age – a theory substantiated in some respects by evidence that tends to indicate that there is a correlation between type and distribution, so that the larger the area covered the older the form – the eastern examples would indicate more antiquity than the western. But until specimens are found in association with fauna comparable to that in the West and accompanied by other implements not known to belong to the Folsom complex, conclusions must be withheld. The question becomes more complicated when it is recalled that the Folsom implement makers no doubt chipped a variety of sizes and qualities of points for use in hunting different kinds of game, and the larger forms may merely represent those intended for big animals.”<sup>51</sup>

In 1945 Roberts again reviewed the problem, calling attention to the wide distribution of the fluted forms. “The distribution of Folsom implements implies that there must have been some specific relationship between the physical environment, the hunting economy basis of the cultural pattern, and the period when the spread took place.”<sup>52</sup> In his conclusions he suggested that the migrants from the north followed one major path down the east flank of the Rockies with some continuing into Mexico, while others spread over the plains to the Mississippi River and then to other eastern parts of the country.

E. F. Greenman and George M. Stanley<sup>23-25</sup> studied the geochronology of a series of sites in Georgian Bay which ranged in altitude from the George Lake beaches at around 320 to 297 feet above Lake Huron down to lower beaches. Stanley was able to relate the formation of the beaches during relatively short stillstands of Lake Algonquin from its main beach to the Lake Stanley levels. Greenman believed that some of his quartzite specimens were water-rolled and that the occupation and quarrying and workshop activities took place while the lake was still at the beach levels. As time has passed and the proposed age of the drop in lake levels has been pushed back to 9000 to 8300 B.C., the associated industry at George Lake and Sheguiandah “Eden” points and side-notched points would be much too late for the beach association if they are at all comparable in age to other similar finds – and they should be.<sup>22</sup> Greenman and Stanley’s work provided an approach to dating not hitherto recognized and set a pattern for future work in the Great Lakes area both on earlier and later levels. The Eden-like and side-notched forms from the Killarney-Manitoulin area should have a temporal range of around 6000–5000 B.C. Perhaps somewhat earlier than these are the occupations at the Brohm site, which can be no earlier than Lake Minong about 8000 B.C. in the Superior basin and may well be somewhat later. The Brohm site was investigated and described by MacNeish,<sup>35</sup> and the nearby Cummins site is a more recently recognized culturally related group.<sup>67</sup>

At the time of W. A. Ritchie’s first major synthesis of New York archaeology he regarded the fluted points in the State as one of the “salient unsolved problems of New York archaeology.”<sup>47</sup> He pointed out that they were most

numerous in central New York, where they had been called the Seneca River point by W. M. Beauchamp, and also referred to a concentration in northwestern Vermont, the Reagen site. A report of his studies at this site appeared 9 years later.<sup>48</sup> Because of the publications which had appeared since 1944, Ritchie was then willing to say:

"In the light of accumulating evidence, therefore, there seems reasonable grounds for hypothesizing the presence, in a still undated period, of a thinly and widely scattered, mobile, early hunting population over much of the eastern United States prior to the appearance of the cultures classified as archaic."<sup>48</sup>

Along with some other students of northeastern fluted-point remains, he was inclined to interpret the Reagen site as late in the paleo-Indian horizon and noted that it had some forms that might not be paleo-Indian in a strict sense. It was also clear to him that there was little or no evidence of continuity from the Reagen complex to his early Laurentian. In any event, it was earlier than 4000 B.C.

The summary interpretation of eastern archaeology by Ford and Willey<sup>15</sup> recognized the wide distribution of Folsom points as promising future exciting finds.

In a second interpretation that I prepared about the same time, the view was expressed that Folsom and Yuma forms in the east, because of their wide distribution, must have played a role in the formation of the later hunting cultures in the area.<sup>19</sup> This view was also expressed by Haag.<sup>26</sup>

Attitudes of some authorities in the later 1940's in regard to eastern finds are represented in the third edition of "Ancient Man in North America." It was pointed out that fluted forms related to Folsoms were "widely distributed . . . with a marked concentration in the Missouri, Mississippi and Ohio drainages."<sup>62</sup> It was emphasized, however, that eastern finds are from the surface, and there is no good evidence of their function. The opinion was expressed that the eastern distribution was a result of the postglacial desiccation of the High Plains, a suggestion attributed to Eisely.<sup>12</sup> Reference was made to a lone fluted point found at Macon, Georgia, to specimens from the Parrish site in Kentucky reported by Haag, who believed them to be old, to some from northern Alabama found in Copena mounds, and to Jennings'<sup>29</sup> view of a relationship of fluted points to Copena points.<sup>62</sup>

Sellards'<sup>54</sup> study of early man in America referred briefly to fluted points in the east, noting among other occurrences the point from Wisconsin reported by Byers and McCary's collection in Williamsburg, Virginia; he also mentioned Kidd's then recent report on fluted points in Ontario.<sup>30</sup>

The first major fluted-point site in the east to be called to the attention of archaeologists was the Williamson site in Dinwiddie County, Virginia, where the work of B. C. McCary and his associates over a period of 30 years has brought to light a wide range of artifact types representative of the eastern fluted-point complexes. It is said to be extremely similar in many characteristics to the Shoop site. The artifacts and chipping debris are primarily from local cherts, but there are some Pennsylvania jaspers from which some of the finished implements were made.<sup>32</sup> McCary's group has carried out a systematic survey of fluted points in the State, the first such survey in the east, and focussed in on the Williamson site as a result. The continuing results of this survey appeared in the Quarterly Bulletin of the Archaeological Society of Virginia from 1947 to 1972 and numbered some 420 fluted points at last report.<sup>33</sup> This was one of the earliest systematic studies of the distribution of fluted points within a State to be undertaken.

Recently, interdisciplinary studies have begun at this site, and new exploration techniques are producing data suggestive of patterned tool type distribution reflecting differences in cultural activities. There are suggestions of occupations which extended over a significant period of time.<sup>4</sup>

A very important development was the publication on the Enterline industry at the Shoop site north of Harrisburg by Witthoft.<sup>61</sup> In marked contrast to the normal situation in which lithic debris at a prehistoric site comes from nearby sources, it was found that a high proportion of the Shoop material consisted of mottled bluish Onondaga cherts from western New York. There was a small amount of Pennsylvania jasper, fine-quality black flint from quarries in east-central Pennsylvania, Deepkill flint and Normanskill chert from the Hudson, and material from a few other distant sources, including some thought to be from Ohio. There were 53 finished and 14 unfinished fluted points; almost 200 end scrapers made from short blades; 86 pointed side scrapers retouched from blades; 38 bladelets or flake knives; 12 graters, 6 nuclei of polyhedral cores; a biface ovate knife; and 2 channel flake fragments.

Witthoft regarded this industry as the earliest temporally and the least developed of the lithic complexes in the east. The fluted points were thick and rough, and some of the fluting seemed to be produced by a core-and-blade technique. Basically, however, the complex was a blade industry, and his judgment on this point has been substantiated. He compared the Enterline industry to finds in the High Plains, to the Williamson site in Virginia, the Parrish site in Kentucky, the Wilhelm site in Pennsylvania, the Reagen site in Vermont, and the Denbigh Flint complex. Witthoft believed that the technology placed Shoop at the bottom of a developmental scale in the east comparable to that of Clovis in the west. Enterline was the easternmost extension of Upper Paleolithic blade tradition in flint technology, and Witthoft regarded the site as the remains of people who "may not have been many generations away from Bering Strait. . . at least ten thousand years old."<sup>61</sup> Witthoft was so involved with the multiple problems of the description, analysis, and comparison of the industry that he paid no attention to the probable environment or subsistence pattern. For at Shoop, as at most eastern sites, there was neither direct evidence nor adequate pollen studies.

In the volume "Archaeology of Eastern United States," MacNeish<sup>36</sup> commented briefly on Folsom-like points in the northeast, referring to W. A. Ritchie's earlier work, but no reference to fluted points or anything that could be considered Paleo-Indian in age is to be found in the chapters on the Middle Atlantic states, or Ontario. The chapters by the several authors were received in 1949, 1947, and 1948. In a summary paper at the end of the volume, I observed that "in the eastern United States area, as reported by most of the individual chapters of this volume, projectile points very closely resembling the distinctive Clovis and Lindenmeier Folsom forms have been found for many years. . . We are becoming increasingly aware, however, that these projectile points do represent an early period in the east in which the Paleo-Indian groups were utilizing this type of fluted projectile point along with other implement forms not now definitely known to be associated. . . Most recently there has been a report on the Shoop site in eastern Pennsylvania where a considerable number of fluted points have been associated with a distinctive stone complex. It is only a question of time until the associations of the fluted blade in the east will become apparent."<sup>20</sup>

I had been informed by John Witthoft of his forthcoming paper on the Shoop site and had kept pace with the general distribution of fluted points in the east.

In the chronologic chart at the end of the volume, I placed Shoop and "Early Parrish" at the same 8000 B.C. and earlier level reserved for Clovis and Lindenmeier. At the annual meeting of the Society for American Archaeology in Bloomington, Ind., in May 1949, a group of non-professional archaeologists from Alabama arrived with a large number of fluted points that they had collected from a number of sites in the Tennessee Valley. This display was a strong reason for believing in a significant early occupation in the east.

From 1951 to 1954, collections and excavations at the Bull Brook site in northeast Massachusetts called attention to a third major locus of fluted-point hunters in the northeast. The publications of Douglas S. Byers<sup>7-10</sup> had a major impact on early-man studies in the east. He compared the material from Bull Brook with that from Shoop, Williamson, and Lindenmeier. The lithic material from Bull Brook was from many sources, but none was from western New York. In some respects, Bull Brook fluted points resembled the Clovis forms at the Naco site in Arizona more than they did Folsom forms. The observation was made that there was as much difference in fluted forms in the east as there was between Clovis and Folsom in the west, which is now, certainly, an understatement. By a trait or attribute table he presented the striking uniformity of many of the items of the fluted-point assemblage in the east and west. In his third paper of the 1950's he observed:

"A number of camps - Bull Brook, Shoop, Williamson, Quad, and Reagan, among others - with large numbers of industrial tools, have given more information about the general Clovis complex than most of the "kills" in the west. The numerical preponderance of the Clovis complex in the East, as opposed to relatively fewer finds in the west, and to the total absence of such forms from Asia lends some substance to the hypothesis that this complex may have developed in the Southeast."<sup>10</sup>

He went on to postulate the presence of an as yet unidentified pre-fluted point assemblage of a general Levallois-Mousterian order which was on the verge of blade making and whose development in the United States produced the Clovis industry and could have been the base from which the Archaic cultures developed.

An attempt was made to obtain a radiocarbon age for Bull Brook, and it went something like this. Byers wrote to me and said that he had some charcoal fragments from a number of places in the deposits but he could not guarantee that they would specifically date the Bull Brook occupation. We accepted the charcoal with the understanding that the result would be even more of a gamble than usual. It was, of course, realized that the result, no matter what it was, would be misunderstood by some number of people. I personally did not believe that the dates, which averaged about 7000 B.C., provided an authentic date for the Bull Brook site. On the basis of other evidence in the east, Bull Brook should be significantly earlier. They were not, however, unreasonable and at the time were the earliest in the east.

One of the more peculiar facets of the Bull Brook study was the failure to attempt any kind of correlation with the late Wisconsin deposits, for the site was located on a kame terrace overlooking what is now a salt marsh but at 9000 to 8500 B.C. was almost certainly not a salt marsh. Perhaps one of the difficulties was the reluctance of New England Pleistocene geologists to allow the glacial ice to melt early enough to accommodate the appearance of fluted points about equal to their presence in the west.

In the fourth edition of "Ancient Man in North America"<sup>63</sup> a great deal more space is devoted to fluted points in the east, and while their appearance has

not been satisfactorily dated, "there seems little doubt, however, that these artifacts are relatively ancient, for in most cases they pre-date those of the Archaic stage which began many thousands of years ago."<sup>63</sup> There are discussions of some of the site analyses such as Shoop, Bull Brook, Parrish, Quad, and Williamson. There is clear recognition that no archaeologist has adequate data to substantiate pinpointing the beginning of the fluted-point complex in either time or space.

Reference has been made to the presence of fluted points in New York where, because of their distinctive morphology and location, they had been identified as Seneca River points. The recognition of their temporal and cultural significance was held back, I believe, because of a long-held conviction that Lamoka was the oldest complex in New York, and also because the Pleistocene geologists working in the New York-New England area were slow in adapting to radiocarbon dating and did not have their ice disappearance in phase with that in the Great Lakes. During the Christmas holiday meeting in New York City in 1956, Ronald Mason and I tried to persuade William Ritchie that the conclusions he was adopting in regard to possible limiting dates for fluted points were much too late because he was following outdated temporal assignments of the ice melting and of the draining of Lake Iroquois. I had made my hypotheses as to the probable age of fluted points in Michigan and temporal relationship to the forest cover in a mimeograph statement for a Friends of the Pleistocene field trip in May 1956 and enlarged on that question and other dating problems in a paper before the Great Basin conference during the summer.<sup>21</sup> Mason was already well along in getting together the Michigan data more accurately and had already worked on the distribution of fluted points in the Upper Delaware valley.<sup>38</sup> We were thus both primed to disagree strongly with the position of Ritchie.<sup>49</sup>

The paper summarizing the distribution of New York fluted points argued that they must be older than the 3500 B.C. date he then used for Lamoka. They must also be younger than the Fort Ann stage of Glacial Lake Vermont interpreted as coeval with Lake Iroquois. Many of the Ontario fluted-point locations, as well as the principal area of fluted-point finds in New York in the Seneca River valley, were under the waters of Lake Iroquois and the Fort Ann stage of Lake Vermont. The date which was accepted for the termination of these lakes was 5000 B.C.<sup>16</sup> "These data argue strongly for the recency of paleo-Indian hunters in the Northeast although current evidence does not prejudice the possibility for greater antiquity for similar remains immediately south of these barriers."<sup>49</sup> There is no question that Ritchie was puzzled by the location of the Reagen site in dunes derived from the maximum stage of the Champlain Sea and some 300 feet above the river valley and by the recency his correlations produced, which had Paleo-Indians existing in New York long after Archaic populations were known in other areas of the country. There was no emphasis upon the influence of the probable environment or how the Paleo-Indians were able to preserve their ancient complex while their neighbors to the south had changed considerably.

R. J. Mason's study of the fluted-point distribution in Michigan<sup>37</sup> was a logical development from Quimby's review of the interrelationship of prehistoric cultures and the environment,<sup>43</sup> my preliminary attempt at correlation, and the involvement of the then available geochronology and pollen studies. In spite of some amount of attention paid to fluted-point locations, only one major site has been found and that was first brought to my attention in 1959. The Barnes site is in Midland County at an elevation of 690 feet and could have an association

with the late Lake Warren beach of 675 feet now dated around 11,000 B.C. A brief report on it was published by Wright and Roosa<sup>66</sup> and was preceded by an even briefer note by Roosa.<sup>53</sup> A second fluted point site, the Lux site, is on a sand ridge at 630 feet overlooking the Lake Lundy beach at 620 feet. This lake is now dated at about 10,700 B.C. According to the analysts the Barnes complex differs significantly from the Enterline industry in its core-working technique and corresponded more to points from Bull Brook and Folsom. Because of the absence of many tool forms present on other eastern sites, it was felt that there must have been a significant functional difference, although that would be difficult to determine without adequate excavation.

The fluted-point populations could have entered southwestern Ontario quite easily from southeastern Michigan as early as the Two Creeks interval and would have occupied that area primarily on the land side of the Lake Algonquin beaches.<sup>22</sup> The distribution of fluted points in the area allows that proposal. The group of occupation areas near Parkhill, Ontario, now being investigated by William A. Roosa and associates at Waterloo University has already produced some interesting results. These fluted-point occupations are in a pine-dominated forest cover, according to a brief note from Professor Roosa in late 1974.

I do not believe that the Holcombe Beach occupations are fluted-point occupations or that there is a beach there associated with Lake Algonquin. In spite of the report presented by Fitting,<sup>14</sup> Pleistocene geologists have still held to the Port Huron sill at 605 feet instead of in the Detroit river below Lake St. Clair. Thus, when Lake Lundy dropped from 620 feet to Lake Algonquin, the sill at Port Huron held up some volume of discharge from Lake Huron, and the water level in the Erie Basin dropped to 465 feet because of the opening up of the Niagara River outlet to Lake Iroquois. A Lake Clinton at 605 feet must have had a very short life.

I cannot view the material from Holcombe as a fluted-point site but instead would regard its recurrent occupations to have been by groups of hunters at a period corresponding to Plainview-Portales and Milnesand in the west and to a decline in the fluting technique to a simple basal thinning. While some commentators do refer to 8000 to 7000 B.C. complexes as Paleo-Indian because the term "paleo" rolls easily off the tongue and bestows glamor, I prefer the appellation Early Archaic. By this period of time the ice was north of Lake Superior and Barlow and had been gone from southern Michigan for from 4,000 to 5,000 years. By this time in southern Michigan there was also a significant deciduous element in the tree flora. Even though pine would have been a dominant species in much of the State, the environment was not so unfavorable to animal, fish, and bird life or to man. If people were able to exist at the series of sites now known in Wisconsin, Michigan, and Ontario during an estimated 8000 to 6000 B.C. period, they would also have been able to exist at many other locations.

Although the presence of fluted points even as far north as the Maritime Provinces of Canada had been known for some 40 years, it took the excavations, analysis, and dating of the Debert site in Nova Scotia under the auspices of four Canadian and American institutions to produce striking results at this important far-northeastern site, where close to 3,200 tools and some 23,000 flakes have been collected.<sup>34</sup>

The interpretation of the occupation is that it was recurrent, with a heavy emphasis on hunting, as is indicated by the large numbers of points, scrapers, and other tools of value in hunting activities and in preparing hides. Some 11 living floors were recognized, with a concentration of 8 in an area of 3 acres.



There were multiple hearths and some few small pits and depressions, but no clear indications of specialized segments of the house. The floors are of about 1200 square feet and may have been formed by windbreaks rather than being completely covered in a more stable structure. It is thought that the site was periodically in use over several decades by a small band because of the similarity of the artifacts produced and of the raw material from which they were made.

The Debert Complex has some distinctive features. One of these is the deep concavity of the base of the fluted points. There are no flint wedges or *pieces esquillees*, which may mean that the points were not used to groove and split animal bone, or that the caribou was a major item of the hunting pattern at the site. Debert is believed to be most closely connected to Bull Brook and sites of the Enterline industry. This fourth major site of eastern fluted-point occupation is, however, perhaps even more valuable because of the series of radiocarbon dates it provided, which were carefully processed and reported by Stuckenrath.<sup>56</sup> The radiocarbon age of Debert is about 8700 to 8600 B.C., which is about half-way between the averaged age of Clovis and the end of Folsom fluting in the High Plains.

I cannot refrain from indicating that even in the mid-1960's and in the Maritimes our colleagues were apparently still influenced by New England conservatism that for many years was so reluctant to let the ice disappear. It would be rather surprising if the Valders is really as important in Maine and the Maritimes as is indicated by the glacial geologist's ideas referred to by MacDonald.<sup>34</sup> The Valders received its published definitive dating at 9800 B.C.,<sup>5</sup> during the Valders advance or ice surge if some current interpretations are correct. I would doubt there were active ice caps within 60 miles of the Debert site at the time of occupation.

The fifth major fluted point site in the northeast from the standpoint of size and variety of materials is the Plenge site in northwestern New Jersey.<sup>31</sup> This site has the greatest variation of fluted-point shapes of any of the northeastern sites and some that are interpreted as transitional into Early Archaic forms. It has an unusual variety of biface knife forms; spurred and unspurred end scrapers; end of blade scrapers; discoidal hump-back and side scrapers; spokeshaves; gravers both single and multiple on flakes, denticulates, awls, and drills; chopper, scraping planes, hammerstones, and bifacial cores.

The excavator believes that this site, because of the variability of its artifact complex within the fluted-point assemblage, was probably occupied intermittently by bands over a long period of time. The site must have had a favorable location as a base camp for a variety of reasons. The flint material at Plenge also shows wide contacts, as Onondaga and Normanskill material from New York and Pennsylvania jaspers are represented. Unfortunately, the excavations were not successful in obtaining any vertical separation of material, and although there is occupational debris over some 23 acres, there has not so far been any recognition of areas of concentration of specifically fluted-point materials or of a relatively small area for the Early Archaic specimens.

Investigations of early man in the northeast are still productive. The series of sites in New York that have recently been brought to our attention primarily by Ritchie and by Funk,<sup>16</sup> and studies now in progress on sites in the Shenandoah Valley,<sup>17</sup> are helping to change the attitudes of eastern archaeologists in regard to early man.

There have been a fair number of misconceptions that have hampered the study of fluted-point complexes in the east. One of these asserted that because a very few fluted points had been found in burial mound fill, this meant that

they were still being made during the time of the erection of such structures. This idea had some currency in Tennessee and Mississippi among some of the archaeologists operating there during the late 1930's and 1940's. I did my best to keep such an interpretation out of "Archaeology of Eastern United States," which perhaps was one of the reasons for the review criticism that I had exercised too heavy an editorial hand. In the same region during the 1950's the proposal was made that the explanation for the appearance of fluted points in the east was the movement of man to the east from the Plains during the Altithermal, when beast and man could not survive on the Plains. Since even at the time it was proposed the Altithermal was several thousand years later and a number of projectile point styles after the disappearance of fluted points on the High Plains, the concept was not applicable.

For the last several years we have been hearing and reading that the northeast was uninhabited during the Early and even Middle Archaic. This is explained by the argument that pine forests do not support a large amount of game or other food, and prehistoric man of this period, from roughly 8000 to 4000 B.C., was not able to function there. This argument, however, like that of the abandonment of the Plains, has enough validity to make lack of adequate study look like the fulfillment of a hypothesis. Fortunately, archaeologists are finding evidence of occupation in the time period mentioned above. Once found, and the habitat preferences identified, other sites are almost certain to turn up in the future.

Another small handicap was the idea that early man was so busy killing off the large game animals that he had no time for anything except the chase and would disappear with his fluted-point industry when the large beasts had been killed. A statement of this view may be found in Mason's broad comparative study.<sup>40</sup> The early fluted-point hunters occupied a wide variety of environments in the east from about 10,000 to 8000 B.C., from the Gulf Coast to the Bay of Fundy, from Florida to Minnesota, from upland mountain areas to the Mississippi flood plain, with considerable variation in vegetational cover and animal life.

They were not carnivores but omnivorous, limited only by technology and food taboos. Their technology gradually changed into that of later levels in almost every area where either luck or intensive research has produced material belonging to a time period of around 8000 to 7000 B.C. There may well have been responses to new foods brought into areas by new vegetation and animal life, by new developments or additions to take advantage of discovered food or material resources. These changes, however, are likely to have been gradual, whether introduced or invented.

In the east the earliest studies almost inevitably were ones which emphasized the morphology and manufacture of the fluted points and the industry with which they were associated. They were compared to the finds in the west with either an explicit statement or an implication that they had been derived from the west. In the 1950's an emphasis began to appear upon attempts to date these early complexes. At about the same time, but with gradually increasing emphasis, there began attempts at understanding the probable floral and faunal associations as the number of pollen studies multiplied. Multiple interdisciplinary studies are products of the last 15 years or so, when federal money became available and the remarkable growth in manpower in the sciences devoted to the study of early man and his environment. The archaeological evidence for the type of social organization an anthropologist of the 1870's would postulate has been slowly appearing. The increase in data now available as

the result of persistent effort, luck, and the right connections with amateur archaeologists has been a dramatic story. This conference is a continuation and a capitalization on the work that has gone on before.

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