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CAPE COD: ITS INDIANS AND ITS ARCHAEOLOGY

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ENVIRONMENT

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For one substage of the Wisconsin, or last great stage of Pleistocene glaciation, we may envisage in Cape Cod Bay<sup>4</sup> a mass of ice with a crescentic or lobate front conforming to the arc described by Cape Cod and the Plymouth shore. Sometime earlier this ice had extended as far south as Nantucket. Flanking the Cape Cod Bay ice on the west was a similar

lobate mass in Buzzard's Bay, while east of the Cape Cod ice was another such body, the South Channel lobe, lying in the present offshore region. These lobes were the local, segmented, terminal portions of the great ice sheet which, as has been told in an earlier paper, moved south at this time over New England and the adjacent sea bottom well to the east of Massachusetts, leaving two lines of terminal moraines. These moraines run throughout Long Island and far enough east thereof to include George's Banks, the latter probably the submerged moraine of the South Channel lobe. On Cape Cod the Wisconsin drift is of uneven thickness. In general the topography from Dennis to the west end of the Cape is largely an expression of this late glaciation, and on other portions of the <sup>area</sup> ~~peninsula~~ particularly in Chatham and in the north part of Truro, the Wisconsin drift often only thinly mantles a pre-Wisconsin relief <sup>(1)</sup>.

It is convenient to think of Cape Cods as comprised of two sections. The east-west arm, or ~~The~~ Upper Cape as it is often called, stretches from the east shore of Buzzard's Bay and the Cape Cod Canal eastward about 34 miles to beaches fronting the Atlantic Ocean in the town of

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(1). The Wisconsin drift on Cape Cod is thought to represent the Tazwell and Iowan substages. The correlations of the local pre-Wisconsin drift with that of the central area have not yet been established with certainty. According to the latest opinion consulted in preparing this paper, the Jacob sand and Gardiners clay, which are exposed in the cliff at Highland Light ~~at~~ North Truro, are marine deposits which probably refer to the Sangamon interglacial stage. And the Jameco gravel, which nonconformably underlies the Gardiners clay at Highland Light, may represent the Illinoian glacial stage, although it has also been attributed to the Kansan. Now <sup>is</sup> ~~is~~ visible under the Jameco gravel is a fine sand, which would seem to mark an interglacial stage preceding the Illinoian.

Orleans. In width this portion of the peninsula averages seven miles, except in the extreme west end, where there is an increase to 20 miles. From Woods Hole northerly to Sandwich and thence east to the Orleans beaches, the Falmouth moraine, resting on a base of older glacial drift, constitutes a backbone of bouldery hills, rising to elevations of well over 200 feet. The heights tend to increase from east to west. Declining from ~~somewhere near the crest of~~ the moraine south to Nantucket Sound is an outwash plain, which is dotted with ponds (ice-block holes) and cut with many narrow bays and tidal streams, the most noteworthy of the latter being Bass River. Between the moraine and Cape Cod Bay on the north, is a strip of one to two miles wide consisting of scattered headlands, sand spits and marshes. The feature of chief interest here is Barnstable marsh and harbor, protected by the seven mile spit of Sandy Neck. Starting in the east part of Orleans, and extending seven miles southerly to the heel of the Cape at Chatham, is a section of the old, irregular, glacial shore line, which has been <sup>protected</sup> ~~protected~~ extreme erosion by the spit of Nauset Beach. The sizable body of water lying inside this beach is appropriately called Pleasant Bay.

Lower Cape Cod, ~~which as will have been seen,~~ <sup>which</sup> was once an interlobate area between the Cape Cod Bay and the South Channel glaciers, is adjoined at roughly a ninety degree angle to the part already described. It reaches northerly from Orleans some 32 miles and has an average width of about three miles. Save for some mixed kame and moraine deposits in the south part of Eastham, ~~the portion~~ <sup>and for the</sup> dune sand in the Provincetown area, this portion of the Cape consists of stratified sand resting on the still older sand, clay and gravel. Some of the upper sand, particularly <sup>on the ninety level plain</sup> that in the north part of Eastham, appears to be outwash from offshore Wisconsin ice to the east. In Truro and Wellfleet the pre-Wisconsin clay may comprise the larger bulk of many hills. Kettle-holes, often

containing ponds or swamps, occur in great numbers in Truro and Wellfleet, but in the same towns boulders are common in only a few relatively small sections. At High Head, or Pilgrim Heights, in the north part of Truro, the Cape Cod formed during the glacial age comes to an abrupt end, a termination which is marked by bluffs, now isolated, that were once cut by breaking ocean waves. These old cliffs are a prominent feature that can be seen by the traveler on the Provincetown highway. From Eastham northward, where the storms for thousands of years have eroded the glacial formations, to apparently less than half their original width, a straight and almost continuous cliff faces the Atlantic, but in Eastham itself, with Nauset Harbor, we again have a section of the early post-glacial, shore line, protected from storm waves by a narrow sand barrier. ¶ On the west, or Cape Cod Bay side, the outline of the Lower Cape is more or less complicated with inlets and marshes, the Wellfleet area being especially discontinuous in this respect. Some of these inlets are involved in an important feature of the Lower Cape, a series of transverse valleys, which are unique in that they are not a manifestation of any present system of drainage. At least the more pronounced of these valleys, as for instance the one partly occupied by Pamet River, appear to have been cut during an erosional cycle preceding the Wisconsin glaciation, although they were greatly modified at the time of the last advance of the ice.

Differing markedly from the glacial portions of the Cape is the six mile stretch of sand from High Head to the end of the Peninsula. This section, on which Provincetown and the state owned Provinceland are located, is a sand hook built up in post-glacial times. It consists of dunes of sand carried by wind from bars. The bars, in turn, were derived in large part from eroded material transported by currents

setting along the shores of Truro and Wellfleet. A lesser portion of the material doubtless came from glacial headlands or islands once situated in the general area of Provincetown. The former existence of such lands is indicated by the occurrence of the Jameco gravel at about sea level near Wood End Light.

Owing to the sandy nature of the surface formations, fresh water streams are in little evidence on Cape Cod. There is some seepage from springs into marshes, and in cases fairly respectable brooks serve as outlets to ponds, as for examples, Stony Brook in Brewster, and Mashpee River in the town of that name, the latter a free running stream some 12 feet wide, the largest fresh creek on the peninsula. Such streams as those just mentioned are still important herring runs,

The distribution of boulders on Cape Cod has been noted. A number of them were used by Indians for grinding foodstuffs and for sharpening heavy stone implements. One felsite boulder appears to have supplied material for implements, and it now displays scars from which pieces were broken off for the manufacture of chipped tools. Stones of cobble and pebble sizes are abundant throughout the whole Cape area. There is no lack of quartz, quartzite and felsite, the rocks most used for flaked points and knives. Flint of any kind is extremely hard to find. There is a plentiful supply of slate, granite, diorite, and diabase, the rocks employed for large implements. The usable stones may be found on beaches or on high ground in the normal sands and gravels.

The fields and forests of the first part of the 17th. century are harder to visualize than the actual terrain. A considerable amount of tillable land near inlets and harbors was undoubtedly cleared for

Indian agriculture, as is shown by Champlain's illustrated maps of Chatham and Nauset Harbor. From the Pilgrims also we have accounts of cleared plots of up to 50 acres seen in Truro on their first reconnaissance of the new world. Most of Cape Cod, however, was heavily forested. William Bradford in 1620 saw the now bare Long Point in front of Provincetown as "wooded with oaks, sassafras, juniper(=red cedar), birch, holly, ash, and walnut, the wood for the most part open and fit to go and ride in". That this is an accurate report can hardly be doubted, in view of the fact that a woods something like the one described may still be seen in a small area of the Provinceland. Evidence of a once heavy forest resides also in the certain knowledge we have that ship building from native lumber was carried on in some Cape towns until well into the last century. ¶ Probably the oak, still present in several varieties, was dominant on high ground in the old woods, with the red cedar filling the swamps; so Chatham appeared to William Nickerson, its first white settler. Other indigenous trees, most of which are still growing in the woods near Provincetown, include the beech, maple, shad, cherry and tupelo. The white pine, now found only in the west part of the Cape, appears to have once grown over the whole Cape Area, while the pitch pine, which now extends over much formerly cultivated ground to lend an aspect of monotony to many miles of Cape highway, was probably once confined more to <sup>marginal</sup> ~~sandy~~ tracts near the sea.

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## HISTORIC INDIANS

The writings on the tribal distribution and affiliation of the Indians of Cape Cod add up to a certain amount of confusion. There has come down to us hardly an Indian place name without a special tribe to go with it. The following outline of the Cape groups at the time of the first white settlement is based on the findings of Frank Speck, whose researches in the area have been more extensive than those of any other ethnologist. Southeastern Massachusetts was the home of two main tribes. On the mainland were the Wampanoags, who held also a narrow strip of Cape Cod, which seems to have included the east shore of Buzzard's Bay and part of the town of Sandwich. The petty chief of this easternmost band of Wampanoags was Conecconam, whose sway extended also northward along the Plymouth shore for some distance. Conecconam was, of course, subject to the great sachem Massasoit, or Ousamequin. The rest of Cape Cod was the territory of the Nausets, <sup>who had</sup> ~~having~~ a fourfold grouping. The westernmost Nauset group held an area stretching from the Wampanoags eastward to <sup>about near</sup> ~~about~~ the west boundary of Barnstable. This division, about which information is scanty, seems to have been centered at Mashpee or thereabouts. Next came a group occupying roughly the towns of <sup>Barnstable</sup> ~~Barnstable~~ and <sup>Yarmouth</sup> ~~Barnstable~~, their domain ending just east of Bass River. We know that the chief of this division was Iyanough (or Wiananno or Hyannis, according to the variations), whose seat was at Cummaquid, or Mattacheest, at Barnstable Harbor. From east of Bass River to the north part of Orleans was the territory of a chief whose name has not come down to us, but who seems to have resided at Monomoy, or Chatham. North of the last group were the Nausets proper under Aspinet, located at Nauset Harbor, in Eastham. Aspinet's realm apparently embraced all of the area north of Eastham. In connection with this, however, it is only fair to mention

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### ENVIRONMENT

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that Shebna Rich, the historian of Truro, speaks with some reason of a separate <sup>a</sup> group or subtribe for his town, pointing out in so doing certain passages in the early writings that refer to a chief or "king" of Pamet, in Truro

Uncertain is the relationship of the Nausets to the Wampanoags. Massasoit seems to have claimed the fealty of the Cape Cod natives, who appear to have had no head chief of position corresponding to that of Massasoit. There is, however, no known instance of Wampanoag control over the Nauset chiefs, either by Massasoit or by his son Philip, or Metacom. Indeed, on one occasion we find the former confidentially informing the English of a real or imagined treachery intended them by the Cape Indians. Perhaps the truth is that, with Massasoit at the time concerned, we are dealing with a chief lately shorn of former power, owing to the weakening of his people by the plague of 1617. We may conjecture, therefore, that the independence of the Cape natives may have been of short standing.

Agriculture was the basic feature of Indian economy over most or all of Cape Cod at the time of the white contact, although game, fish, shellfish, wild nuts, and so on, were <sup>important</sup> ~~important~~ items of food. The cleared land shown by Champlain for Nauset Harbor was covered with scattered houses, each with its plot of cultivated ground. Champlain reports that corn, beans, squashes, and tobacco were seen growing and that some land was left fallow. Before the time of planting, weeds were burned off and the soil turned over with wooden spades. At Chatham a year later the Frenchmen found some 500 Indians living in circumstances like those observed at Nauset. On certain parts of the Cape a somewhat different sort of native life may have existed. Speck indicates a belief that

many small islands on the south shore of the Cape were held and lived on from generation to generation by individual families, whose activities were about equally divided between agriculture and fishing.

Indian houses seen on the Cape by the French and later by the Pilgrims were commonly dome shaped, having a framework of bent saplings stuck in the ground, over which was there was a double covering of rush matting. A loose mat near the ground served ~~for~~<sup>as</sup> a door, and another movable mat provided a cover for a smoke hole in the top of the house. The fire was built on the ground in the center of the hut. Included in household equipment reported by the Pilgrims from such a dwelling which they entered in Truro, in 1620, were earthen pots, wooden trays, wooden dishes, and baskets of various kinds and sizes. Spears, clubs, bows and arrows were the weapons seen by Champlain. Of 18 arrows collected by <sup>the</sup> Pilgrims after a skirmish with the Eastham Indians, we are told that some were tipped with deer antler, some with brass, and some with eagle's claws. The absence of stone arrowheads on this occasion is something to note.

In their early contacts with the whites the Cape natives seem to have been well disposed. A certain trickiness and hostility, about which we hear complaints, appear to have cropped up only after experience with the invaders. At Nauset a man of Champlain's party was killed in a fracas over a kettle which the Indians coveted. Although this matter was amicably settled, trouble that flared up when the French later put in at Chatham <sup>had</sup> ~~had~~ of a more serious outcome. This time four white men were slain, and in retaliation six natives were killed by the whites. In this interchange, credits for barbarity were well earned by both sides, and in about equal measure. The French, however, despite their pious attempts to justify their acts, would seem to have placed themselves in the position of unwelcome tressupassers. Some time after this seven

Indians from Nauset were siezed with other captives, (among whom wase Tisquantum and others from Plymouth) by a Captain Thomas Hunt, who sold most of these unfortunate Indians into skavery at Malaga for 20 pounds a head.

This last piece of business was probably back of the before mentioned attack on the Pilgrim party by the natives of Eastham, a luckily bloodless encounter which appears to have been the only instance of violence between the Cape Indians and the whites of Plymouth Colony. As time went on, it was the friendly attitude of these natives that made possible the continuance of the Plymouth settlement, for in the winter of 1622-23 the English were saved from famine only with corn and beans secured in quantity from the Cape Indians. ¶ From some little time before this we have evidence of a different kind of the favorable disposition of the local natives. On hearing that a white boy, who had somehow strayed from Plymouth, was on Cape Cod, an expedition set forth to recover him. Putting in at Cummaquid, the Pilgrims were entertained by Iyanough, the local chief whom we have already met. Iyanough they found, in the words of Edward Winslow, "a man personable, gentle, curteous, fair conditioned; indeed not like a savage except in his attire. His entertainment was answerable to his parts and his cheer plentiful and various". The noble Iyanough escorted the Englishmen to Nauset, where the white boy was secured from the chief Aspinet and carried to them decked out with beads.

By 1644, Sandwich, Barnstable, Yarmouth, and Eastham, the four original Cape towns, had been settled. All land taken over was purchased from the Indians, a matter of pride to the Pilgrim conscience, although in this late day we may question the equity of transactions in which the basic resources of an economy were bartered for such merchandise as cloth coats and iron kettles. However this may have been, when

King Phillip's war broke out, the Cape Indians, who could have mustered a considerable number of warriors, did not heed the importunities of their brethren on the mainland to take the war-path. Had they done so, complete disaster might have fallen on the Cape towns. This pacific attitude doubtless in great measure due to the propagation of Christianity among the Cape natives, first by John Eliot and later by Richard Bourne.

With the name of Bourne we come to the plantation of Mashpee, about which Indian affairs <sup>on</sup> ~~in~~ Cape Cod were increasingly concentrated from this time on. Richard Bourne, a man of substance in the new town of Sandwich, saw the futility of attempting to Christianize the Indians without at the same time providing them with a degree of security in a territory free from white encroachment. Accordingly, and largely through his efforts, the 10000 acre reservation of Mashpee was established. Bourne, not originally a <sup>clergyman</sup> ~~clergyman~~, was ordained pastor of the Mashpee church in 1670 in a service conducted by Eliot. The ministry of Bourne was followed by that of Simon Popmonet, an Indian, whose tenure lasted 40 years. <sup>Despite</sup> the work of the enlightened Bourne and his worthy successors, the history of the Mashpee plantation, or South Sea Indians as the inhabitants there were called, leaves much to be desired. At the start, affairs were in the hands of six Indians under the guidance of Bourne, but in 1693 the Mashpee Indians were placed under overseers appointed by the state. Since the powers granted the overseers were highly dictatorial, discontent on the part of the governed was the inevitable and long standing result. Not until 1833 were the petitions of the Indians finally recognized. Mashpee was then made into a district, with the inhabitants for the first time having the right <sup>of</sup> ~~of~~ governing local matters under officers of their own choosing.

<sup>At</sup> ~~At~~ its start the Mashpee plantation was probably largely Nauset,

but it soon received important increments of Wampanoags, and even of Indians from as far as Connecticut and Long Island. As time went on, Negro and Caucasian strains appeared in the community, and as early as 1800 few full bloods remained. Nevertheless, it is the opinion of Speck, as recently as 1942, that the Indian character is still strong in the Mashpees. That pride in the native race still resides there is disclosed to the casual visitor to the Mashpee churchyard by the plaques on some of the graves, bearing in homely lettering such designations as "Princess Yellow Bird", "Chief Little Bear", and "Chief Morning Star".

ARCHAEOLOGY

The Indian archaeology of Cape Cod is known only in part. Little information is available from excavations<sup>s</sup> on the Upper Cape, except for one report dealing with a series of relatively late shell heaps. The Lower Cape, however, is fairly well known, and the archaeological section of this paper is based largely on data from that area, as gathered from published matter and from a study of a considerable amount of unpublished material in my hands and in the large collection excavated by Howard Torrey, which I was privileged to inspect in the Robert S. Peabody Foundation, in Andover, Massachusetts. We have information, in varying stages of completeness from some 20 ~~excavated~~<sup>examined</sup> shell heaps, of which eight show two or more periods of occupation. From this we have been able <sup>to</sup> build up what seems an essentially correct idea of the sequence of Indian cultural events, starting in preceramic times and ending in the historic period.

Indian habitation sites are clustered around most of the important inlets and harbors of the Cape, an exception being Provincetown Harbor where prehistoric vestiges are absent. In some favorable locations, such as the land around Nauset Harbor, the distribution of stone chippings reveals <sup>a thin but</sup> an almost continuous site extending <sup>over</sup> ~~over~~ large areas. Shell heaps, the more concentrated deposits of camp debris, are found in various situations. They sometimes occupy the sloping sides of kettle-holes, an important example of such a <sup>location</sup> ~~scattered~~ being Small's Swamp, at High Head, <sup>where we have</sup> a camp frequented by the Indians over a long period.

Information regarding Indian burials on Cape Cod is meager. While interments in some number were seen by the Pilgrims in Truro and Eastham, one receives the impression ~~that~~ the old accounts that these graves were

of too superficial a depth to have been preserved. The burials observed at Eastham, according to Charles Willoughby, appear to have been connected with a palisaded fort whose occupants had been carried off by the plague of a few years earlier. Many of the burials that have come to light in recent times have been uncovered in building operations, while a few others have been found in shell heaps, and still others have been disclosed in eroding cliffs. Except for one bundle burial, <sup>and one in a sitting position,</sup> there is no evidence at hand of an interment of other than the flexed type. A skeleton removed from the railroad cut at Corn Hill, in 1915, and now in the museum at Haverhill, Massachusetts, was covered with slats of well preserved wood, the whole being in a mass of red ochre. Another burial with wood and red ochre is reported from Chatham. Red ochre is known from a grave in Hyannis, and it was present in one of the burials seen by the Pilgrims at Corn Hill. Cedar bark was found covering an interment in Eastham. Grave goods when present are usually not of a spectacular nature. A plain, cup size, brass container and a polished celt type axe are known from a grave found at Corn Hill about 1860. None of the known burials seem to date from a very early period, and all those accompanied by red ochre appear to be relatively late.

#### Late Archaic Period

The earliest cultural level so far excavated on Cape Cod pertains to the Late Archaic period and is known from materials found under certain pottery bearing shell heaps in Truro and Wellfleet. Scattered surface finds indicate its presence elsewhere in the Cape area. This occupation was evidently sparse, and it seems to have antedated the use of shellfish to much if any extent. Traits which may be considered diagnostic, although they are not all present in every instance, are: gouges, plummets, choppers, spear-thrower weights (oval bannerstones, whale-tail objects, etc.), very small stemmed and triangular points, eared

points, narrow side-notched points, pentagonal points and knives, and rude unstemmed blades. These artifacts are illustrated in <sup>Fig. Nos. 43-72.</sup> ~~Figure 1, D.~~ Stemmed points of the usual medium to large sizes occur but not in important numbers. A few steatite bowls were in use, as were some drills, stemmed and flake scrapers, and a scattering of other artifacts, including one grooved axe. On implements made of felsite a strong gray patination is prominent.

At the Freeman-Paine site, in Wellfleet, one of the important locations of the Late Archaic, Torrey found the early artifacts in sand of a deep reddish-brown cast, this color being due to a natural concentration of iron-oxide in the low ground where the camp is situated. One hearth or lens of fine ash-like material was encountered. Of the traits listed above as diagnostic of this horizon, all but the last four occurred with a high rate of frequency, considering the smallness of the site and the respective kinds of artifacts involved. There were found, for instances, 8 gouges, 12 whale-tails, 22 plummetts, 30 choppers, and over 100 very small points. The site yielded some 15 medium size stemmed points, which tend to be narrow and to have weak shoulders (Fig. ~~D.~~ No. 48). A few stemmed scrapers, miscellaneous knives, and other chipped artifacts are in the collection. Eared points, pentagonal points, and rude unstemmed blades are absent or only poorly represented. An interesting object found with some frequency at this site, but, in so far as known, not elsewhere on the Cape, is a spool-shaped artifact of pecked stone (Fig. ~~D.~~ No. 67).

At the High Head region of Truro, I found Late Archaic materials underlying shell heap middens at the Rich, Holden, Warren's Field, and Small's Swamp sites. At the first three of these locations, the early level was in yellow sand, which differed little if at all from the normal

glacial sand of the region. At the fourth site the Archaic traits were in brown sand, discolored either at the time of the early occupation, or later from the very thick dark midden which accumulated in the area. As respects their Archaic levels, these four sites are similar enough to one another to permit consideration as a unit. All of the traits considered diagnostic of this horizon on Cape Cod were present at the High Head locations, with the exception of narrow side-notched points. However, there were noticeably fewer gouges, plummets, and spear-thrower weights than in the collection from Freeman-Paine. On the other hand, eared points and rude unstemmed blades, both virtually absent from the last named site, are prominent in the ~~High Head~~ High Head, where <sup>upwards of 200 rude</sup> ~~three or four~~ unstemmed blades alone were excavated. From the Archaic level of the latter area there are few, medium and large size, stemmed points, with none at all from the early zone of Warren's Field.

Another Truro location yielding materials from yellow sand below a pottery bearing shell heap is the Rose site, where the lowest level was marked by the occurrence of a somewhat specialized, elongate, side-notched point. With this artifact the base is relatively narrow, while the blade tends to expand slightly above the shoulders (Fig. B, No. 57). Other points from the yellow sand at this site include one of eared type and a few of elongate, incipiently stemmed type (Fig. B, No. 49). One steatite bowl sherd was found.

In regard to the evidence above given, I think there is apparent an unmistakable linking of Freeman-Paine with the locations at High Head. However, Freeman-Paine may represent a rather early stage of the Late Archaic, since it seems to date from a time before eared points and rude unstemmed blades arrived in force. Lending support to the possible priority of Freeman-Paine is perhaps the high frequency there of gouges, plummets, and whale-tails. The early materials from the Rose site, which

probably represent a transient camp, seem aberrant to Cape Cod, or at least they show only vague ties with any other Cape site here known.

From comparisons with off-Cape areas, we find in the first place that the Late Archaic of Cape Cod as exemplified by what may be called the High Head- Freeman-Paine complex equates closely, typologically and doubtless also chronologically, with a corresponding level on the mainland of eastern Massachusetts. While a Late Archaic of the particular complexion found on Cape Cod and in other portions of this state can not, so far as I can see, be traced north into the Archaic of Maine, nor southwest into the early levels of the New Jersey region, it does appear analogous in many respects to the Laurentian aspect of New York. In support of this I will mention not so much gouges, plummetts, and objects of the bannerstone category, which all widespread in the Archaic of the Northeast, but rather ~~the~~ eared points, pentagonal points, and rude unstemmed blades (the "rude cache blades" of New York). These latter are artifacts of more restricted distribution, and they occur in almost identical forms both in New York and in eastern Massachusetts. There is in this, I believe, a suggestion of a cultural connection between these two sections in the latter part of Archaic times. The Late Archaic of this state may represent a modification of an earlier local Archaic, which was present on the mainland but not so far as we know on Cape Cod, by influences from a westerly or possibly a northwesterly direction. If so, this would seem to have been a thrust on a limited front, since, as we have seen, areas some distance to ~~the~~ other side were not affected.

In respect to the actual life of the earliest known Cape Codders, I think we may say that that their economy was in a pre-agricultural stage, and their existence, therefore, doubtless on a bare subsistence level, with a dependence entirely on hunting, fishing, and gathering

wild vegetable foods. It is not clear why there was, as appears, so little shellfishing, which is a sort of gathering. For the most part foods were <sup>eaten raw or prepared</sup> ~~gathered or prepared~~ by broiling or boiling in bark containers with heated stones, for these people had no clay pots, and stone <sup>resals</sup> were too few and too small to have been of much help.

It is difficult to be sure of the function of stone tools long out of use. But the gouges may have been used in hollowing out wooden canoes, which of necessity people must have had to live in the area. Stone plummetts may have served as fish-lures, or they may also have been used for net sinkers. Weapons may have included both the bow and the spear-thrower, <sup>but the presence of the former</sup> in this early context is contingent on whether the very small points are really arrowpoints. They do not occur prominently in succeeding levels, and conceivably they may have been employed in early times for some such use as barbs for fish-spears or harpoons. We have no indication of the houses in which the people of this period lived. Of the language and tribal classification of the people we are also without knowledge, although it seems a reasonable probability that Indians of this general horizon were ancestral to some of the later Algonquins of the Northeast.

#### Early and Middle Woodland Period

The Early and Middle stages of Woodland can not be separated from each other for Cape Cod, at least on the basis of present stratigraphic data. They are, therefore, treated here as comprising one period. The occupation of this time, which was probably agricultural from about its beginning, is typologically marked by an association of Vinette 1 and Point Peninsula pottery with chipped points which are predominately of stemmed kinds. This horizon <sup>for</sup> ~~from~~ accounts for the first intensive occupation of the Cape region and apparently also for the earlier of the shell heap

and black midden accumulations found there. Debris of this manifestation overlies the Archaic level at all five of the sites mentioned in connection with the Archaic, and occurs also at the Cliff, Hillside, Railroad, and Pilgrim Spring sites in Truro, and at the Seth's Swamp site in Wellfleet. In addition, the horizon is undoubtedly present at a great many shell heaps not covered by available information. It is represented, I believe, by most of the hundreds of stemmed points in surface collections from the Cape. In Figure <sup>No. 20-42</sup> ~~18~~, characteristic artifacts of this period are depicted.

Vinette 1, the exterior and interior cord-marked pottery described <sup>(1)</sup> in the opening paper, may occur with some frequency, as at the Small's Swamp and Warren's Field sites, or it may be represented by only one or two sherds, as was the case at others of the sites above mentioned. In the first instance the locations incline towards Early Woodland and in the others towards Middle Woodland, this being about as far as one can go with this matter. There appears to be no stratum in which Vinette 1 pottery occurs as the only ware present.

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(1). The term "cord-marked" is used herein for pottery surfaces covered with impressions of twisted cords. The marks may represent a fabric, a fine basketry, or a paddle-like object wrapped with a twisted cord. "Cord-wound-stick decoration" refers here to a design arrangement, usually applied to a smooth surface, consisting of lines of short transverse indentations made with a stick or other narrow object wrapped with a single cord.

By far the larger part of the pottery of this period falls into the category of Point Peninsula, with the Cape specimens being quite similar, except for lack of channeled interiors, to those of the earlier types of the Point Peninsula series of New York. The temper is nearly always crushed granite, rarely crushed quartz. Vessels were formed by building up coils or strips of clay. Wall thicknesses average about 8mm. The mouths of the vessels are either slightly outflaring or contracted, with the rims seldom if ever rigidly straight as with many pots of the period that followed. Lips are sometimes notched, and some rims bear flat or rounded fillets applied just below the lip. Cord-marked exteriors are not common. Usually the outsides of the vessels show decoration for some distance down on the body. The tool to accomplish <sup>sometimes had</sup> this ~~might~~ have a plain edge, but more often the edge was toothed or segmented, and it <sup>was often</sup> ~~might be~~ a scallop shell, a notched piece of wood or bone, or less often a <sup>cord-round-stick</sup> ~~cord-round-stick~~. Frequently the implement was used with a stepped motion, giving the zigzag effect known as rocker stamping, or the tool was held in the wet clay and alternately punched and dragged, resulting in horizontal bands of closely spaced indentations. Although the decoration occurs in great variety, incised lines <sup>seldom</sup> ~~are~~ <sup>found on Cape pottery of this period</sup> occur.

The stemmed points of this horizon comprise nearly all common forms of this general class. They tend vary from site to site, with narrow shapes prevalent at one location, broad forms at another, and so on. Certain kinds of side-notched points also appear at this time. Triangular points when found are usually <sup>of</sup> early types, the large, broad-base, late kind being virtually absent. Slate gorgets were in use. Probably most of the grooved axes from the Cape refer to this horizon, although a few are older. Gouges, plummet, choppers, and other implements distinctive

of the Archaic are sometimes found in Early and Middle Woodland refuse, some of them possibly still being made for use, and others perhaps "relics" found on the site and accidentally incorporated as intrusions in the debris of the later occupation. A few copper beads are known from this period, and there was a considerable use of bone and antler implements, including awls, fishhooks, arrowpoints, and flaking tools.

When we compare the Early and Middle Woodland of Cape Cod with the earlier pottery levels of those portions of the mainland of eastern Massachusetts for which information is available, there comes to light a greater discrepancy than might be expected. While this perhaps involves pottery to some extent, it is chiefly noticeable as concerns chipped stone work. Instead of the predominance of stemmed points found on the Cape at this time, we have on the mainland mostly triangular and side-notched forms. Rather than being an inheritance from the local Archaic, which was deficient in stemmed types, the points of this period on the Cape seem to have been brought in by the carriers of the Vinette I and Point Peninsula pottery, as though there was an intrusion on to Cape Cod at this time of a ceramic using people who were still holding to stemmed points. ¶ Although our spotty information regarding New England archaeology does not permit the pointing out any certain source, or sources, of such an invasion, at least two areas come to mind as possibilities. We seem to be able to trace a strong resemblance to the earlier pottery sites of the Cape as far to the southwest as the Hornblower site at the west end of Martha's Vineyard. I have formerly been inclined to go farther in this direction and see in the earlier foci of the Windsor aspect of coastal Connecticut and Long Island a likely origin for this Cape Cod horizon, but on ~~deliberation~~ <sup>deliberation</sup> it appears difficult to think of the Point Peninsula pottery of the Cape as being derived from any Windsor

pottery for which descriptions are at hand. The presence of  
rocker stamping, the occurrence of flutes or collars, & perhaps other  
features of the Cape pottery indicate, I believe, that the earlier wares  
came to Cape Cod from a northerly rather than a southwesterly  
quarter. If this northerly area were Miami, stemmed forms  
would have been introduced at the same time. A more  
with this possibility also, we encounter a difficulty,  
in that the archaeology intervening sections, not to mention  
Massachusetts, for instance, is not particularly likely  
that either Miami or Cape Cod. It may be that the  
reality involved here is more complex than we  
are inclined to think with at this rather early pottery  
time a shuffling back & forth of cultural traits of not  
of people, along a large stretch of the New England  
coast. In this way Cape Cod may have acquired  
cultural traits features from contacts both to the  
north and to the southward.

Indian life on Cape Cod during Early and Early-Middle Woodland  
times was undoubtedly an improvement over that noted for the Archaic  
period. The fact that food could now be cooked in serviceable clay  
vessels must in itself have been a factor in ameliorating a harsh ex-  
istence. The relative security afforded by the practice of agriculture  
permitted a larger and more settled population, with probably some  
leisure for the cultivation of the social and ritualistic aspects of  
savage life. There was almost certainly a great advance in tribal or-  
ganization. An occasional tubular pipe, platform pipe, bird stone, and  
animal effigy, known from surface collections, probably belong with this  
horizon and signify some weak connection with the spectacular events  
transpiring at this time far to the west.

Late Woodland / Period  
~~Late Middle Woodland~~  
The Late Woodland of Cape Cod is here treated as comprising two

stages. Late Woodland I is a level <sup>which</sup> ~~that~~ in this state has heretofore been placed in the category of intermediate. It appears more consistent, however, to <sup>call</sup> ~~refer to~~ it as Late Woodland, since it undoubtedly comes relatively late and contemporaneous <sup>with</sup> ~~early~~ <sup>Amesbury, only East River</sup> ~~with the East River~~, and the Sebonac Stage of Windsor, all of which are referred to as either Late Prehistoric or Late Woodland. The new pottery horizon follows the earlier Woodland abruptly and with a marked change in the typology of artifacts. We find now coarse shell-tempered vessels and broad-base, late type, triangular points. The clay pots are of two main types and are illustrated in Figure <sup>Nos. 15-19.</sup> ~~Fig. 15-19.~~ <sup>A.</sup> ¶ With one variety the walls are nearly always straight or slightly in-sloping, there being no necks or shoulders. The paste is friable and tends to split parallel to the ~~walls~~ <sup>surfaces</sup>. Wall thicknesses run about 1cm. Rudely channeled interiors are the rule, and breaks along coil junctures are often prominent. Bottom forms are not known with certainty for all cases; some <sup>are</sup> ~~are~~ conoidal, but possibly others are <sup>shallow</sup> ~~shallow~~. The outsides of the vessels are cord-marked all over, although there is otherwise no decoration. The other main type is similar in many respects to the type just described. However, the outsides of the vessels are smooth, except for designs of cord-wound-stick indentations which comprise nearly always a series of horizontal lines, which in turn are often crossed by other series running diagonally or perpendicularly. V-shaped arrangements may occur. In one instance cord-wound-stick ~~mark~~ <sup>mark</sup> impressions are combined with incised lines (Fig. , No. 10). In two cases, which are uncommon, the wall has a bulging appearance, owing to the presence of an encircling fillet some 4cm. below the lip. Bottom shapes are again uncertain, but in at least two instances they are shallow and rounded. Also appearing in this horizon at most sites are a few, plain, shell-tempered sherds, as well as an occasional specimen bearing scallop

shell marks, the shell in this case being applied perpendicular to the surface instead<sup>ad</sup> of by the rocking or dragging techniques employed with the same object in earlier Woodland times.

Along with the triangular points above<sup>described</sup> ~~specified~~, are pentagonal and similar forms, which seem to represent leaf-shaped knives chipped back by resharpening. Stone axes are of the celt, or ungrooved, type. Bone and antler implements were in use, including harpoons.

Refuse of Late Woodland overlies that of the earlier Woodland at the Rose, Cliff, Railroad, Small's Swamp, and Seth's Swamp sites. It occurs also, apparently as the only debris present, at the Ryder Beach and Cabral sites, in Truro; at the Indian Cove Spring site, in Wellfleet; at a group of shell shell heaps on Griffin Island, in Wellfleet; and at the Morris Island site, in Chatham. Farther west we have it again at Sites 1 and 2 on Sandy Neck, at Barnstable Harbor. At Ryder Beach and at a few other of the sites, <sup>the cord-marked shell decorated types</sup> decorated pottery seems to be missing, with only the cord-marked ware present. There seems reason to think these latter sites may be slightly older than others attributed to this horizon.

Certain differences brought out in a comparison of Late Woodland 1 of Cape Cod with a corresponding level on the mainland of this state are doubtless a consequence of the nonconformities observed in respect to the preceding period. In the first place, the sharp break in typology, which ushered in this era on the Cape, did not occur on the mainland, where there seems to have been a more regular transition of events throughout most of ceramic times. ¶ What in effect is a Late Woodland 1 horizon has been isolated and described at a few mainland sites, all in northeastern Massachusetts. The comparable pottery there is shell or fibre tempered, and some straight-sided, cord-marked specimens from Clark's Pond, one of the few coastal shell heaps reported from that area, seem to almost

identical to the cord-marked pottery found at this time on Cape Cod. On the other hand, the Late Woodland 1 pottery bearing purposeful designs of cord-wound-stick marks appears to be unreported for any off-Cape part of this state, save for possibly one sherd from the Foster's Cove site. This pottery, however, or at least pottery with the same kind of decoration, occurs plentifully in fairly late levels of Maine. Essentially the same decoration is found on some pottery from New Jersey, and it may be seen on many specimens from coastal New York now on display in the American Museum of Natural History. The latter sherds apparently represent the East River aspect, since this decoration is said to be rare on vessels of the Windsor aspect. So here again Cape Cod seems to exhibit a similarity to areas somewhat removed, and with no very apparent intervening ties. To some extent this may reflect only a deficiency in our information. It <sup>suggests</sup> ~~suggests~~, however, the possibility that traits and complexes of traits may have skipped along the coast like a flat stone along the water, landing here and there in no entirely predictable manner.

From the start of Late Woodland and thereafter, the life of the Cape Cod Indian was probably about the same as it was at the time of the first white contact. During this period the Indian population on the Lower Cape was to a large extent centered in Wellfleet, a change from which involved an earlier favored location at High Head, in Truro. Quite possibly this shift followed the silting up clam and oyster flats in the latter area.

#### Late Woodland 2 *Period*

Late Woodland 2, the next level of the Cape Cod sequence, is typologically marked by fine shell-(rarely fine mineral-) tempered pottery, which occurs with stone artifacts apparently the same as those used in the earlier Late Woodland stage. Vessels are mostly variations of two

types. With one necks are constricted, fins flaring, and bottoms globular. Walls are relatively thin(5-6mm.), and interiors are smooth. There is no evidence of coiling. Exteriors are cord-marked. Over these marks are incised lines, comprising often bold horizontal and V-shaped designs, but including also finely spaced lines in other combinations(Fig. Nos.5,6,8). The other Late Woodland 2 ware is similar to the above in paste and texture but differs in having channeled, or pushed out, collars surmounting the necks. So far as known, rims are not noded. Bodies are cord-marked, although necks are left smooth to receive incised decoration(Fig. No.7).

Pottery of the first type just mentioned was present in late levels of the Railroad and Small's Swamp sites, in Truro. At the Muddy River ~~shell heap, in Narmuck~~ <sup>shell heap, in Narmuck</sup> ~~site, near Harwich~~, all recovered sherds are of this type. It was found also at Site 6, on Sandy Neck. The channeled collar type of Late Woodland 2 vessel was present at Sites 4 and 6 on Sandy Neck. This type is known also from a pot found in a grave in Hyannis and from sherds of a container from a shell heap at Nauset Harbor.

During the Late Woodland 2 period Cape Cod seems to have conformed to a great extent with the archaeological pattern then generally present over most of eastern Massachusetts. If there was any exception to this it was perhaps in the occurrence of channeled collars on a small amount of the pottery, a feature which may indicate some influence from the Niantic focus to the southwest of Cape Cod.

#### Historic Woodland *Period*

Reliable information on the archaeology of the historic Indian period on Cape Cod is scarce. We can not be sure, in fact, that Muddy River and some of the other sites where Late Woodland 2 pottery was found

were entirely prehistoric. However, the only excavated location we can confidently say was occupied in the contact period is the Hemingway site, in Eastham, which yielded trade beads and the bone of a sheep. Pottery from this site is thin and tempered with finely ground shell. Vessels are shallow and the top of the rim is flat. Some fragments are cord-marked and others show trailing as if from a comb-like object, this last technique apparently being new to Cape pottery. There is a similarity, rather than an exact identity, of this pottery with that of the last stage of Late Woodland as herein described. The only other clay pottery reported as definitely associated with contact material is a vessel unearthed in Barnstable, in 1861. This pot has fine shell-temper and a thickened collar with high castelations. Except for one vessel from near the Cape Cod Canal, and said to be of Onandaga origin, the Barnstable specimen is, so far as here known, the only occurrence on Cape Cod of a definitely noded rim.

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To give a resume of the archaeological section of this paper, I think it is obvious that the archaeology of Cape Cod fits into the general pattern expected in the Northeast. It is also apparent that Cape Cod archaeology shows some abrupt fits and starts and does not always conform very exactly with that of some other areas of eastern Massachusetts. The discrepancies that occur <sup>in respect to</sup> ~~in respect to~~ this may have stemmed from the <sup>geographical form & situation</sup> ~~geographical and fortuand situation~~ of this long narrow peninsula, which are such that the early peopling of the area must have been in the nature of a pushing out along a line, not on a wide front as would have been the case in other sections. I would surmise that there were many advances and retreats along this line before there was established the kind of settled agricultural occupation found by Europeans. There may have been

times when Cape Cod, ~~was~~ parts thereof, was temporarily uninhabited. Knowledge of such a vacuum may have spread far up and down the coast and have inspired migrations from more populous areas.

We have seen that the archaeological evidence indicated a hunting-gathering people of the Late Archaic period as the earliest definitely known Cape Codders. Judging by what has been found on the mainland of southeastern New England, we might have expected to find a still earlier stage of the Archaic, a level which would have yielded ~~stone~~ <sup>stone</sup> lunar-knives and many stemmed points. It appears that <sup>very early</sup> this cultural stratum, if ever present, ~~must have had its locations on ground since destroyed~~ <sup>must have had its locations on ground since destroyed</sup> ~~by wave action or covered with thick deposits of peat. We are aware that sites of even late prehistoric times are gradually disappearing through both of these processes.~~

The Early and Middle Woodland people, who succeeded the Archaic band, appear to have come from some off-Cape area which was probably not the adjacent mainland. Their <sup>utensils</sup> ~~utensils~~ and implements have similarities to those used at the time by coastal groups both well to the north and well to the southwest. Whether these people found Cape Cod for the moment empty of human inhabitants, or whether they swamped a weak Archaic occupation, is not known. The archaeological evidence would perhaps be about the same in either case.

After what was probably a long period, during which the material culture of a ceramic-agricultural people remained about the same, there suddenly appeared, with the advent of the Late Woodland period, a complete upset in the types of stone implements and clay vessels left in the shell heaps. Barring the finding of a transitional stage, this seems indicative of a catastrophic event—possibly an invasion from

the mainland and a wiping out of the earlier Woodland people. With the ~~newcomers~~ newcomers, if they were so, I am inclined to think we have the ancestors of the historic Nausets. However this may <sup>be,</sup> ~~have been~~ is little evidence of change during the remainder of prehistoric times, although some thinner and better made pottery was introduced in the last stage of Late Woodland, p

(end of text)

Table showing the cultural sequence at excavated Cape Cod shell heaps.

Late Archaic	Woodland			
	Early & Early-Middle	Late-Middle Stage 1	Late Stage 2	Historic
Rich <sup>d</sup> 1	Rich <sup>d</sup> 2			
Holden 1	Holden 2			
Warren's Field 1	Warren's Field 2			
Small's Swamp 1	Small's Swamp 2	Small's Swamp 3	Small's Swamp 4	
	Pilgrim Spring			
	Hillside			
	Cliff 1	Cliff 2		
	Railroad 1	Railroad 2	Railroad 3	
		Cabral		
Rose 1	Rose 2	Rose 3		
		Ryder Beach		
Freeman-Paine 1	Freeman-Paine 2			
	Seth's Swamp 1	Seth's Swamp 2		
		Indian Cove Spring		
		Griffin Island		
<i>Eastham</i>				Hemingway
<i>Wareham</i>			Muddy River	
<i>Wareham</i>		Morris Island		
<i>Barnstable</i>		Sandy Neck 1	Sandy Neck 2	

BIBLIOGRAPHY

Anonymous

1943. Journal of the Pilgrims at Plymouth. Original Narrative reprints, No.5. Bulletin of the Massachusetts Archaeological Society, Vol.4, No.4. Andover.

Boissevain, Ethel

1943. Observations on a Group of Shell Heaps on Cape Cod. Bulletin of the Massachusetts Archaeological Society, Vol.5, No.3. Andover.

Bullen, Ripley P.

1946. Culture Dynamics in Eastern Massachusetts. American Antiquity, Vol.14, No.1. Menasha.

1949. Excavations in Northeastern Massachusetts. Papers of the Robert S. Peabody Foundation for Archaeology, Vol. 1, No.3. Andover.

Bullen, Ripley P. and Edward Brooks

1949. The Herrecater Swamp Site, Nantucket Island, Massachusetts. Bulletin of the Massachusetts Archaeological Society, Vol.10, No.4. Andover.

1948. Shell Heaps on Sandy Neck, Barnstable, Massachusetts. Bulletin of the Massachusetts Archaeological Society, Vol.10, No.4.

Bullen, Ripley P. and Howard Torrey

1946. A Burial Pit at Taylor Hill, Wellfleet, Massachusetts. Bulletin of the Massachusetts Archaeological Society, Vol.7, No.4. Andover.

Byers, Douglas S. and Frederick Johnson

1940. Two Sites on Martha's Vineyard. Papers for the Robert S. Peabody Foundation for Archaeology, Vol.1, No.1. Andover.

Champlain, Samuel de

1942. Champlain's Account of the New England Coasts. Original Narrative Reprints, No.4. Bulletin of the Massachusetts Archaeological Society, Vol.3, No. 3. Andover.

Cross, Dorothy

1941. Archaeology of New Jersey. Published by the Archaeological Society of New Jersey and the New Jersey State Museum. Trenton.

Fowler, William S.

1950. Typology of the Heard Pond Site. Bulletin of the Massachusetts Archaeological Society, Vol. 11, No.3. Andover.

Freeman, Frederick

1860. The History of Cape Cod: The Annals of Barnstable County. Boston.

Howe, Henry F.

1943. Prologue to New England. Farrar and Rinehardt. New York.

Johnson, Frederick

1942. The Hemingway Site, M42/42, Eastham, Massachusetts. Bulletin of the Massachusetts Archaeological Society, Vol.3, No.3. Boston.
1944. An Indian Grave in Chatham, Massachusetts. Bulletin of the Massachusetts Archaeological Society, Vol.5, No.2. Boston.

Moffett, Ross

1946. Some Shell Heaps in Truro, Massachusetts. Bulletin of the Massachusetts Archaeological Society, Vol.2, No.1. Andover.
1949. The Hillside Site, in Truro, Massachusetts. Bulletin of the Massachusetts Archaeological Society, Vol.2, No.1. Andover.
1951. Late Excavations at the Holden Site, Truro, Massachusetts. Bulletin of the Massachusetts Archaeological Society, Vol.12, No.4. Attleboro.
1951. The Rose Site, a Stratified Shell Heap on Cape Cod, Massachusetts. American Antiquity, Vol.17, No.2. Salt Lake City.

(Moffett, Ross)

1953. Matters Disclosed by Erosion at Ryder Beach Site. Bulletin of the Massachusetts Archaeological Society, Vol.14, No.2. Attleboro.

1953. Two Indian Sites near Corn Hill, Cape Cod. Bulletin of the Massachusetts Archaeological Society, Vol. 14, No.4. Attleboro.

Praus, Alexis A.

1945. The South Woodstock Site. Bulletin of the Archaeological Society of Connecticut, No.17. New Haven.

Rich, Shebna

1884. Truro, Cape Cod, or Landmarks and Seemarks. Boston

Ritchey, William A.

1944. The Pre-Iroquoian Occupations of New York State. Published by the Rochester Museum of Arts and Sciences. Rochester.

Ritchie, William A. and Richard S. MacNeish

1949. The Pre-Iroquoian Pottery of New York State. American Antiquity, Vol.15, No.2. Menasha.

Rogers, Edward H.

1943. The Indian River Village Site. Bulletin of the Archaeological Society of Connecticut, No.15. New Haven.

Rouse, Irving

1947. Ceramic Traditions and Sequences in Connecticut. Bulletin of the Archaeological Society of Connecticut, No. 21. New Haven

Smith, Carlyle Shreeve

1947. An Outline of the Archaeology of Coastal New York. Anthropological Papers of the American Museum of Natural History, Vol.43, Pt. 2. New York.

Speck, Frank F.

Sand for some moraine deposits in the south part of Eastham,  
and for dune sands in the Portsmouth area, the superficial  
portion of the same Cape, as regards consists; superficially as  
regards its superficial deposits, of stratified & often strongly crossbedded  
sand and gravel. In the north part of Eastham is <sup>evidence</sup> ~~that~~  
of a <sup>marked</sup> level plain which appears to represent be a <sup>remnant</sup> ~~remnant~~ from  
Wisconsin ice in the near offshore area to the east. This  
plain slopes ~~west from~~ has a maximum elevation of 70 feet & slopes  
from east to west. Over the flat and much of Towns ~~seen~~  
Over the flat & much of Towns ~~stagnant~~ appears to have  
~~seen~~ stagnant & fissured in ~~being~~ The superficial  
materials in the flat and much of Towns, ~~seen~~ do represent  
which ~~stagnant~~ & fissured in ~~being~~ decayed <sup>in place</sup>,  
~~is~~ This for Over the flat & much of Towns stagnant  
& fissured in ~~seen~~ do have decayed in place. This is  
indicated by the ~~particular~~ pattern of ripples, knobs, & short  
ridges, <sup>which</sup> ~~remains~~ are ~~not~~ <sup>of</sup> that area.