Bulletin of the Archaeological Society of Delaware

9
VOL. IX No. 1

Mar. 1958

9

Vol. IX, Number 1 ***March, 1958***

MEMBER OF EASTERN STATES ARCHEOLOGICAL FEDERATION

Contents

Time-Depth and Early Man in the Delaware Valley

by Ronald J. Mason

In an interesting article recently published in this journal Mr. Eugene Lutes, Jr. reviewed some aspects of the now old, Trenton Gravels-Early Man controversy and came to the conclusion that there is no evidence for assuming man's presence in the Delaware River valley prior to a few hundred years before the influx of European explorers and colonists (Lutes, 1955). On the basis of allegedly obscure associations of human remains and artifacts with the Pleistocene deposits at and near the Abbott Farm site, which he employs as his criteria, Lutes is probably justified in asserting that we cannot use this controversial evidence in attempting to define man's antiquity in this region. He goes far beyond this tenable statement, however, and categorically denies any appreciable age for the first appearance of man in the area. At this point the data and Mr. Lutes part company.

The present writer feels obliged to point out that this derivative conclusion of Mr. Lutes in no way follows from the first and that the data which is pertinent to the problem as defined by his title is completely ignored. It is not my intention to belabor the obvious, which is readily available in the scientific literature, but to take this opportunity to offer a few observations which do bear on problems of refining our concepts of local time-depth.

Determinations of absolute chronology are totally lacking at the time of this writing for the vast area drained by the Delaware River and its tributaries.[1] Archeological horizons and areas as may exist in this region are still largely constructions based on the comparative method. Nevertheless, the diversity of the archeological remains and their comparability with chronologically known assemblages in other areas clearly point to a long and involved prehistoric occupation. That the Delaware Valley shares in the general cultural developments of the eastern United States subject, to be sure, to regional differentiation, is implicit in the methodology and theory of archeology as a science, and is abundantly evident from the material itself. The ramifications of this fact are fairly obvious, and it is thus to be expected that the local archeology will

will be of potentially enormous consequence. Byers, in fact, has pointed out the strong resemblances between Bull Brook and the components of the Enterline Industry (Shoop and Williamson sites) and suggested their possible contemporaneity (Byers, 1954, p. 351). Granting the possibility of such a temporal correlation, we may reasonably abstract from this and look for some of the Delaware Valley fluted points which do share specific resemblances to Enterline—such as size and morphological characteristics, triple-channel fluting technique, etc.—to have an age of roughly 10,000 years. When the Bull Brook-Enterline cultural-temporal relationships can be particularly specified we may have, for the first time, a usable time-peg for local fluted points of a comparable nature. The possible time-equivalence of Bull Brook and Enterline suggested by Byers is thus a crucial question, and harps back to the problem of Enterline-Clovis relationships. The present writer tends to support Byers' equation, in light of the present state of knowledge, and to view the Clovis Complex as earlier. The Reagen Site in Vermont, while also glaciologically bottom-limited in time, is almost certainly later than Shoop. Ritchie (1953) suggests that its ultimate roots may be in the Enterline Chert Industry. Admitting that much of our information is still sketchy and our theory tentative, the author believes that this discussion at least takes us out of total darkness and into the half-light of slowly amassing evidence for the considerable antiquity of the Paleo-Indian horizon in this region.

TABLE 1: A PARTIAL LIST OF RADIOCARBON DATES FOR CERTAIN EASTERN UNITED STATES ARCHAIC COMPLEXES

PROCESSING LABORATORY AND SAMPLE CODE KEY: C- IS UNIVERSITY OF CHICAGO, M- IS UNIVERSITY OF MICHIGAN, AND W- IS UNITED STATES GEOLOGICAL SURVEY IN WASHINGTON, D.C.

SAMPLE	DESCRIPTION	DATE IN YRS. BP
C-367	LAMOKA FOCUS (Archaic I of Ritchie), Lamoka Lake, Schuyler Co., New York (Griffin, 1952, p. 366)	5383±250
M-195	LAMOKA LAKE SITE, Schuyler Co., New York. From a hearth in sand and gravel beneath 3 to 4 feet of refuse midden. (Crane, 1955, p. 18)	4530±400
M-26	LAMOKA LAKE SITE, Schuyler Co., New York. From beneath 5 feet of refuse. Two Chicago runs on extra charcoal from this sample averaged 4369±200. Sample obtained through Chicago. (Crane, 1955, p. 16)	AV.: 4440±400
C-191	FRONTENAC FOCUS (Archaic III of Ritchie), Frontenac Island, Cayuga Co., New York. This is Ritchie's revised cultural assignment for this sample. (Griffin, 1952, p. 366 and Ritchie, 1955, p. 74, Fig.4)	4930±260
C-417	BOYLSTON STREET FISHWEIR, Boston, Mass. C-417 was derived from peat underlying the weir, thus the weir should be younger than the date procured. C-418, below, was processed from a fragment of coniferous wood contained in silty marine sediments overlying the weir, thus the weir is probably older than this date. (Griffin, 1952, p. 366)	5717±500
C-418	BOYLSTON STREET FISHWEIR, Boston, Mass. Discussed under C-417 above. (Griffin, 1952, p. 366)	3851±390

SAMPLE	DESCRIPTION	DATE IN YRS. BP
C-837 & C-839	OLD COPPER CULTURE, Oconto Site, Oconto County, Wisconsin. Possibility of contamination has led excavators to accept older date (C-837 & C-839, mixed) as being more reliable. (Wittry and Ritzenthaler, 1956, pp. 250 & 251)	7510±340
C-836	OLD COPPER CULTURE, Oconto Site, Oconto County, Wisconsin. See discussion above. (Wittry and Ritzenthaler, 1956, pp. 250 & 251)	5600±400
W-345	SHEGUIANDAH SITE ARCHAIC, Sheguiandah Site, Manitoulin Island, Ontario, Canada. This date is regarded by Lee as being an absolutely minimum one for the age of the artifacts involved. (Lee, 1956)	9130±250
M-357	EVA FOCUS, Eva Site, Benton Co., Tennessee. Submitted by Lewis and Kneberg to date the Eva Focus, earliest known Archaic in western Tenn. (Crane, 1955, p. 10)	7150±500
M-356	KAYS LANDING SITE, Humphrey Co., Tennessee. Should date Late Archaic in Tenn. (Crane, 1955, pp. 9 & 10)	3580±300
C-1 & C-2 CHICAGO	MODOC ROCK SHELTER, Randolph County, Illinois. From Zone I, Early Archaic. (Fowler and Winters, 1956, pp. 31 & 32)	9878±392
B1 & 2 CHICAGO	MODOC ROCK SHELTER, Randolph County, Illinois. From Zone II, Early Archaic. (Fowler and Winters, 1956, pp. 31 & 32)	8175±488
M-130	GRAHAM CAVE, central Missouri. From lowest level, fireplaces on old cave floor, level 6. Artifacts thus dated include Paleo-Indian related lanceolate projectile points (Graham Cave Fluted and Dalton (Meserve)) plus basally-notched and side-notched points; basally-thinned, expanded-base drills, plano-convex scrapers; straight or curved sided blades,; sandstone mortars and cupstones; mealing stones; split bone awls; a roller pestle; a flaked adze of hematite. "The horizon may mark a change from an Early Man hunter-gatherer to Early Archaic hunter-forager complex since there is a greater variety of projectile point types, some of which occur consistently in the eastern Archaic, than are reported from Early Man sites." (Crane, 1955, pp. 13 & 14)	9700±500
M-131	GRAHAM CAVE, central Missouri. From level immediately above that of Sample M-130. Cultural material is very similar to that of M-130 above, but includes a greater variety of projectile points. (Crane, 1955, p.14)	8830±500
M-132	GRAHAM CAVE, central Missouri. From level 4. Includes a wide variety of points, and a relatively small number of the lanceolate forms. Fully grooved axe appears here for the first time. (Crane, 1955, pp. 14 & 15)	7900±500
C-254	INDIAN KNOLL, Site Oh2, Indian Knoll, Ohio County, Kentucky. (Griffin, 1952, p. 366)	5302±300
C-251	INDIAN KNOLL, Annis Mound, Butler Co., Kentucky. From 6.5 foot level—see C-180 below for explanation. (Griffin, 1952, p. 366)	4900±250
C-180	INDIAN KNOLL, Annis Mound, Butler Co., Kentucky. From 3.0 foot level—refer to C-251 above. Strangely, Sample C-180, which was derived from mussel shells at the 3.0 level of the Annis Mound, dates older than C-251, based on antler from the 6.5 level of the same mound. Griffin explains that Webb believes the samples were inadvertently exchanged in the laboratory. (Griffin, 1952, pp. 366 & 368)	7374±500

By the very quantity of material found the Delaware Valley Archaic is better known than the regional manifestations of the Early Man Period. Hence, specific radiocarbon dates derived from Archaic sources are probably more trustworthy for the purposes of this paper. Some of these dates are presented in Table 1: *A Partial List of Radiocarbon Dates for Certain Eastern United States Archaic Complexes.* Ritchie (1944) and Schmitt (1952) have indicated some of the resemblances between Archaic materials of the Delaware Valley and other nearby areas particularly, in the case of the former, with New York State. This readily available information does not need reviewing in this limited space. Undoubtably, the hiatus between the absolute ages of comparable material in these neighboring regions is extremely small. Lines of cultural continuity and, hence, comparatively-derived ages become less reliable when we seek to interpret for this area the data from more geographically removed Archaic manifestations. For the present, at least, we will be wise to abstract our concepts of local Archaic time-depth from the geographically nearest and most similar Archaic assemblages. Were we presenting radiocarbon data for the Woodland Period with its tremendous regional variability this argument, of course, would be even more vital.

Real refinement of these time concepts for our purposes must await a thorough examination of the Archaic manifestations in the Delaware River valley and the establishment, through excavational, typological, seriational, and comparative studies of discrete cultural foci. Ideally, such studies may also produce associated organic debris suitable for radiocarbon age determination. When this research stage is attained we should find the time-depth of the local Archaic configurations to be fully compatible with the absolute chronology being worked out in neighboring areas.

It should be noted, in interpreting, say, the New York State data, that the radiocarbon dates obtained for the Archaic Period in the areas in and around the Middle Atlantic Slope properly pertain to essentially "late" stages in the total Eastern United States Archaic Period. Ritchie's designation "Archaic I" for the Lamoka Focus in New York State (Ritchie, 1951), implying, as it does, the Early Archaic horizon, must be understood to refer only to the Archaic developmental sequence as so far known in the northeastern United States. Radiocarbon dates indicate substantially greater ages for early Archaic manifestations in the Mississippi Valley (Modoc Rock Shelter, Graham Cave, etc.) and in the Southeast (Eva Focus). Some of these radiocarbon dates are given in Table I. These *absolutely* Early Archaic assemblages are earlier than the Northeastern Archaic complexes too in terms of material culture inventory (see the discussion presented with the dates for Graham Cave in Table 1).

Griffin's remarks along similar lines may help to elucidate this important distinction (ms, p. 7). In speaking of Graham Cave in central Missouri, he says:

> "It should be noted that this concept of an early archaic in the east (as defined by archeologists working in tne Mississippi Valley)[4] differs significantly from the Late Archaic complexes of Lamoka, Laurentian, Indian Knoll and other sites where grooved axes, adzes, celts, and a variety of polished stone forms are an integral part of the artifact assemblage. It is difficult to understand why writers like Willey and Phillips (1955) persist in characterizing the entire period between the eastern fluted blade level and the arrival of pottery by means of these Late Archaic traits."

Although as yet poorly demonstrated, it seems probable that "early" Archaic components, in the sense indicated above, existed in the Middle Atlantic Slope area (indeed, it would be surprising if this is not the case) hundreds, if not thousands, of years earlier than the Northeastern Archaic dates would indicate, and that these early manifestations did not in fact possess the varied ground stone tools of the later Archaic cultures. Certain as yet poorly known associations of shale, argillite, and quartzite chipped tools and implements in the lower Delaware Valley may belong to this early, Post-Paleo-Indian horizon. In the Susquehanna Valley drainage region Witthoft's similar Deturk quartzite industry, with Clactonian-like hammer technique, seems to be likewise pertinent in this connection.

On the basis of better known early materials from the Delaware Valley and the radiocarbon dates derived from similar Archaic assemblages nearby we may conservatively expect the Delaware Valley Archaic Period to fall somewhere within the range of 6,000 to 3,000 years B. P. The finding of stone tools and projectile points which are characteristic of the Archaic in this area with the Lamoka Focus at Lamoka Lake in New York, radiocarbon dated at 5383±250 B. P., indicates that this estimate is, indeed, conservative. The Florence Site, a terminal Late Archaic component in Burlington County, New Jersey (Mason, 1955), bears strong developmental resemblances to the probably somewhat later Transitional cultures of eastern Pennsylvania, and probably fits into the Delaware Valley sequence at around 3,000 to 3,500 years ago. The Archaic components of the Koens-Crispin and Red Valley sites are certainly older, but by an unknown number of years, as may also be the case with the Archaic component excavated by Temple University at the Buri Site in Burlington County (Gruber and Mason, ms).[5] Kier's important developmental sequence from the Raccoon Point Site on the Delaware River in southern New Jersey promises to throw a great deal more light on these involved Archaic problems (Kier, ms).

Anyone familiar with the archeology of this region and with the techniques of the comparative method can appreciate, I am sure, the local significance of the radiocarbon dates presented here. As already indicated we are working with substantial time-depths, the limits of which are only barely suggested in this short discussion. Refinements, but not drastic change, will probably be forthcoming under the impact of future research. As should have been obvious years ago, with the clear trend of discoveries in the entire eastern United States, Early Man in the Delaware Valley is here, and here to stay. Clearly, as regards time-depth

and prehistoric cultural developments, the archeology of the Delaware Valley does not stand enigmatically apart from the great cultural movements of the eastern United States, but is a local and partial expression of the whole.

FOOTNOTES

1 By the time this paper is in print, however, a radiocarbon date will probably be available from the author's investigations with the New Jersey State Museum at a Woodland Period site in northern New Jersey. This date, while of importance for certain studies, will in no way affect the problems discussed here.

2 The term "Early Man" is hereinafter used as a synonym for the more technical term, viz., "Paleo-Indian."

3 For the key to the radiocarbon laboratories-sample number designations, see Table 1.

4 Parentheses and insert are mine.

5 It is worth noting that the typological analysis of the projectile points from the Buri Archaic component yielded a 100% petrological correlation, demonstrating that certain projectile point forms were executed in argillite or shale exclusively. An especially interesting sidelight is the comparability of some of this material with an argillite-using complex associated with shorelines of long-extinct glacial lakes in Michigan being studied by Dr. Emerson Greenman at the University of Michigan. This and similar data are slowly amassing to indicate that the old "Argillite Culture" controversy may not be the dead cat some of us may have thought it to be.

REFERENCES

Byers, Douglas S.
1954 "Bull Brook—A Fluted Point Site in Ipswich, Massachusetts" *American Antiquity,* Vol. XIX, No. 4, pp. 343-351.

Crane, H. Richard
1955 *University of Michigan Radiocarbon Dates I,* published by the Harrison M. Randall Laboratory of Physics, University of Michigan, Dec. 31, 1955, Ann Arbor. Also published in *Science,* Vol. 3224, pp. 664-672, Oct. 12, 1956.

Flint, Richard Foster
1956 "New Radiocarbon Dates and Late-Pleistocene Stratigraphy" *American Journal of Science,* Vol. 254, May 1956, pp. 265-287.

Fowler, Melvin L., and Howard Winters
1956 "Modoc Rock Shelter Preliminary Report" *Illinois State Museum Report of Investigations Number 4.* Springfield.

Griffin, James B.
1952 *Archeology of Eastern United States,* James B. Griffin, editor. University of Chicago Press.
ms "The Reliability of Radiocarbon Dates for Late Glacial and Recent Times: In Central and Eastern North America." Manuscript to be published in 1957 in *Proceedings of the Plains Conference for Archaeology.*

Gruber, Jacob W., and Ronald J. Mason
ms "Temple University Excavations at Buri, Burlington County, New Jersey." Manuscript to be published in 1957 by the Society for Pennsylvania Archaeology.

Kier, Charles F., Jr.
ms "The Raccoon Point Site." Manuscript to be published in 1957 by the Society for Pennsylvania Archaeology.

Lee, Thomas E.
1956 "Position and Meaning of a Radiocarbon Sample from the Sheguiandah Site, Ontario" *American Antiquity,* Vol. XXII, No.1. p. 79.

Lutes, Eugene, Jr.
1955 "The Problem of Early Man in the Delaware Valley" *Bulletin of the Archaeological Society of Delaware,* Vol. 7, No. 1, pp. 11-19.

Mason, Ronald J.
1955 "The Florence Site—A Preliminary Geological and Archeological Report" *Archeological Society of New Jersey Bulletin 10,* pp. 1-8. Trenton

Ritchie, William A.
1944 *The Pre-Iroquoian Occupations of New York State.* Memoir No. 1, Rochester Museum of Arts and Sciences.
1951 "A Current Synthesis of New York Prehistory" *American Antiquity,* Vol. XVII, No. 2, pp. 130-136.
1953 "A Probable Paleo-Indian Site in Vermont" American Antiquity, Vol. XVIII, No. 3, pp. 249-258.
1955 *Recent Discoveries Suggesting an Early Woodland Burial Cult in the Northeast.* Circular 40, New York State Museum and Science Service. Albany

Schmitt, Karl
1952 "Archeological Chronology of the Middle Atlantic States" In *Archeology of Eastern United States,* edited by James B. Griffin, etc., pp. 59-70. Chicago

Willey, Gordon R., and Philip Phillips
1955 "Method and Theory in American Archeology II: Historical-Developmental Interpretation" *American Anthropologist,* Vol. 57, No. 4, pp. 723-819. Menasha

Witthoft, John
1952 "A Paleo-Indian Site in Eastern Pennsylvania: An Early Hunting Culture" *Proceedings of the American Philosophical Society*, Vol. 96, No. 4, pp. 464-495. Philadelphia
1954 "A Note on Fluted Point Relationships" *American Antiquity*, Vol. XIX, No. 3, pp. 271-273.

Wittry, Warren L., and Robert E. Ritzenthaler
1956 "The Old Copper Complex: An Archaic Manifestation in Wisconsin" *American Antiquity*, Vol. XXI, No. 3, pp. 244-254.

Did the Indians Construct the Dike across Canary Creek and a Causeway over one of its Branches?

by H. G. Omwake

Concluding a report on the excavation of the Ritter Site No.2[1], the author advanced the suggestion that the pits of the site were "representative only of a few isolated Indian dwellings which were located within a limited space along a possible pathway which led from one principal settlement to another---". The author further conjectured[2] "If, however, there was a pathway, as suggested, across the ridge from Ritter Site No.1 to the Russell Site, some sort of crossing of Canary Creek must be assumed, in as much as the Russell Site lies along the eastern bank. At the present time that stream is much too mucky to permit fording and it is likely that during the period of aboriginal occupation of the region it was equally impassable in that manner. If there was actually a crossing, some sort of bridge, or underwater flooring to give sure footing, probably existed when the sites were occupied."

During the fall of 1950 and the spring of 1951 members of the Sussex Archeological Association conducted investigations of the Russell Site[3]. An unusual feature associated with the site was an artificial dike which extended from the approximate south east corner of the aboriginally occupied area westward across Canary Creek. In December of 1951, under the leadership of Dr. David Marine, a member of the Association, the dike was examined archeologically. It was found to be nine to ten feet in width and to rise two and a half to three feet above the present marsh level at a distance of 114 feet from the edge of the field at its eastern end A trench 18 inches wide was carried to a depth of five feet from one side to the mid-line of the dike, yielding a vertical profile. Dr. Marine reported:[4] "The upper six or seven inches was composed of grayish top soil and roots. Then a firm sandy loam fill of approximately three feet in depth. In profile this fill has a marbled appearance varying from light yellow to gray, suggesting that top-soil and yellowish sub-soil were mixed in the loading and unloading of fill material. At the bottom of this three feet of fill there is the uniform hard-packed original clay bottom. The three feet of fill was hastily examined as removed and one small, intact,

notched arrowhead and many quartzite flakes were recovered."

A test hole 18 inches by 30 inches was sunk to a depth of 30 inches at a point 236 feet from the edge of the field at the eastern end of the dike. Dr. Marine reported:[5] "A striking feature of the profile is the layering of the material. The first six inches is composed of dark sandy soil containing grass and shrub roots. The second layer of five or six inches consists of reddish clay. The third layer is seven inches at its thickest part and is composed of homogeneous gray clay. The fourth layer is about two inches thick and is composed of dark gray sticky muck–possibly part of the third layer. The fifth layer is approximately three inches thick and is composed of uniform gray clay. The sixth layer varies from six inches to 0 inches in thickness and is composed of washed white sand. The seventh layer is composed of sticky brown-black muck–probably the old original marsh muck."

Having shown that the dike appeared on a plot of the Rowland property drawn by John Shankland and dated July 26, 1773[6] and that it then carried a road which extended from Pilottown Road (which parallels the old Lewes Creek, now part of the Lewes-Rehoboth Canal) southwestward into the "back country" and that both the dike and the road which crossed it are located on the original West India Fort Tract, a Duke of York grant, patent to which, according to Dr. Marine, was obtained by Helmanus Woolbanke on July 2, 1672, Dr. Marine concluded:[7] "the dike is a man-made fill containing Indian artifacts (arrowhead and flakes) that were in the original fill dirt and probably was obtained along the nearby shores both of which show extensive former occupation by Indians" and that "since the dike and, in all probability, the Dutch Trading Post are located on the original West India Fort Tract, it is reasonable to suppose that the Dutch West Indian Company, or their immediate successors, were the builders of the dike to facilitate trade with the Indians from the Southwest."

From the location of the dike the channel of Canary Creek winds through the adjacent marshes in a generally northwest direction to a point approximately half a mile distant, airline, from the dike, at which point it veers sharply toward the north. Here a small branch coming from the southwest enters Canary Creek. Two tributaries originating in the swampy lowlands approximately half a mile southward combine to form this branch. These, lying east of the Ritter Site No.2, were described by the author in his report of the exploration of that site:[8] "The surrounding areas were a bit lower, especially to the east, where two small tributaries of the Canary Creek originate. At the present time the flow of water in these small branches is negligible and they serve as ditches which drain the swampy area during times of heavy rain." The branch which they unite to form is today five feet four inches wide and the water which it carries is about a foot and a half deep, flowing northeastward through tidal marsh to Canary Creek, growing much wider as it approaches its juncture with that creek.

James L. Parsons, a member of the Sussex Archeological Association, and his son, David, have for the past several years trapped sea turtles in this nameless branch, reaching the place at which they set their net by traversing a narrow strip of solid land which crosses the tidal marsh and which is itself bisected by the branch, the bi-section providing the location for the turtle trap. Parsons, having read the author's suggestion that the Ritter Site No.2 may have represented only a few habitations bordering a pathway connecting the larger Ritter Site No.1 with the Russell Site, called attention to the possibility that the strip of solid land across the marsh might have been part of such a path. If this were so, it would follow that the longer dike across Canary Creek, concluded by Dr. Marine to have been built presumably by the Dutch West India Company or their immediate successors as a roadway to the southwest, actually was a part of such an aboriginal pathway. Proof that the Indians were the builders of these marsh crossings cannot be established beyond a doubt. There are, however, certain considerations which make examination of such a proposition interesting.

It seems appropriate to note the locations of the known major prehistoric habitation sites of the vicinity, indicated on the accompanying map. The Townsend site located at the headwaters of Wolfe's Creek (Lewes Creek) and the Moore Shell Heap site situated on the southwestern side of the present Lewes-Rehoboth Canal just south of the point at which Wolfe's Creek enters the canal may be disregarded for the time being, in as much as neither seems to have immediate reference to the thesis under discussion.

Attention is directed to the series of habitation areas which have been found along both sides of Canary Creek. All those areas indicated along the upper reaches of the creek, south of the point at which Metcalfe's Branch joins it, are of minor nature. Of them the Townsend No.2[9] site was the largest, containing four small shell refuse pits. At the Givan site on the western side of Canary Creek were found three small similar pits. At the two other small areas indicated on the eastern side of the creek and at the one at the headwaters of Metcalfe's Branch only one shell refuse pit was found. The absence of refuse pits in large numbers is almost certain evidence of the relative unimportance of these habitation sites. Crossing either Canary Creek or Metcalfe's Branch at any of these sites is today merely a matter of a big jump or, at most, a couple of strides. A fallen tree placed across these streams or an abandoned beaver dam would have provided amply easy facility for crossing, even if, in prehistoric times, they may have been a little wider than they are today. Just north of the junction of Metcalfe's Branch Canary Creek enters and flows thru a wide swampy marsh, totally impassable on foot or by fallen tree even today.

The major habitation areas on Canary Creek were those shown on the north-eastern side and known as the Lewes School House site[10], the Miller-Toms site[11], and the Russell site.[12] Cultural evidence recovered at these sites, principally pottery, indicates conclusively that they were occupied by one people within late prehistoric times and it

would seem permissible to interpret the absence of any significant variations in the cultural evidence as suggestive of contemporaneous occupation. If such an assumption were true, additional strength would be given to the thesis that the major habitation areas were connected by a pathway which passed, in part, over two artificially constructed causeways crossing Canary Creek itself and one of its tributaries. However, should the assumption be invalid, nothing is detracted from the present thesis. The absolute correlations of cultural evidence from these sites prove beyond a doubt that the periods of occupancy, if not simultaneous, were within closely proximate time limits and the likelihood of the existence of a connecting pathway is upheld.

On the southwestern side of Canary Creek, at the western end of the dike described by Dr. Marine, is situated the Derrickson site[13], presently bisected by New Road, its continuity further destroyed by two houses on either side of the road. There is evidence that the Derrickson site existed both prior to and after contact was established by the early traders and settlers. Refuse pits which yield only pre-historic evidence are to be found here as are other pits which yield cultural material of both the pre-historic and the contact periods. The Derrickson site is about as extensive in area as either the Russell or Miller-Toms sites but its occupation appears to have been much less intensive. The refuse pits are few in number, relatively small in size, and contain little cultural material. Only one restorable Indian pottery vessel and one pre-contact extended burial have been found. The pre-contact material is indistinguishable from that recovered from any of the other sites in the general area and the fact that contact material is found with it in some pits may be taken as further evidence of the lateness of all the sites in the woodland period and, perhaps, of their general contemporaneity.

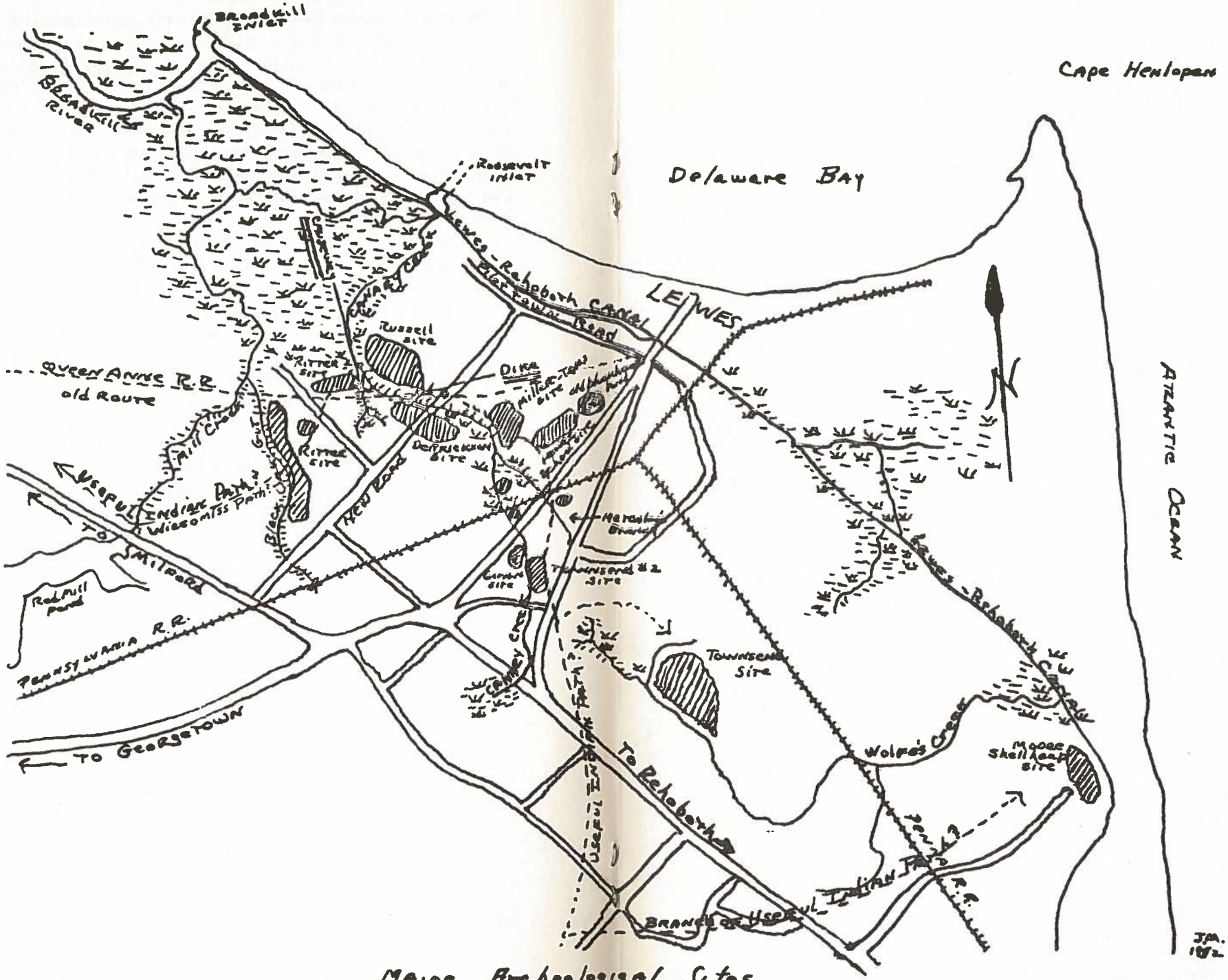
To the west, on the eastern side of Black Oak Gut[14] lies the Ritter site.[15] Between the Ritter site and the tributary of Canary Creek, on a slightly higher elevation roughly paralleling the bed of the old Queen Anne Railroad, is located the Ritter site No.2.[16] The Ritter site is second in extent only to the Townsend site, and is somewhat larger than either the Russell or Miller-Toms sites. Eighteen of a known total of twenty-six shell refuse pits were excavated during the examination of the Ritter site. While only one fragmented burial was found, which did not permit comparison with those excavated at the Townsend, Ritter No.2, Miller-Toms, and Derrickson sites, great quantities of pottery were retrieved from the shell pits. Except for the smaller size of the total bulk, the pottery from the Ritter site was culturally indistinguishable from that of the Townsend site and compared exactly with that recovered from each of the other sites mentioned. Culturally the sites are comparable, which further suggests approximately simultaneous occupation, strengthening the likelihood that all these habitation areas were connected by some sort of pathway, upon the probability of which the existence of aboriginal causeways over Canary Creek and its lesser tributary is, in part, postulated.

It seems appropriate at this point to examine the physical features of the general area as indicated on a modern topographical map. For this purpose either the U. S. Geological Survey or the Corps of Engineers maps are suitable. It will be noted that northwest of Canary Creek the principal feature of the Delaware shore line is a long, continuous, narrow strip of sandy beach, punctuated by the natural inlet thru which the Broadkill River enters the Delaware Bay. This narrow strip of beachland is without natural supplies of fresh water today and presumably was equally devoid of this essential in pre-historic times. It is for that reason, without doubt, that no evidence of more than casual visitation, perhaps for fishing, has been discovered on it.

Immediately landward from the beach are extensive tidal marshes, low swampy areas which presently are criss-crossed by mosquito control and drainage ditches but which, in aboriginal times, were unquestionably flooded with each tide and rendered completely impassable on foot and totally uninhabitable. These marshes extend landward at some places two miles or more and on the inland side are of irregular outline limited only by the natural elevation of the contiguous fast-land. Thru them flow numerous streams, i.e., Canary Creek, Dutch Creek, the northern part of the present Lewes-Rehoboth Canal which, in early historic times, was the Whorekill Creek, Old Mill Creek, Broadkill Sound, Primehook Creek, and other smaller streams. It is to be noted that prior to the construction of the Roosevelt Inlet, just north of Lewes, all the streams from the Lewes Creek northward and all the streams from Primehook Creek southward either joined with the Broadkill River or emptied into the Broadkill Inlet. The Broadkill drainage thus must have constituted the one water highway which linked all inland aboriginal villages to the sea—the thread which bound them all together and which may have been the central factor governing the cultural similarities manifested by the archaeological investigations which have thus far been carried out at the villages located on the fast-land near the headwaters of its tributary streams. It is respectfully submitted that the very centrality of the Broadkill to all the known prehistoric villages on its tributaries detracts nothing from this suggested contemporaniety, a contention which seems borne out by the absence of marked cultural differences among them.

The Broadkill drainage system did, of course, provide a canoeway for travel between the aboriginal villages, and, unquestionably, there was much intercourse between them via the connecting navigable tributaries. It was probably not uncommon that canoes laden with oysters, clams, conchs, fish, and other edible marine life often wound their ways from the Broadkill or its inlet thru the tedious meanderings of the tributary streams, across the tidal marshes and to the villages upstream. The waterways provided the only possible means by which such heavy commerce could be transported across the marshes which separate the fast-land from the beach.

Convenient tho water travel may have been for bringing sea food to the villages, the time required to paddle a canoe from one village to another must have been considerable. Each of the villages was situated


Broadkill River
Broadkill Inlet
Roosevelt Inlet
Delaware Bay
Cape Henlopen
Lewes-Rehoboth Canal
Lewes
Atlantic Ocean
Queen Anne R.R. old route
Useful
Hendrick Park
Wilgomtss Path
To Milford
Railroad Pond
Pennsylvania R.R.
To Georgetown
Russell site
Ritter site
Dike
Destruction site
Hollow Road
Townsend #2 site
Townsend Site
Wolfe's Creek
Moore Shell Heap site
To Rehoboth
Indian Path
Branch of Useful
Major Archeological Sites
Lewes Area
Scale: 1" = 1 Mile

well up stream. Each of the streams pursued a tortuous winding course, marked by interminable U-turns, across the marshes and each found its way to the Broadkill by a different route. As the crow flies, the distances from one village to another are relatively small. By waterway they are comparably immense. For example, the straight line distance from the Ritter site to the Russell site is just under one mile. The distance by water is approximately nine and one-half miles. Obviously there must have existed an overland pathway between these two villages, and probably connecting these two with the other habitation sites, by which easy communication and visitation was accomplished.

The question is: what course did such a pathway follow? It becomes pertinent to examine the physical obstacles which would have to be taken into consideration by an Indian desiring to travel overland from village to village. The principal barriers to foot travel are the upper reaches of the streams themselves and the swamplands which extend inland on both sides of their channels. Necessary for the maintenance of life, of course, was a supply of fresh water for drinking and cooking. Consequently the villages were located at those points inland at which the salty brine from the Delaware Bay ceased to pollute the streams or at that point where good springs or some small branch carrying fresh water and unaffected by the tides entered a major channel. It does not follow that at these points the principal waterways narrowed to a width which would not obstruct foot passage over them. As a matter of fact, at the present time, even though the fields adjacent to the streams have been practically denuded of woods and shrub growth which would hinder drainage, even though the marshes have been criss-crossed with mosquito control ditches to facilitate drainage, even though soil conservation ditches have been dug to direct, distribute, and control available water supplies, and even though obstacles which would hinder the rapid flow of water in the main channels have been removed by dredging, there exist on both sides of the principal channels, swampy marshlands, some salty, others fresh, which extend inland beyond the habitation sites, in some cases, for more than a mile.

Some of these marshlands are quite wide at the points at which the aboriginal habitation areas are situated. For example, it was reported[17] that the dike crossing Pagan (Canary) Creek on the landward side of the Russell site is 125 yards in length, which means that the marshland, otherwise impassable by foot, is 375 feet wide at this point. Should an Indian whose house was located at the Derrickson site on the southwestern side of Canary Creek have wished to visit a friend who lived at the Russell site on the northeastern side of Canary Creek, it would have been necessary for him to travel southeastward on the western side of Canary Creek for about three quarters of a mile, under conditions existing today, almost to the point at which the Pennsylvania (Delmarva Division) Railroad crosses it by bridge, cross the stream by fallen tree, by a beaver dam, or by wading, and proceed northwestward on the eastern side of the stream back to the Russell site. The total distance he would have had to travel would have approximated at least a mile and a half,

assuming that in prehistoric times he could have crossed Canary Creek at or near the present location of the railroad bridge.

In the case of an Indian who lived at the Ritter site and wished to visit one whose home was at the Derrickson site, the situation would have been only a little less inconvenient. If the solid pathway across the marshlands surrounding the branch in which Parsons and his son trapped turtles had not existed in prehistoric times, it would have been necessary for such a traveller to proceed in a huge circle southward, eastward, then northeastward, around the great swampy lowlands at the head of the two small tributaries which unite to form the branch. Such a traveller would have had to detour almost to the present New Road in order to secure a completely dry pathway. Probably such a route was followed at times and the total distance to be traversed was not too great. In such a consideration, however, the location of Ritter site No.2 must not be overlooked. Ritter site No.2 lies just westward of the point at which the two small tributaries, previously mentioned, unite to form Parsons' turtle branch of Canary Creek and about two-fifths of a mile northeastward from the Ritter site No.1. Had an Indian who lived at Ritter site No.2 wished to visit a friend who lived at the Derrickson site, his most direct pathway would have led straight across Parsons' turtle branch to the higher land on its eastern side and then in a bee line to the Derrickson site. Otherwise it would have been necessary for him to follow more than half way around a huge circle of which the radius would have been almost half a mile.

Discussing the problem of mapping the Ritter site No.1 during its exploration, the author stated[18] that the problem was complicated by the discovery of seven refuse pits a thousand feet, more or less, removed from the area of concentrated occupation. It is appropriate here to note that at the time of the investigation of the Ritter site No.1, the existence of the Ritter site No.2 was not even suspected and the discovery of the cluster of seven shell refuse pits at such a distance from the larger habitation area seemed an inexplicable phenomenon. It now appears legitimate to presume that these pits must have been associated with one or more houses which stood alongside a pathway which travelled in a direct line slightly northeastward from the Ritter site No.1 to the Ritter site No.2. Elsewhere it has been suggested that the pits of the Ritter site No.2 were themselves associated with a few houses which may have stood along a pathway leading from the Ritter site No.1 to the Russell site (via Derrickson).

Circumstantial evidence, the contemporaniety of the aboriginal occupations suggested by the absence of cultural distinctions, the locations of the prehistoric villages near the first sources of fresh water on the landward side of the coastal tidal marshes, the extension of the marshes and swamplands inland for considerable distances beyond the occupied areas, the width of the marshes at those locales, the tremendous distances involved in canoe travel from village to village, the circuitous routes to be traversed over high land in order to effect intervisitation

between villages which are in reality only a few hundred airline yards or so apart but separated by interweaving streams and their attendant marshes or by swampy lowlands, the clustered refuse pits part-way between Ritter site No.1 and Ritter site No.2, and the very existence of Ritter site No.2 all suggest that a pathway directly connecting the known major villages was established by the Indians and that the strip of solid land crossing the marsh thru which Parsons' turtle branch flows and the dike crossing the marsh thru which Canary Creek flows, were, in reality, land bridges artificially constructed by the Indians as parts of that pathway.

On April 16, 1955 Parsons and Omwake examined the narrow strip of solid ground discovered earlier by the former during the course of his turtle trapping efforts. It was found to be approximately 11 feet in width at its eastern terminus with the high land bordering the marsh. As the strip of land, which will be referred to hereafter as the causeway, proceeded across the marsh, it gradually narrowed in width to approximately 7 feet at the point at which it was transected by the unnamed branch of Canary Creek. The branch was 5 feet 4 inches wide. It was difficult to obtain accurate measurements of the width of the western part of the causeway because cattle, grazing out upon it from the adjacent pasture field, had badly trampled its edges. Wherever it was possible to obtain a width measurement between the branch and the western end, the result approximated 6 feet. The western terminal of the causeway had been so splayed out by the grazing cattle that it was practically indistinguishable in surface appearance from the surrounding marshes. Its course was, however, easily recognizable because of the sassafrass, wild cherry and what Parsons called chinch bushes which grew only upon it and not upon the surrounding marsh. Testing by means of a probe confirmed the existence of a solid bottom the entire length of the western section. The branch which transected the causeway evidently was of sufficient width to serve as an effective barrier preventing the cattle from crossing to the eastern end and inflicting their erosive damage upon it.

Near the eastern end of the causeway the fastland rose rather sharply to an elevation of a little more than 3 feet above the marsh. Just south of the eastern terminal there was a large, almost circular, depression hollowed out from the fastland to a depth, at its center, of not quite 3 feet. In the bottom of this depression stood stagnant water which had both the appearance and the odor of the water of the adjacent marsh. This feature is illustrated on the accompanying diagram.

The horizontal surface of the causeway presented a rounded appearance, its center being approximately 11 inches above the marsh, toward the level of which the causeway sloped gently on either side. Whereas the grassy vegetation of the marsh retained much of its wintry light brown color, that which grew on the solid soil was distinctly greener, and, along with the scrub growth, vividly outlined its course across the marsh.

Measurement of the length of the causeway was from the eastern

natural shore line to the eastern edge of the branch and from the western edge of the branch to the western natural shore line. The eastern section was 70 feet 4 inches in length, the western section 110 feet 6 inches, and the width of the branch 5 feet 4 inches. The total length of the causeway, including the branch, was 186 feet and 2 inches.

At a point 20 feet from the eastern terminus, by the use of great care, it was possible to dig a transverse trench 2 feet wide and nine feet long across the causeway, not quite extending from side to side, without permitting the water of the marsh to flow into it. The trench was carried to a depth of 28 inches at which the underlying swamp base on which the causeway rested was encountered. The clean vertical profile which was maintained revealed three distinct layers of material, all of which presented, in rough outline, the same curved appearance of the surface. The top layer, covered with thickly rooted grass vegetation, consisted of 4 inches of black humus scattered thru which were irregular globs of an orange colored material. The second layer consisted of approximately 7 inches of a tannish colored sandy soil bound together by clay. Extending downward thru this layer were irregular vertical streaks having a distinctly orangish color. By careful trowelling it was determined that each of these streaks stemmed downward from one of the globs of orange colored material noted in the black humus layer above. They gave to the second layer a generally mottled appearance. The third layer of material consisted of 17 inches of grayish colored sand bound together with clay. It was noted that the gray color became progressively darker from top to bottom as the original marsh base was approached and without doubt the progressive darkening may be attributed to seepage of marsh water upward from the bottom and inward from the edges of the causeway. It was noted that the top of this third layer of material was at approximately the same level as the surrounding marsh and there can seem to be no question about the reason for its grayish color. It was observed that except for their colors there was little difference between the second and third layers. Both consisted of clay bound sandy soils of approximately the same texture. The third layer seemed slightly more compact than the second, which fact may, perhaps, be attributed to the weight of the upper layers upon it. The vegetable and mineral content of the marsh water which seeped into the third layer may also have been a factor in its greater compactness. At the center of the trench, extending upward from the bottom in an irregular V shape, was a deposit of blackish sandy clay, not different in texture from the soil generally comprising the third layer. This blackish material seems to have been the point of entry for the upward seepage from the underlying marsh base. It was noted that the orange colored downward streaks of the second layer terminated at the top of the gray colored third layer.

Having determined the character of the material of which the causeway had been constructed and having noted the large almost circular depression in the fastland at its eastern terminus, the investigators thought it natural to assume that the builders of the causeway had ob-

tained their material from the area now represented by the large depression. A series of test holes was dug into the sloping sides of the depression and led Parsons and Omwake to the conclusion that the causeway material had, indeed, been obtained at that source. The underlying soil was of the same texture, consistency, and color as that of the second layer of the causeway, minus the orange colored streaks. The investigators suspected, therefore, that the globs of orange colored material which they had observed in the humus layer and which accounted for the irregular orangish streaks extending downward through the second layer may have been some material borne on the tides and caught up during their inbound flow by the vegetation on the surface of the causeway, there to deteriorate and penetrate the soil beneath, yielding the irregular orangish streaks noted in the second layer. That these streaks did not penetrate into the third layer may be interpreted as lending strength to the assumption that the grayish color of the third layer was the result of marsh water seepage into the causeway. It will be recalled that the level of the top of the third layer corresponded with that of the surrounding marsh.

The reader is invited to review the descriptions, previously cited, of the trench and the test hole which were dug into the Canary Creek dike. It will be observed that there are few definite differences between the structure of the dike and that of the causeway here reported. Both were topped by a humus layer of dark soil and matted roots. Next, in the dike, came a layer of "firm sandy loam fill of approximately 3 feet in depth. In profile this fill has a marbled appearance from light yellow to gray suggesting that top soil and subsoil were mixed in the loading and unloading of fill material."

In the causeway here discussed the second layer was of only 7 inches depth, a tannish clay-bound sandy soil. The difference in color seems to be one of description. The third layer was 17 inches thick and consisted of clay-bound sandy soil of the same texture and of only slightly heavier consistency than the second, differing from the second layer principally in color, which difference seems to have been acceptably accounted for. It is very likely, therefore, that the difference in color is in reality the only characteristic which indicates the presence of three distinct layers and that at the time of the construction of the causeway the apparent second and third layers were of exactly the same material. The reader is asked to note that the dike rose to a height of 2½ to 3 feet above the present marsh level, whereas the causeway rose barely 11 inches above it. The trench into the dike was dug to a depth of approximately two feet below the marsh level and promptly was filled with marsh water to a depth of 17 inches. The second layer of the dike was approximately 3 feet in thickness and was underlain by "The uniform hard packed original clay bottom." Comparing the structures, it appears to this writer obvious that the dike was simply carried to a greater height than the causeway, that the level of the bottom of the second layer of the dike corresponded approximately with that of the surrounding marsh level,

and that the "uniform hard-packed original clay bottom" was nothing more or less than the downward extension of the apparent second layer below marsh level, that its hardness may be attributed to the compacting influence of the weight of three feet of fill above it, and that its gray color was due to the penetration of marsh water from the sides and seepage upward from the underlying original marsh. The two features, the dike and the causeway, seem to have been identical in construction and the differences more apparent than real, except for the greater height of the dike.

In the description of the test hole dug farther out on the dike, it was noted that at that point the height of the dike above marsh level was "approximately 1½ feet." Again layering was observed. On top was a 6 inch layer of humus. Immediately beneath was a "5 or 6 inch" layer of reddish clay. Note that its bottom level was at or only slightly above that of the marsh. Beneath the second layer were others of a gray color, evidently becoming progressively more compact toward the bottom. It is submitted that these layers, viewed in toto, correspond closely to the third layer which was encountered in the trench into the dike and to the third layer which was revealed in the causeway. The one real difference was the layer of white sand which was encountered at the bottom of the test hole into the dike and which, by general agreement, was assumed to be beach sand. This writer believes that it is important, so far as the white sand is concerned, to note that it was not encountered in the trench. Had it been laid down as a base on top of the marsh, it would seem logical to expect that it would underlie the entire dike. It does not seem logical to think that experimentation to find a way to stabilize the bottom began at a distance of 236 feet from fast land. The reader's attention is called to the fact that similar white sand is encountered at a depth of 5½ to 6 feet beneath the top soil of many fields in the region near the site of the dike. It was found uniformly underlying the refuse pits of the Townsend site. It underlay the pits of the Miller-Toms and Lewes School House sites closeby and was observed beneath the refuse pits of the Ritter No.1 and the Ritter No.2 sites. This writer is of the opinion that were a test hole dug near the Russell site, at which the dike terminates, the same white sand would be found. Its presence in the dike at some distance from fast land seems to be better explained as the accidental deposit of underlying white sand occurring at the bottom of the area from which all the fill was obtained rather than as beach sand manually carried inland quite a distance and purposely placed in an effort to stabilize the muck of the swamp. This writer is unable, however, to find any suitable explanation for the fact that it retained its white color when it was in direct contact with the blackish muck and when the layers immediately above it had evidently been stained gray by the seepage of marsh water. The only explanation now tenable seems to be that of freakish coincidence. Aside from the deposit of white sand, there seems to be no substantial difference between the structure of the dike at the location of either the trench or the test hole and that of the causeway.

In concluding his report on the investigation of the dike, Dr. Marine stated "it is reasonable to suppose that the Dutch West Indian Co. or their immediate successors were the builders of the Dike to facilitate trade with the Indians from the Southwest."[19] Without knowledge of the existence of the causeway and having the Shankland map[20] to support the thesis, Dr. Marine was, indeed, justified in reaching his supposition. In view of the further evidence presented herewith, it is the suggestion of this writer that both the dike and the causeway were actually of aboriginal construction and that perhaps the greater elevation of the dike is attributable to improvements and alterations executed by the early whites in converting this part of the Indian pathway to their own uses.

A second reference to an Indian bridge occurs in, "A Pattent for a parcell of land neare Dellaware granted to Cornelius Verhoofe, ------ Whereas there is a certain parcell of land which by my order hath been layed out by Cornelius Verhoofe, called New Sevenhoven, situated on Ye West side of Delaware bay and on ye North side of a creeke called Mispam creeke, beginning at a marked white Oake, standing by a little creeke, called *Indyan bridge* creeke------"[24]

The Useful Indian Path, it is submitted, was a trail which led northward from the settlements on Indian River and probably from the Assateague Indian towns as far south as South Point and Ironshire. It may be assumed that it went into the villages of the Sickoneysincks[25] near present-day Lewes. Reference to a topographical map will show that the only possible dry land approach from the south to the aboriginal settlements on the eastern side of Canary Creek was via a high, narrow ridge which separates the Wolfe's Creek (Lewes Creek) drainage from that of Canary Creek and over which now runs Kings Highway. Without doubt the Useful Indian Path turned eastward as it rounded the headwaters of Wolfe's Creek and either the path itself or a short branch from it ran directly to the pre-contact Indian village at the Townsend site. It seems likely that another short branch led eastward to the Moore Shell Heap site on the southern side of Wolfe's Creek. It should be noted that before rounding the headwaters of Wolfe's Creek, the main pathway would have passed to the southern and eastern side of the headwaters of Canary Creek. From the Townsend site, therefore, to the settlements at the Townsend No.2 site, the Lewes School House site, the Miller-Toms site, and the Russell site the way was clear, high and dry on the eastern side of Canary Creek except for crossing the narrow Metcalfes' branch. But what of the Derrickson site on the western side of Canary Creek opposite the Russell site? How to get there from the Russell site except by crossing Canary Creek at some narrow point beyond its marshes via an abandoned beaver dam or a fallen tree? Lacking a causeway and a dike, the route from the Russell site, the Miller-Toms site, the Lewes School House site, the Townsend No.2 site, and even, in part, from the Townsend site, to the villages at the Ritter No.1 site and the settlement at the Ritter No.2 site would have had to follow the same circuituous course in reverse. This seems highly unlikely.

In view of the known use of the dike as a roadway in later years, the vertical face of the trench cut across the causeway was carefully examined for evidence of ruts which might have resulted from its use as a wagon road. Neither downward extensions of the dark humus layer into the second layer nor evidence of more solid packing of the second layer which might have resulted from the weight of wagon wheels crossing the causeway was observed. It is noteworthy that neither such condition was reported as observed in the trench dug into the dike.

Evidence of concrete character to support the proposition that the dike was built by white settlers does not materialize as the result of the archeological investigation. The presence of a single arrowpoint and "many quartzite flakes" in the dike signifies little except that originally they were present in the land from which the fill was obtained. In point of time this could have been a fact during the occupation of the area by the Indians or long after they had disappeared. The mere presence of these artifacts in the fill does not justify a conclusion that they arrived there as a result of action by the white settlers.

There is further evidence of circumstantial nature which points toward construction of the dike and the causeway by the Indians. Attention has been called to the fact that the dike does not run straight across the swamp of Canary Creek, but makes a gentle curve. Its starting point on the eastern side of Canary Creek is at the southeast corner of the occupied area of the Russell site. If one were to stand at the terminus of the dike on the eastern side and face in the direction of its course, he would be looking toward the southwest. If he were to proceed to walk out on the dike, he would make a change in direction as he approached Canary Creek itself and would be headed almost due west. The statement that "when the Queen Anne Railroad Causeway was built, the S.W. end and approach to the dike were destroyed"[21] is partially in error. True it is that extreme damage to the dike was effected but close observation from the western side of Canary Creek reveals the tell-tale evidence of the wild cherry, gum, and scrub bushes growing on the firm course of the dike, practically at marsh level. The present author photographed the dike from the western side and the continuation of it from Canary Creek to the western bank is plainly outlined by the small bushes. If our walker were able to jump over Canary Creek and pursue the dike on the western side of the creek, he would find that the curving arc continues and as he left the western end of the dike he would be pointed in a west northwesterly direction. Should he thenceforth follow a straight course overland, he would come directly to the eastern terminus of the causeway crossing the branch of Canary Creek. Were he to cross the causeway and continue on a straight course, he would come abruptly to the totally impassable great marshes of Mill Creek. This would be all wrong if, as has been suggested, the dike were built "to facilitate trade with the Indians from the Southwest." If such were to be assumed, the western section of the dike should have continued west or turned toward the southwest in the direction of the high fast land over which foot or

wagon travel to the southwest was easily possible. The Ritter No.1 site and Ritter No.2 site are the only known occupied aboriginal areas which could be reached by following a pathway straight from the dike and in as much as excavations at these two sites yielded absolutely no trade goods, it must be concluded that they existed prior to the coming of the white settlers and hence are outside the realm of consideration for "trade with the Indians from the Southwest." Though circumstantial, this evidence is negative in respect to construction of the dike by white people and positive in respect to the thesis that both the dike and the causeway were of aboriginal origin as parts of an inter-connecting pathway between Indian settlements.

In December, 1953, aerial photographs of the entire area under discussion were taken by the U.S. Army. Unfortunately, because they were taken for coastal defense purposes, their use is restricted. By promising not to make them generally available for inspection this author was able to secure thru the Commanding Officer of Fort George G. Meade prints of those photographs which pertain. It is possible to see, without the use of a magnifying glass, the outlines of both the dike and the causeway. Were it permissible to publish a section of one of these prints on which the occupied areas of the Indian villages (Ritter No.1, Ritter No.2, Derrickson, Russell, Miller-Toms, Lewes School House) had been sketched, the relationships of the dike and the causeway to the Indian villages and to the geographical features of the general region would be plainly evident. After careful study of the aerial photographs, this author is of the opinion that the circumstantial evidence on which rests his belief that both the dike and the causeway were of aboriginal construction is strongly reinforced. He regrets the restrictions which prevent publication of the sections pertinent to his contention.

Before summarizing the evidence which has been presented the author wishes to note reference to an "Indian" path and to "Indian" bridges which are found in the Duke of York Records. The survey of a parcel of land made March 27, 1681, for William Ematt[22] reads "a parcell of Land called Tanners Hall Scituated on the West side of Delaware Bay and on the South West side of a Creek called Middle Creek which proceeding out of Rehoboth Bay Beginning at a marked white oak standing on the said Creeke by a slayde of a small branch and running thence South West with a line of marked trees two hundred ninety and three perches to a Corner Bounded white oak near a branch and standing by the *Usefull Indian Path----------*"

The confirmation of quit rent for a parcel of land layed out for William Davids reads as follows: "Whereas there is a certain parcel scituate lying and being on the Westward side of Delaware Bay upon the North side of the Great Creeke, called Roaseberry-----beginning at the Red Oake standing a little below the *Indian Bridge-----*" [23]

Presuming that the *Great Creeke* cited in the confirmation to William Davids may have been the Broadkill,[26] which is the largest of all the streams bayside north and northwest of Rehoboth Bay, and noting

that there was an Indian bridge, if not over the Mispam (Mispillion?) Creek, at least over one of its tributary streams, is there not suggested the possibility that the northern extension of the Useful Indian Path known as the Wiccomis Path[27] actually led up from Rehoboth Bay, past the Townsend site, northward along the eastern side of Canary Creek to the Russell site, thence north westward via dike and causeway to the Derrickson, Ritter No.2 and Ritter No.1 sites, thence by some as yet undiscovered crossing of Black Oak Gut and Mill Creek,[28] northward via a Great Creek crossing, over or around Cedar Creek and the Mispillion (Mispam) River via an "Indyan bridge" and on up to the settlements on the Murderkill and St. Jones Rivers? All this, in the present state of our knowledge, is, of course, conjecture, but logical conjecture, and, viewed from a distance, lends credence to the circumstantial evidence which points to aboriginal construction of the Canary Creek dike and the subsequently discovered causeway crossing one of its branches. A possible route of that part of this suggested path which pertains to the sites in Lewes area has been indicated on the map which accompanies this article.

In summary, then, the evidence in favor of the thesis herein advanced is as follows:

1. Archeological investigation of the sites central to the Broadkill River watershed indicates occupation in pre-contact times by peoples having a common culture.
2. Only at the relatively unintensively occupied Derrickson site is there any evidence of white contact and there is equal evidence that this site had been occupied in pre-contact times by a people whose culture was similar to that of those who inhabited all the other known pre-contact villages in the immediate vicinity.
3. The very absence of cultural dissimilarities suggests a contemporaniety of occupation of all the sites.
4. The extension inland of the marshes and swamplands which border the streams necessitated great round-about detours in order to effect travel from one village to another if no artificial crossings of the marshes and swamps existed.
5. The refuse pits in the field midway between the area of concentrated occupation of the Ritter site No.1 and that of Ritter site No.2 and the very location of Ritter site No.2 suggest the existence of a pathway from Ritter site No.1 to Ritter site No.2.
6. The necessity to follow in a huge circular course around an extensive swampy lowland in order to travel from either Ritter site No.1 or Ritter site No.2 to the Derrickson site suggests that the occupants of these areas may have established a much shorter pathway by constructing the causeway over the branch of Canary Creek.
7. The tremendous distance to be travelled to the headwaters of Canary Creek and back on its other side in order to go from the Derrickson to the Russell site, or vice versa, suggests that the

Indians may have constructed the dike.

8. Both the causeway and the dike appear to have been constructed in similar manners using similar materials available at their immediate sites.

9. There is no evidence to prove that the arrowhead and quartzite flakes discovered in the dike could not have been accidentally included in the fill material if the dike were aboriginally constructed.

10. The vertical profile of the trench cut thru the causeway gave no evidence of ruts such as might have resulted had the causeway been used as a wagon road and no such observations were reported in the account of the investigation of the dike.

11. The direction of the dike seems to deny its use for trade with the Indians from the southwest and seems to confirm the possibility that both it and the causeway were parts of a pre-contact Indian pathway between villages.

12. The Shankland map confirms the later use of the dike as a roadway, as does its greater height, even tho rutting apparently was not observed.

13. Aerial photographs showing the relationship between the known aboriginal occupation areas and the natural geographic features of the region support the contention that both the dike and the causeway were parts of a pre-contact era pathway between Indian settlements.

14. References to the Useful Indian Path and the Indian bridges tend to confirm the existence of a prehistoric pathway between villages and testify to the fact that the Indians did construct "bridges" although they do not give any clues in respect to the nature of such works.

15. Viewed as a whole, although entirely circumstantial, all the evidence tends to confirm the thesis that both the dike and the causeway were of aboriginal origin.

BIBLIOGRAPHY

1. "A Report of the Excavations at the Ritter Site No.2 near Lewes, Delaware", H.G. Omwake, *The Archeolog*, Vol. VI, No. 3, December, 1954, p. 12.

2. Ibid, p. 12.

3. Not reported.

4. Dr. Marine extended to the author the courtesy of an advance copy of his report, "Examination of the Pagan Creek Dike", to be published in *The Archeolog* in the near future. Pagan Creek is an older name for the stream presently known as Canary Creek.

5. Ibid.

6. "The Dike", Shankland map reproduced in *The Archeolog*, November, 1942, No. 2.

7. Marine, David, op. cit.

8. Omwake, H. G., op. cit., p. 4.

9. "Report of an Archeological Investigation of a Site Designated as Townsend II on Canary Creek", H. G. Omwake, 1954, distributed to members of the Sussex Archeological Association.

10. "For the Record", H. G. Omwake, *The Archeolog*, September, 1948. "Aboriginal Evidence from the Grounds of the Lewes School", H. G. Omwake, *The Archeolog*, May 1951.

11. "A Report on the Miller-Toms Site, Lewes, Delaware", H. G. Omwake, *The Archeolog*, September, 1954.

12. Unreported site excavated by members of the Sussex Archeological Association.

13. An unreported site partially investigated by James L. Parsons. See "The Derrickson Site Worked Conchs", H. G. Omwake, *The Archeolog*, No. 1, February, 1952.

14. Called "Black Hog Gut" on the maps published by the Army Map Service, Corps of Engineers.

15. "Ritter Site Investigation", H. G. Omwake, *The Bulletin*, Archaeological Society of Delaware, Vol. VI, No. 1, April, 1954.

16. *The Archeolog*, Vol. VI, No. 3, December, 1954, op. cit.

17. Marine, David, op. cit.

18. Omwake, H. G., "The Ritter Site Investigations", op. cit., unpaged.

19. Marine, David, op. cit.

20. *The Archeolog*, November, 1952, No. 2, op. cit.

21. Marine, David, op. cit.

22. Duke of York Records, 1646-1679, p. 68.

23. Ibid, p. 106.

24. Ibid, pp. 167-168.

25. "The Indians of Lewes, Delaware", Weslager, C. A., *Bulletin*, Archaeological Society of Delaware, Vol. IV, No. 5, January, 1949, p. 6, et. seq.

26. Confirmed by Mr. Wm. B. Marye in a personal communication under date of May 18, 1955. Mr. Marye is of the opinion that the bridge to which reference is made probably crossed a marsh or a gut adjacent to Broadkill River rather than across the river itself because of its great width. In this case the pathway suggested would have run alongside the river, proceeding toward its headwaters to some point at which the river was sufficiently narrow to permit crossing by fording or at which point a causeway type bridge, as yet unidentified, over the river itself and its attendant marshes was constructed.

27. Weslager, C. A., op. cit. p. 9

28. The right of way of the Queen Anne Railway may have encompassed such crossings.

APPENDIX

As general information about the subject of Indian bridges the following extracts from recent letters to the author by Mr. Wm. B. Marye are offered.

From a letter of May 18, 1955

"Indian bridges occasionally crossed wide creeks as, for example, King's Creek, a branch of Manokin River in Somerset County, Maryland. Generally they crossed marshes which were intersected by small creeks, guts, or thoroughfares, as, for example, Bullbeggar Creek, a branch of the Pocomoke River, in Accomac County, Virginia."

From a letter of May 20, 1955

"It is safer to assume that the Indian bridge in question (Duke of York Records, 1646-1679, p. 106) carried a path across a marsh and an intersecting gut or small creek instead of that it crossed Broad or Great Creek. I searched exhaustively for records of Indian bridges in the archives of Delaware, Maryland, Virginia, and North Carolina. The typical site is a marsh, or swamp, threaded by a gut, or narrow creek, but sometimes a fresh water stream. I will cite examples:

"Head of Requastico Creek, Wicomico County, Maryland: A deep swamp, barely passable on foot even in dry weather. This swamp is traversed by a small, fresh water stream. Near Spring Hill. One crosses the swamp by jumping from hummock to hummock.

"Windmill Gut, near its mouth, where it enters Pocomoke River, between Shelltown and Williams Point, Somerset County, Maryland. The gut makes up into a wide marsh.

"Bullbeggar Creek, Accomac County, Virginia. An inlet of the Pocomoke River, near its mouth. The Indian bridge crossed a considerable stretch of marsh, but the creek, where the bridge was laid over it, presented no problem.

"Nassiongo Creek, Worcester County, Maryland. The Indian bridge there crossed a swamp, as well as Nassiongo Creek, which at that point is a narrow, fresh water stream. Bald cypresses.

"Dragon Run, dividing Middlesex from Gloucester County, Virginia. The Indian bridge undoubtedly crossed this run, some distance above the present crossing of the road running from Urbanna over into Gloucester County. Typical southernswamp, with bald cypresses. The run is inconsiderable.

"Core Creek, Neuse River, North Carolina. Fresh water stream of about the size and volume of Dragon Run, where Indian bridge was situated. Swamp with bald cypresses.

"Examples of more difficult feats of engineering are:

(1) "King's Creek, Somerset County, Maryland, a branch of Manokin River. The Indian bridge crossed this creek near its mouth. In 1670 it was testified under oath that there was then visible in the creek, near the river, a row of stakes representing the remains of an Indian bridge.

When I visited the spot, I took off my clothes and swam out into the middle of the creek. The water was over my head a short distance from shore.

(2) "Wicomico Creek, dividing Somerset County from Wicomico County, Maryland, just below the mouth of Passerdyke Creek. This site of an Indian bridge is today a rather wide stretch of water, apparently shallow, except for a probable channel, but in all likelihood shallower than formerly. Mud bottom. I had no boat and getting across by wading would have resulted in my sinking into the mire. I do not recall my evidence, but it convinced me that the Indian bridge actually crossed the creek at this place."

Officers of the Archaeological Society of Delaware

1956-1958

C. F. Kier, Jr., Hammonton, New Jersey..... *President*

John Swientochowski, Wilmington, Delaware..... *First Vice-President*

Irwin J. Kappes, New Castle, Delaware..... *Second Vice-President*

Dr. H. V. Holloway, Dover, Delaware..... *Third Vice-President*

Joseph P. Monigle, New Castle, Delaware..... *Recording Secretary*

George E. Jackson, Claymont, Delaware..... *Corresponding Secretary*

Mrs. Marie Wilkins, Strickersville, Pennsylvania..... *Treasurer*

Dr. Allen G. Schiek, Claymont, Delaware..... *Editor*

Elwood S. Wilkins, Jr., Strickersville, Pennsylvania.....

Eastern States Archeological Federation Representative

Directors

Arthur W. Volkman *(expires 1958)*, Wilmington, Delaware

James B. Akerman *(expires 1958)*, Landenberg, Pennsylvania

Richard C. Quick *(expires 1959)*, Newark, Delaware

Norman Neilsen *(expires 1959)*, Wilmington, Delaware