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ANCIENT SHELL HEAPS NEAR NEW YORK CITY.

BY

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Of all the traces left by the aborigines along the New York seacoast, the most abundant and familiar are the shell heaps — the beds of refuse marking the sites of ancient villages, camps and isolated wigwams. Whenever the fresh water joins the salt and especially where open water for fishing, a creek with its clam beds, and a spring for drinking come together in happy combination, there is generally to be found some such evidence of Indian occupation, unless, as is often the case, settlement and improvement have buried deep the shells or carted them away.

The typical shell heap is not a “heap” at all, for leaf mold, the wash from neighboring high ground and often cultivation have made it level with its surroundings (Fig. 27). Very often, unless the land be plowed, no shells whatever show on the surface, and the only way of finding out the conditions

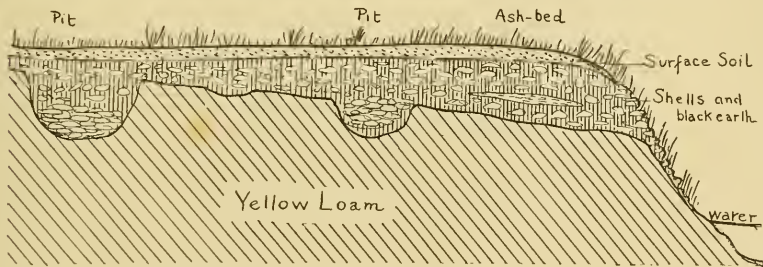
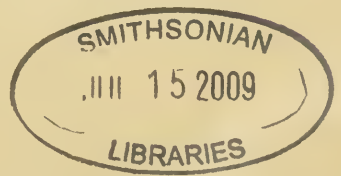


Fig. 27. Diagram of a Typical Shell Deposit.

of things below the sod is to test with a spade or a crowbar. If shells are present, their crunching soon gives notice of the fact. Sometimes shell heaps have been located by shells thrown from mole and woodchuck burrows, or by outcropping in gullies washed by the rain, or banks broken down by the surf. They are generally located near some creek or bay on low but dry ground, preferably with an eastern or southern exposure, and, as before mentioned not far from drinking water. Some have been found fronting on the open Sound, but such cases are rare. These deposits consist of large quantities of decayed oyster, clam, and other marine shells mixed with stained earth, with here and there ashes, charcoal and fire-broken stones to mark the spots where ancient camp fires blazed. Among the shells are usually scattered antler of deer, fish bones, bones of animals



and birds split for the marrow, quantities of pottery fragments, and broken implements, in short, the imperishable part of the camp refuse left by the Indians. Now and then, perfect implements and ornaments that had been carelessly lost in the rubbish or hidden for safe-keeping are discovered. Little did the Indian think, as he laid away his little hoard, that his handiwork would never see light again until he and his people had long been gone and forgotten.

Shell heaps vary from a few inches to four feet in depth, and in area from a few square yards to several acres — all depending on the length of time the settlement was occupied and the number of dwellings comprising it. Deep shell heaps are often divided into layers, the deepest of which are, of

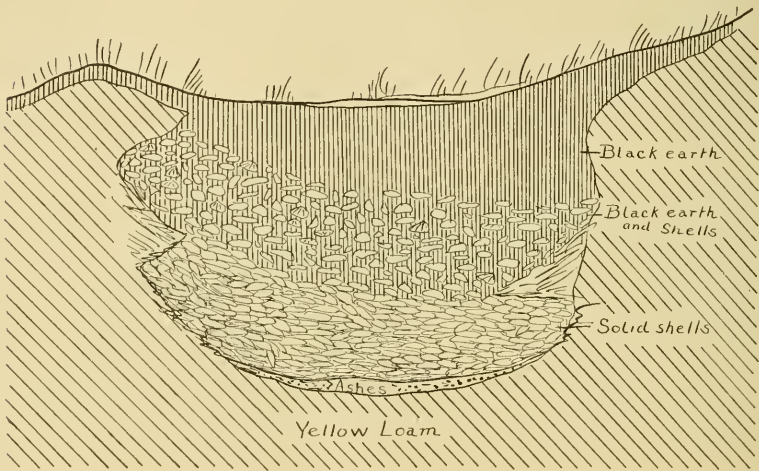


Fig. 28. Cross Section of a Shell Pit.

course, the oldest. Under and near most of these deposits may be found scattered "pits" or fire holes, which are bowl-shaped depressions in the ground filled with layers of stained earth, shells and other refuse, with an occasional layer of ashes. Some pits are as large as ten feet wide by six feet deep, but the average is four feet deep by three feet. It is supposed that they were used as ovens or steaming holes and afterwards filled up with refuse (Fig. 28). Some contain human skeletons, which may have been interred in them during the winter season when grave digging was impossible. Pits as a rule, contain more of interest than the ordinary shell layer. The closely packed regular masses of shells form a covering which tends to preserve bone implements, charred corn, and such perishable articles from decay, in a way that the looser shells of the general layers fail to do.

The implements, utensils and ornaments found in the shell heaps include objects made of stone, copper, bone and antler, shell and baked clay. Arrow points are among the most abundant of stone relics and exist in great variety, while larger points evidently intended for knives or spears are not uncommon. Drills are rare, but some very fine narrow blades of this class have been secured. Implements of stone called scrapers, with chipped beveled edges were probably used for scraping down arrow shafts or for scraping skin and the like, as a piece of glass is used by modern wood-workers. Sometimes mere flakes of stone show signs of use as knives or scrapers. Even more abundant than the arrow-heads themselves may be found rejects — the failures of arrow point making — stones that proved too obdurate to work, that broke, or that flaked improperly. Quartz was the favorite material for chipped implements in Westchester County and Long Island, probably because it might be found on any beach, while chert and jasper were harder to get, and argillite had to be imported from what is now New Jersey. This was frequently done, however, for greatly weathered argillite blades and fragments are often found in the local shell heaps.

Stone axes of two kinds have been found — the celt or grooveless axe which was probably set in a hole in its club-like handle, and the grooved axe, around whose groove was wrapped a handle of withes. Pestles are cylindrical stone implements used for crushing corn and herbs, probably in wooden mortars, though stone mortars, mere slabs with cup-shaped depressions, alone survive in the shell heaps to-day, the wooden ones having long since been destroyed. I do not think the long stone pestles were used in the stone mortars, their place being taken by flat cobbles. These implements, called muller, often show long use and wear, and have been found resting on the mortars. Hammerstones are often found, usually mere natural cobbles battered by use, but sometimes slightly pitted on one or both sides to keep the fingers from slipping. Another style of implement having a shallow pit and slight encircling groove may have been hafted and used as a maul. Stones showing traces of being pounded upon are called anvils, and flat pebbles notched on opposite edges for the cord, were used as net-sinkers. Sometimes net-sinkers were grooved. Large cobbles chipped to an edge probably served as hand-axes or choppers and split stones and large flakes were slightly altered for use as hoes and skin scrapers.

Flat tablets of stone called gorgets, with one or more perforations, were probably used as ornaments. Crescent-shaped flat stones, notched in the middle and usually of red limonite, occur, and are classed with the drilled "banner stones" or "ceremonials" of unknown use. I have never discovered any of the drilled variety in a shell heap, but have heard of their being found. Occasional fragments of cooking vessels made of soapstone

are obtained from the shell heaps — vessels that were long and shallow, with a projecting knob on each and beneath which supporting stones could be placed when the pot was on the fire.

I know of but few stone pipes that have been found in perfect condition in or near the shell heaps of this region. One was discovered near Inwood, on Manhattan Island and is now in the possession of Mr. Bolton (Plate xvii); the other came from a child's grave near a shell heap at Tottenville, Staten Island, and was collected by Mr. G. H. Pepper (Plate ix). It is a beautiful specimen of the "monitor" or "platform" type and appears to be made of steatite. Several other pipes of stone, one of the so-called trumpet type have also been found in this cemetery while several fragments were found on the surface. Pieces of red and black soft stones such as limonite and graphite, deeply scratched for paint are numerous in some shell heaps.

The only metallic objects found that date back before the coming of the Whites are bits of copper pounded out flat and rolled into the shape of cylindrical beads. Even these are rare. Bone and deer antler implements were extensively used by the New York seacoast Indians and are often found in the shell heaps. Awls are the most abundant of these and exhibit all degrees of elaboration and finish, from the mere sharpened splinter of bone up to the finely rounded and polished implement showing little of the bone's original surface. They were undoubtedly used in sewing as the shoemaker uses his awl to-day. Often the joint of a bone has been left to serve as a handle for the awl. Bird bones were sometimes used, but deer bone was the favorite material. Occasionally awls show grooving or perforation for suspension, in which case they were probably hung on a string about their owner's neck (Fig. 7).

Broad, flat, bone needles sometimes made of the curved surface of a rib occur in small numbers, but are usually broken across the eye. The Sauk and Fox and other western tribes use such needles for making mats of cat-tail flags.

At the Shinnecock Hills, barbs suitable for tying on fish spears were made of bone, as were sometimes arrow points, the latter fashioned so as to use a part of the marrow canal as a socket for the shaft. A bone implement resembling a draw shave, probably used for removing the hair from skins, was made by cutting away a portion of a deer's leg bone so as to leave a narrow blade in the middle with the joints at both ends to serve as handles. Bird bones were made into beads or tubes and beaver teeth into knives.

The antlers of deer were found useful as material for the implements of the Indian's daily life. Arrow points were made by sharpening an antler prong, cutting it off and drilling out the base of the cone thus formed

to receive the shaft. Sometimes a projection was left on the side to serve as a barb. Near the shell heaps at Tottenville, Staten Island, Mr. G. H. Pepper found three human skeletons, among whose bones were twenty-three arrow points, all but three of them, of bone and antler. One barbed antler point had actually penetrated a rib, the point projecting on the inside (Plate III). Antler points in process of manufacture and antlers from which prongs have been cut are frequent in the shell heaps.

The exact use of the cylinders of antler so often found, is not definitely known, but it is thought they may have been used as flaking tools, held between the stone blade and the hammerstone to be worked. Some antler prongs show signs of having been used to remove fine scales of quartz or flint by pressure against the edge of the implement to be finished. A few wedges of antler have been obtained — long, and often showing the natural curve of the horn. The edge has been made from one side only, after the fashion of a chisel. A curious and, as far as I know, unique implement in this region, was found at Dosoris, near Glen Cove, Long Island. A prong had been cut from an antler and squared at the thick end which was divided from the rest by a notch having a flat-topped projection. On this, five parallel lengthwise grooves had been cut. The implement must have been a stamp or marker used to draw parallel lines — perhaps on pottery and showed excellent workmanship.

Cups or bowls were made of turtle shell, with the rim cut straight and the inside scraped smooth. Fragments of these are common, but perfect specimens are seldom seen. At Pelham Bay Park, one of these objects was found, having a double row of small perforations crossing it diagonally — for what purpose it is impossible to say — it may perhaps have been used as a rattle.

Shell, although the chief component of the deposits marking the old village sites does not seem to have figured much as a material for the making of implements. A few shells have been found that show signs of use as scrapers, others have had large, round holes made in them for some unknown reason. Among the shells so perforated are those of the oyster, soft clam, and periwinkle (*Busycon carica*). Shell beads are sometimes discovered merely Olivella or Marginella shells as a rule, with holes rubbed in, to facilitate stringing. Nothing is rarer than a finished wampum bead, although on the Iroquoian sites of western New York these are found by the tens of thousands, unfinished beads occur, however, though not abundantly.

Next to the shells themselves and the split animal bones, in point of quantity, are the pieces of broken pottery — the countless fragments that are scattered throughout most shell heaps — the remains of the cooking and water vessels of the ancient people. Very few pots have survived in

perfect condition, but now and then all or most of the pieces of a vessel are discovered in a pit where it has been crushed by the weight of the earth. Then the fragments may be fitted and glued together and a complete jar is the result.

For convenience sake, I divide the ancient vessels found about New York City into two classes — Algonkin and Iroquois. The Algonkin pot is more or less pointed on the bottom, and there is no raised rim or constricted neck. The decoration on this style of ware is often composed of impressions of twigs wrapped with cord, but parallel lines and chevrons drawn with a sharp point are not uncommon. Any attempt at the human face on these vessels is rare, but a few have been found. The ware is usually coarse. The Iroquois pot, on the other hand, has a round bottom, with a much constricted neck and a raised rim, often rising in a series of points. The decoration is usually confined to this raised rim, and the angle or points frequently show elaboration of the design or the rude conventional representation of the human face. Patterns composed of combinations of parallel lines and notches prevail, and thin, well made pottery is the rule. I call this style "Iroquois" because such pottery is abundant on eastern Iroquois sites, and exists in Westchester County, where intercourse with that people was probable; while it is not so common on the neighboring western end of Long Island and becomes more and more rare toward the eastern end, where Iroquoian influence was less strong, as is the case on Staten Island, where it occurs most frequently on the northern end which was most open to Iroquois inroads, in the early days. Among the thousands of potsherds found by the Museum expedition to Shinnecock Hills which is on the eastern end of Long Island, there was not one piece of the Iroquois type. Near Trenton, New Jersey, the Iroquois pottery is almost unknown and the Algonkin type prevails. I do not claim the pottery of the Iroquois style found near New York City was made by that people but that it shows their influence.

Both varieties are usually tempered with sand or pounded shells or mica mixed with the clay. In several instances pots have been found with cracks on both sides of which holes had been bored for the purpose of lacing the fissure together and preventing further spread. Many sherds and vessels bear imprints of rude fabric and cord as if the jar had been modelled in a hole with the cloth as protection against the earth or as if the pot had been patted with a paddle covered with cloth or cord.¹ Bowls and very small pots are rare. One of the latter was found at Pelham Bay Park, split in half, lengthwise. It had been used since the break occurred, for the broken edges were worn smooth.

¹ See Holmes, *Aboriginal Pottery of Eastern United States*, 20th Annual Report of the Bureau of American Ethnology, p. 73.

Pipes were also made of baked clay with short thick stems usually set at an obtuse angle to the bowl — sometimes on the same plane with it. The bowl is often highly decorated in the same fashion as the pottery. Such pipes are more common on Long Island and Staten Island than in Westchester County. Stone pipes of both trumpet and platform, or monitor types, occur.

Among the animal bones found are those of the elk, deer, black bear, lynx, wolf (?), dog, beaver, raccoon, woodchuck, skunk, mink and squirrel. Wild turkey and other birds, several kinds of turtle, the snake, the crab, the shark, sturgeon and other fish were also represented. These were undoubtedly the creatures whose meat and skins were used by the Indians. Shells of almost every species common to these waters have been found, and show another source of food supply. Vegetable substances from the shell heaps include nuts, acorns, calamus roots, and corn, all preserved by charring. Charred wood is frequent.

In the upper or more recent layers of some shell heaps, are occasionally found relics showing contact with the Whites. These consist mainly of gun-flints and broken white clay pipes of the sort traded to the Indians by the early settlers.

The nearest shell heap, readily accessible to New Yorkers, is situated on the northern extremity of Manhattan Island opposite Spuyten Duyvil Station at a place called Cold Spring. This has been badly disturbed by collectors and shows its original form in a few places only. It is thought that the canoes which attacked Hendrick Hudson's ship, the *Half-Moon*, came from this village. Many of the specimens in the Chenoweth Collection at the Museum were found here.

Ancient encampments were plenty in what is now Pelham Bay Park, and shell heaps attesting the fact are scattered all along the shores. One of these, near "Jack's Rock" was explored for the Museum in 1899. The shell heap itself yielded little, but the pits near by and on the adjoining knolls contained much of interest, including three skeletons and a quantity of pottery, together with many bone and stone implements. These knolls are mentioned by R. P. Bolton in his "History of Westchester County" as a burial place of the Siwanoy Indians — one of the few cases in which "Indian Cemeteries" have proven anything but the burial grounds of the early White settlers. The collection found here is now at the Museum.

The street car line from Bartow to City Island passes two large glacial boulders on a knoll just south of the road. Beyond this knoll, running down to the salt meadow, lies another shell heap only partly explored. Here, were found stone and bone implements, part of a pot, and the usual material.

One of the deepest and oldest shell heaps near New York lies within the Greater City, at Weir Creek Point, Throgg's Neck, not far from Westchester. In the lower layers, sometimes thirty-eight inches below the surface, were found a number of archaic-looking arrow points mainly of the "lozenge-shape" type, and some very rude pottery. One jar, as shown by the fragments recovered, must have had a flat bottom — an unusual feature in this vicinity where the ancient vessels generally have rounded or pointed bottoms. Mr. Ernest Volk discovered at Trenton, New Jersey, a portion of a similar pot under circumstances pointing to great antiquity, so it seems probable that this form is an old one. Implements of bone and antler, a native copper bead, and rude hammerstones, anvils and net-sinkers, were found, many of them heavily encrusted with shell-lime. Hearths and ash-beds were frequent, but pits were rare. In fact, no typical pits were found here, the nearest being on the grounds of the Century Golf Club, some distance away, where there were several. One of these had a cyst of stones near its bottom, containing the bones of two young dogs, with many deer bones and sturgeon scales imbedded in coal-black earth.

Almost directly across the Sound from Pelham Bay Park is Port Washington, Long Island. There, a large Indian village once stood, situated near the mouth of a salt creek, one mile north of the town on what is now the property of the Goodwin Sand Company. As might be expected, there is a spring near by, and the village site fronts south, a very good situation for a settlement. The principal shell heap is roughly, 200 feet in diameter, though only about one foot deep. It is overlaid, however, by another foot of soil disturbed by plowing.

Near this deposit on the land side were 101 pits, some of them beneath the shell heap itself. Many of these contained interesting relics and seventeen of them human skeletons. Sometimes three infants, an infant and an adult, or two adults were found in the same grave. The bodies were never laid out straight, as is the custom to-day but were usually buried on the side, with knees drawn up and hands near the face. No trace of any boxes or wrappings were found, but it is probable that the corpses were bundled in mats or skins. The skeletons usually lay within three feet of the surface and seldom were any relics found with them. One child's skeleton had three beads of "Olivella" shells near its neck; another had been buried just above a large dog, whose strained position suggested burial alive. An adult skeleton lay on a bed of shells, below which were found the bones of a young dog with an arrow point among the ribs, as if the animal had been shot to accompany its master on "the long journey." A fire had evidently been kindled on this grave, for there was a small ash-bed near the surface. Similar ash-beds were found on other graves. The upper skeleton of one

double burial lay in good order with the bones in their natural position, while the lower was completely disarticulated and the bones mixed, one of the ribs was even within the skull. No feasible explanation of this has been offered and probably never will be. One cannot help wishing that those bones could speak and tell their story. War and violence existed then as now, for one skeleton was found with skull crushed as if by a blow, while another was headless. A smashed skull found in a pit ten feet away probably belonged to the latter. Many pits had ash-beds, some dog skeletons and some charred nuts and calamus roots.

A large number of stone and bone implements of many kinds were obtained, together with a nearly perfect pottery vessel found inverted in a pit, several incomplete pots and a vast number of fragments. Broken stems of terra cotta pipes were not uncommon, but bowls were rare. In one case, a bowl and stem were found which could be fitted together. Among the bowl fragments was one which represented a human head, probably broken from the front of the pipe.

There were pits and shells scattered about the vicinity and on the top of a neighboring knoll, where they had been exposed by digging for sand. Some loose adult bones rolling down the bank and the protruding skeletons of two children attracted my attention to the place.

There are many shell heaps about Oyster Bay, especially in Center Island and along Millneck Creek toward Bayville and Locust Valley. At Matinecock, near the latter town, is the one that was explored for the Museum. This fronted eastward on a little swampy brook flowing into the Peter's Creek branch of Millneck Creek. The deposit was rather large but seldom more than eighteen inches deep; and pits were not numerous, neither did they generally contain much of interest. The only human bone found was a small piece of skull. Many of the usual stone and bone implements and ornaments were secured however, including a grooved axe and a perforated gorget. Pottery was abundant, but no whole vessels were found.

Beneath some grand old trees that must have been standing in Indian days was found another shell heap, on Mr. James G. Price's place at Dosoris Pond, near Glen Cove. This attained the depth of 41 inches, showing that the Indian wigwam had stood in the little hollow beside the brook, many years, probably generations. For many years the Prices had in their possession the Indian deed to their property, signed by the marks of its former aboriginal owners. On the hill behind the main shell heap is located a smaller one, and here many human bones were found — parts of several skeletons. The most important relics discovered in the main shell heap, were the unusual antler implement with parallel grooves probably used by

the Indian potter to draw decorations on her vessels, and a series of cores of columellae of the periwinkle shell (*Busyon carica* and *canaliculatum*) showing the different steps in the manufactures of white wampum, from the almost unworked shells to the ground and smoothed cylinders partly cut in lengths suitable for beads. A number of these were found bunched together with a white quartz flake and a small bone awl, as if they had been in a bag. Quantities of the usual relics were found.

Shell heaps, while abundant along the seacoast are seldom found inland except on salt creeks or other streams having access to salt water. They may be seen all along the east shore of the Hudson River at more or less frequent intervals up as far as Peekskill, and on Croton Point and between



Fig. 29. Map, Giving the Locations of Shell Deposits. Those marked + have been explored by the writer.

Nyack and Hook Mountain on the west shore they attain considerable size. There are a few small deposits, however, composed mainly of brook clams (*Unio*) situated on fresh water lakes in the interior of Westchester County. One of these, near White Plains, on the north shore of Little Rye Pond was examined for the Museum. The shells were much decayed and averaged

about one foot deep. Two pits of the common sort were formed, one containing a raccoon skeleton and the other beaver bones and pottery fragments. In the shell layer were animal bones, broken pottery and bone implements, scattered stone implements and a few marine shells. It looks as if two or three lodges had stood here for a long time in the days when beaver and deer were plenty. Several somewhat similar camping places have been found about this lake and the adjoining Big Rye Pond, but shells were not so plentiful in these — not enough to call them shell heaps.

There are many shell heaps on Staten Island and these are described at length in another part of this volume. Shell heaps occur or did occur on Constable Hook, New Jersey, and at intervals between there and Jersey City along the western shore of New York Bay.

The foregoing discussion is based mainly upon the Museum explorations of the writer in Long Island and Westchester County. The shell deposits actually excavated are indicated on the map, together with the locations of all other deposits so far noted by us (Fig. 29). This map is no doubt far from complete.

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