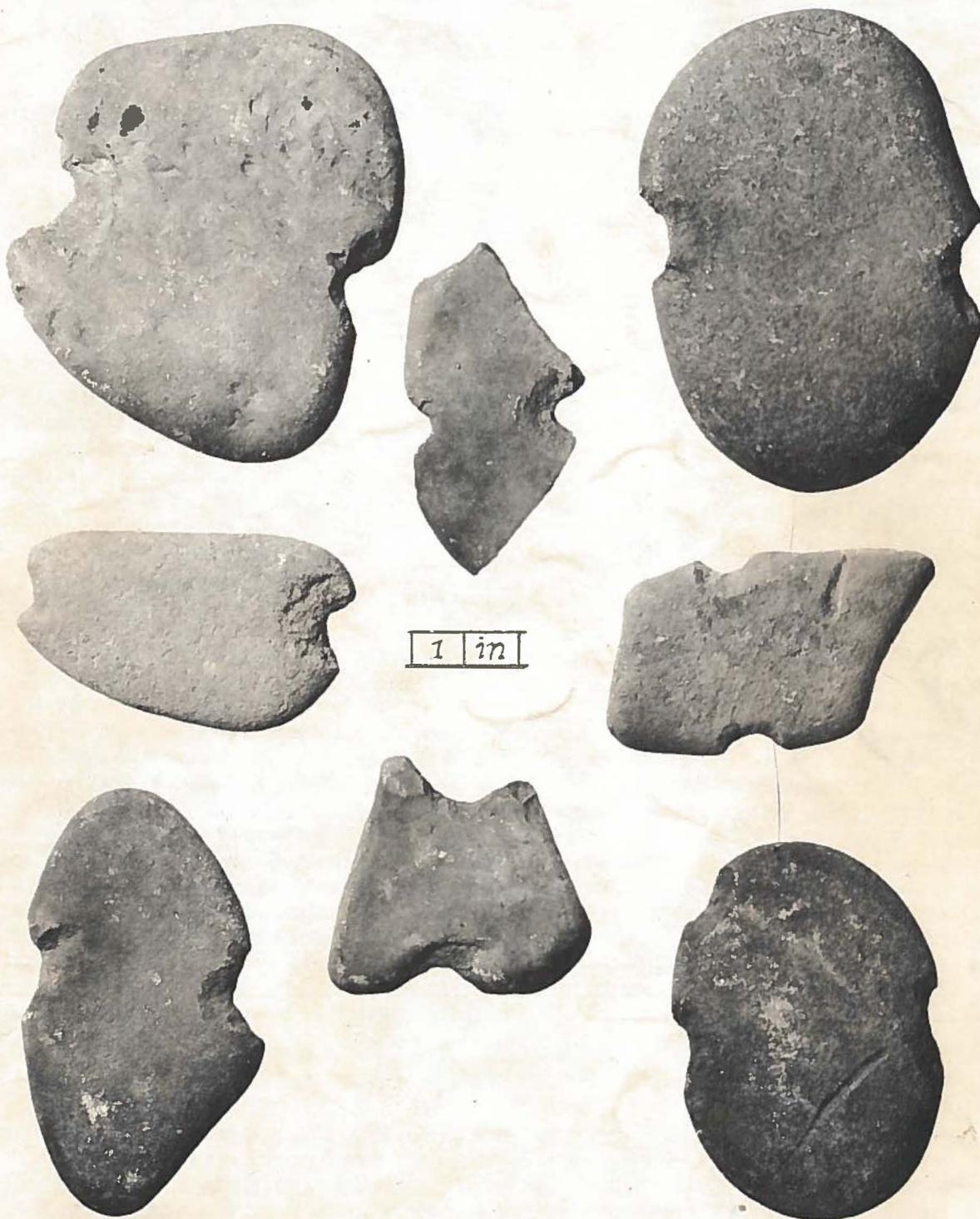


THE ARCHEOLOG

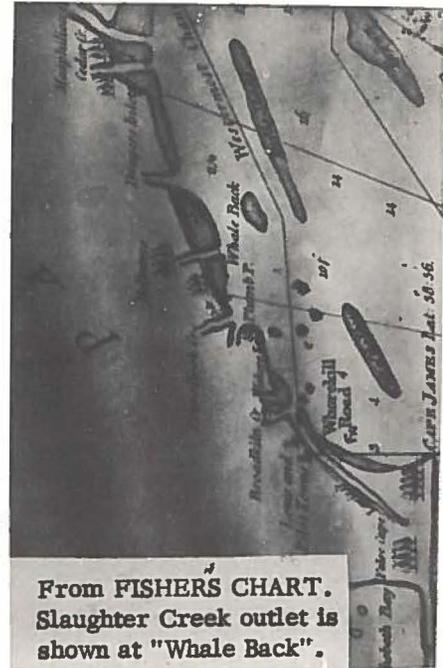
PUBLICATION of the SUSSEX SOCIETY of ARCHEOLOGY and HISTORY, DELAWARE



INDIAN NET-SINKERS ARE OFTEN NOT RECOGNIZED BY PERSONS WHO WOULD NOT FAIL TO NOTICE A SPEAR OR ARROWPOINT, SO IT SEEMED USEFUL TO SHOW SOME CHARACTERISTIC ONES FROM THE DRAPER SITE. THEY WERE QUICKLY MADE FROM FLAT PEBBLES SOMETIMES, NO DOUBT, PICKED UP WHERE THE NET WAS USED.



MAP OF THE AREA OF THE DRAPER SITE.



From FISHERS CHART.
Slaughter Creek outlet is
shown at "Whale Back".

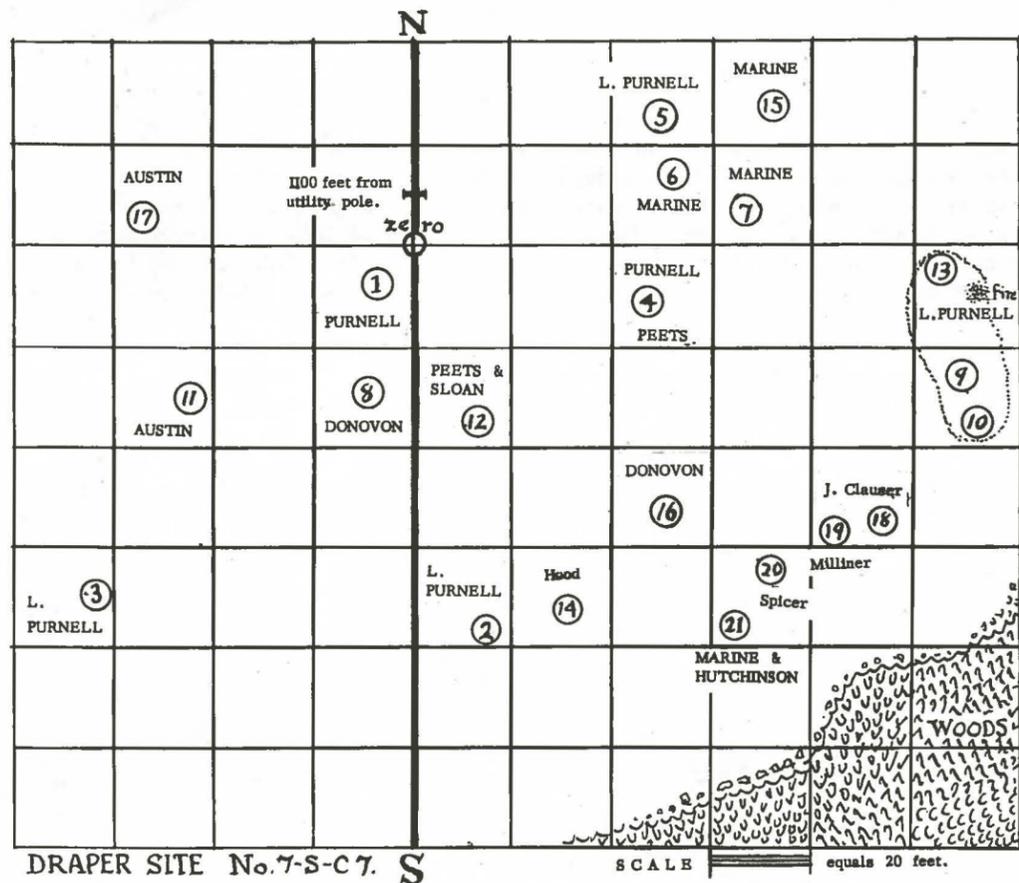
INTRODUCTION : With some, as yet unexplained exceptions the fields on both sides of Slaughter creek have long been known as a very good place to look for Indian relics of all kinds. At first it may seem that one might expect to find almost anything anywhere, but after many trips at different times of day and in all kinds of weather a sort of pattern shows itself. About 200 yards north of the creek and nearly half a mile northwest of the Draper buildings is a ridge about 15 feet high which curves toward the Delaware river. Near this ridge the objects found include a larger percentage of older items than elsewhere on the site. Also north of the creek but nearer it and about 350 yards east of the buildings is what seems to have been a work shop area for large quantities of hammer and anvil stones as well as rejects and chips have been found there. To the south of the creek the land is higher and the creek bank steeper. There is where we should expect to find the village and excavations have tended to confirm this supposition. An area as yet uninvestigated but which should be included in the site is the old mouth of Slaughter creek at what is called the Whale Back on the Fisher chart.

But while surface collections and a study of the topography may give an idea of the site as a whole the image is somewhat vague and we must turn to the excavation of pits to supply some sharper detail, although we are learning that pit digging alone makes only a limited contribution. A glance at the two plates of projectile points in this number will show that a few points of any age may get into the pits if enough of them exist in the soil of the site and the range is the same as that of any extensive surface collection. For pottery there is a marked difference because the pit is a safe repository while sherds in the top soil are eventually reduced to powder. Even in Indian times discarded pottery remaining on the surface would soon be broken into small pieces so very large fragments or restorable pots found in shell pits are reliable time indicators. Pits can give other valuable information as well as interesting objects such as the comb found in a pit south of Slaughter Creek. This find has been made subject of the first of a series of bulletins planned for the Delaware State Museum. The text is by Dr. T. D. Stewart of the Smithsonian Institution.

THE SHELL-PIT SAMPLING : Probing located many pits north of the creek and not far from it, with over thirty concentrated in an area 180 by 200 feet. Of these twenty-one were excavated and reported. The pottery conforms in general with Townsend though some was more red. A source of clay was found recently in Slaughter Creek that may give this color when fired.

The proprietors of Draper Foods Inc., especially Mr. Richard Draper who is well known for his interest in the University of Delaware, made the project possible by fencing off this section in 1956 and 1957 and allowing us access to it at all times. Mr. Clyde Elwanger, superintendent of farms for the company, took an active interest in the dig and was of much assistance to us. We are grateful to these gentlemen and hope they will find some reward in this account of our work.

Harold W. T. Purnell



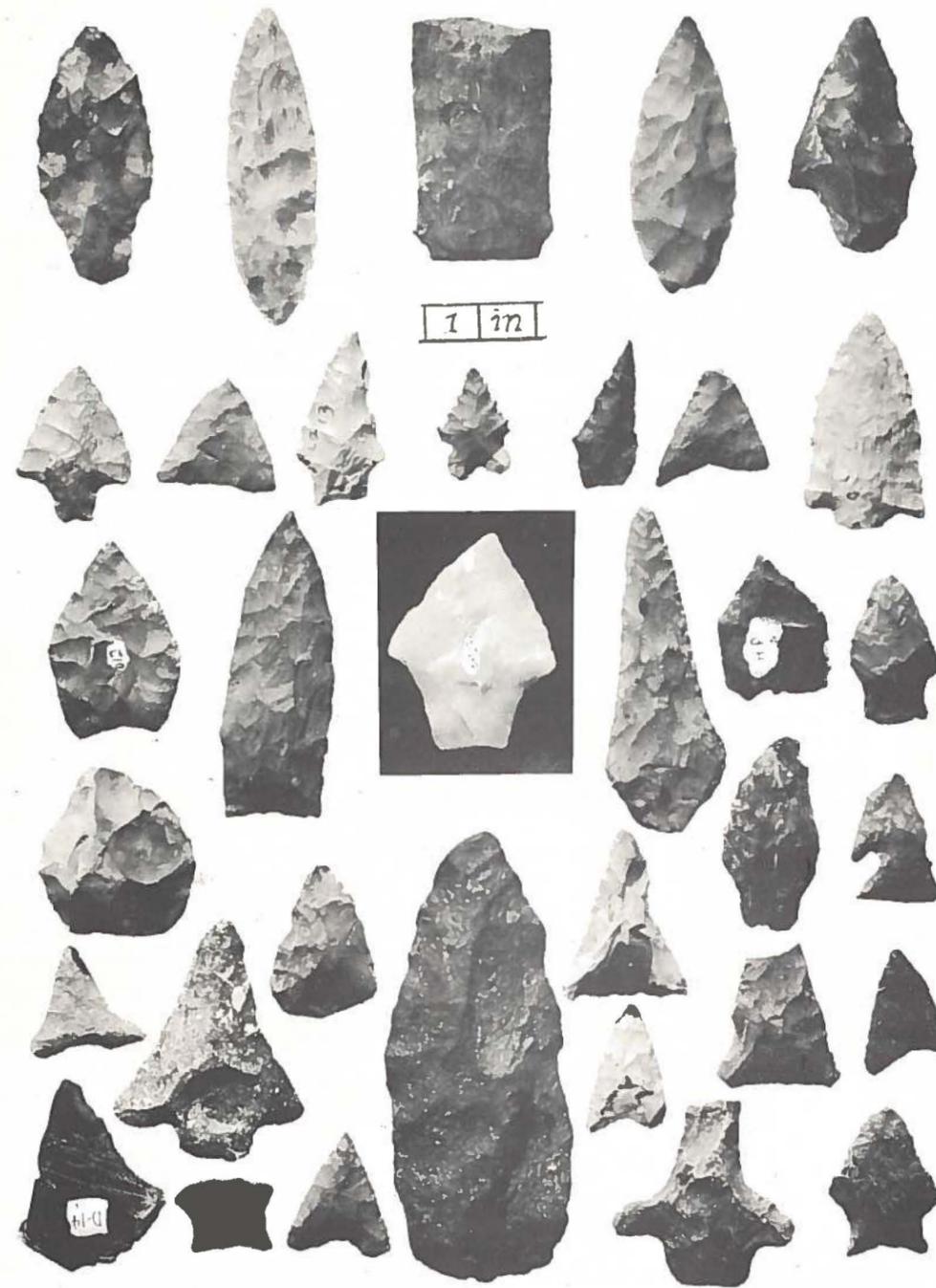
DRAPER SITE : PIT RELATIONS

THE DIGGER in a shell pit is apt to think he is in a very small world of his own. He has begun by probing to determine the circumference of this world and has dug a trench in the top soil around it. His later digging builds up a barrier of earth and shells between himself and the universe around him and his own vision is concentrated on the smallest details within his own sphere. There may be other pits being dug close to his but any communication with them is on very general matters. He has several bags marked with his pit number and these he fills with sherds or animal bones or worked stones. When his work for the day is done he carries his finds to his car and to his home which may be 20 miles away. Persons working in the next pit do the same, so fragments of the same Indian vessel may be dispersed over a wide area. The loss in fewer restored pots may be unimportant but there are other losses.

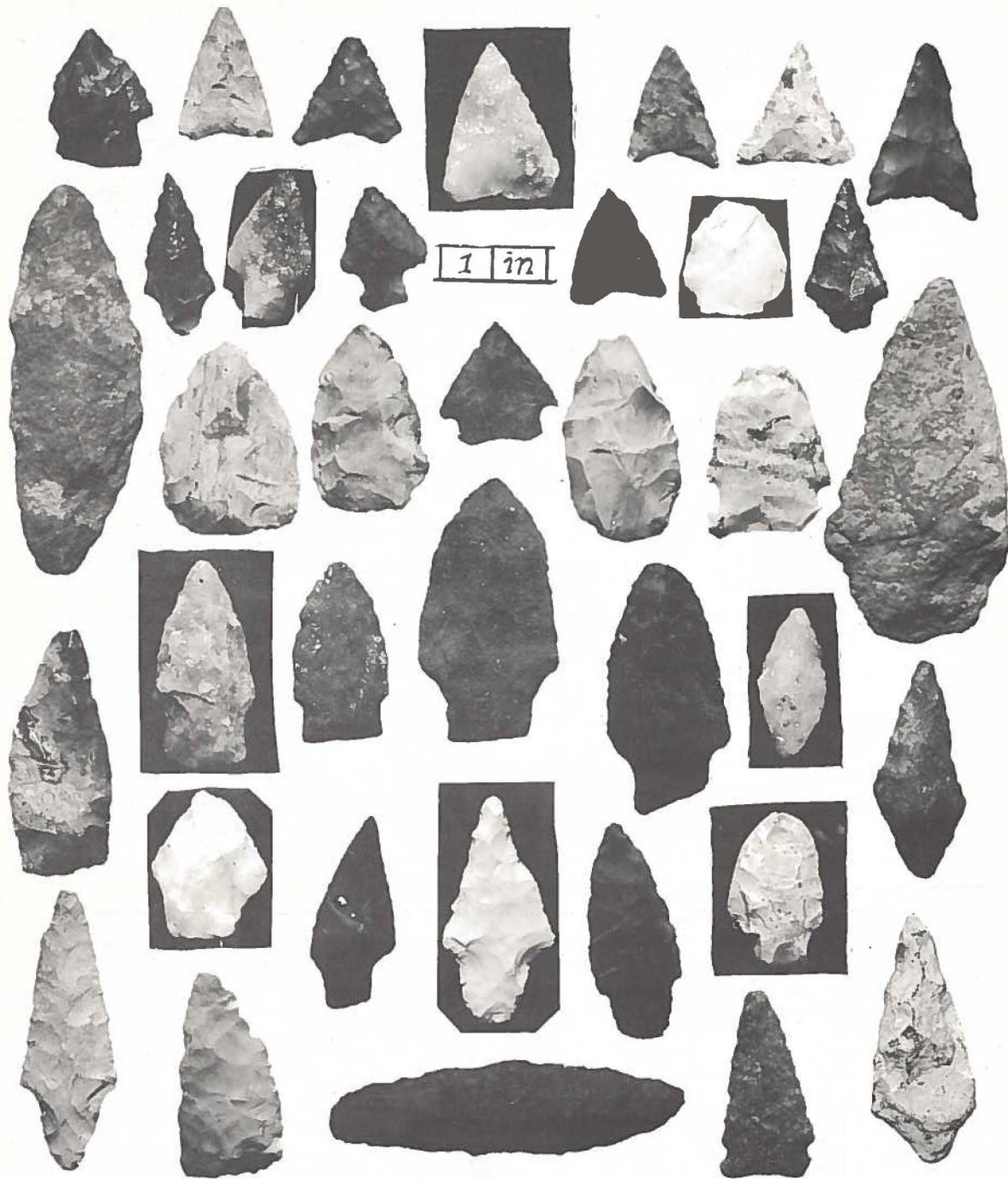
Finding matching sherds in two or more pits does not mean necessarily that these pits were open at the same time but if the pieces are relatively large and the edges unworn it is unlikely that much time elapsed between their deposit in one or the other pit. This probability is increased when the sherds are found among shells and decreases when they are found in earth thrown in from the occupation ground level.

From almost every carefully worked pit, especially if it contains much earth fill, there is recovered a quantity of very small sherds that could belong to any period of the site. Each time a sherd is broken its resistance to further breaking is increased, so before the introduction of modern cultivation it is unlikely that any well fired Indian pottery was destroyed entirely. Still a restored pot may be taken to be the most reliable time indicator we have among purely Indian remains and if two pits supply the sherds necessary for such a restoration they may be supposed to be contemporaneous.

Pit 8 and Pit 12, which were only a few feet apart had between them about half the sherds of the same pot and Pit 8 had some that matched some in Pit 17 more than forty feet distant. An unusual find was a heap or lens of sherds in Pit 21. Many of them belonged to one pot but others in this pile may match those of other pits. When the sherd count runs into the thousands as it did at the Townsend site, cross-pit matching was practically impossible. Here at Draper it might be attempted and might give us a better idea of the relations of the pits to each other and to the site as a whole than we have had.



PROJECTILE POINTS AND KNIVES TAKEN FROM THE SHELL PITS AT THE DRAPER SITE. SOME OF THE (SUPPOSED) KNIVES MAY HAVE BEEN USED IN OPENING OYSTERS BUT THE POINTS MUST HAVE BEEN ACCIDENTALLY LOST OR WERE IN SOIL THROWN INTO THE PIT. PLAINLY THEY CANNOT SERVE AS TIME INDICATORS.



A RANDOM SELECTION FROM THE VAST NUMBER OF PROJECTILE POINTS AND KNIVES PICKED UP ON THE SURFACE NEAR SLAUGHTER CREEK. SOIL, WEATHER AND CULTIVATION WERE FOUND TO HAVE A GREAT INFLUENCE ON THE NUMBER OBTAINED. SIEVING A WIDE AREA OF TOP SOIL WOULD BE THE ONLY WAY OF DETERMINING THE RELATIVE DENSITY OF ARTIFACTS.

DRAPER SITE
POTTERY

FIGURE I

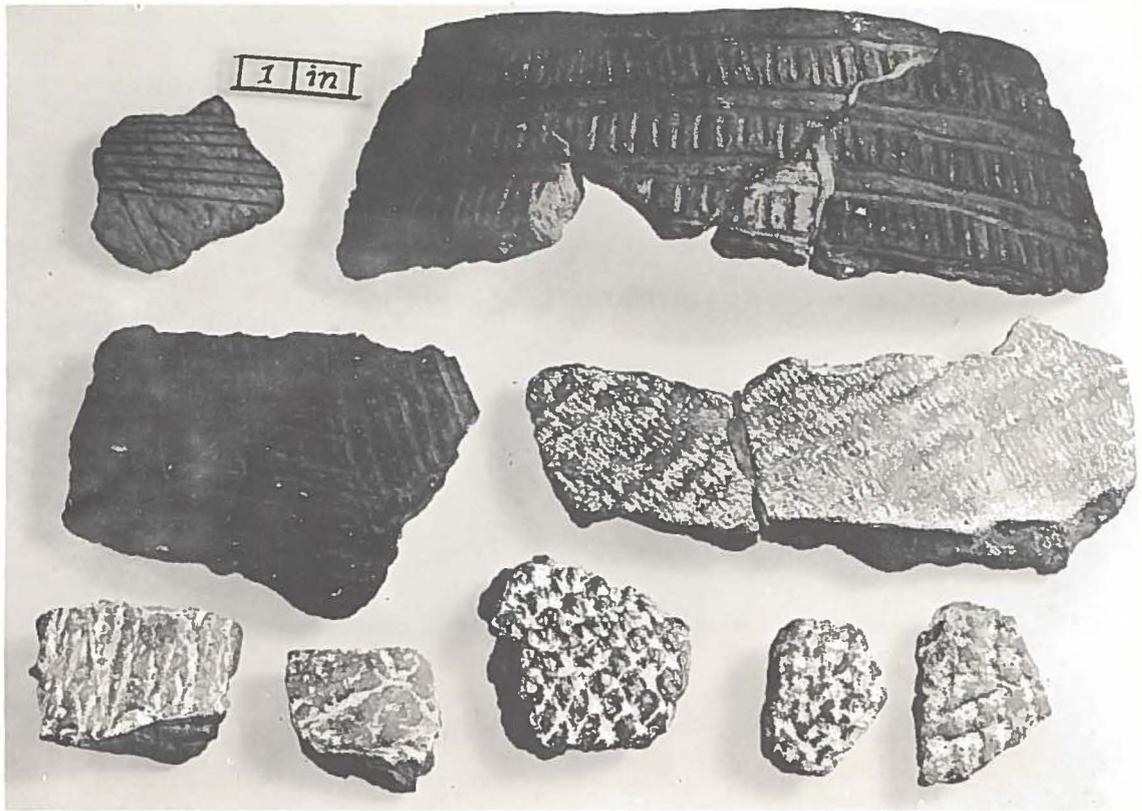
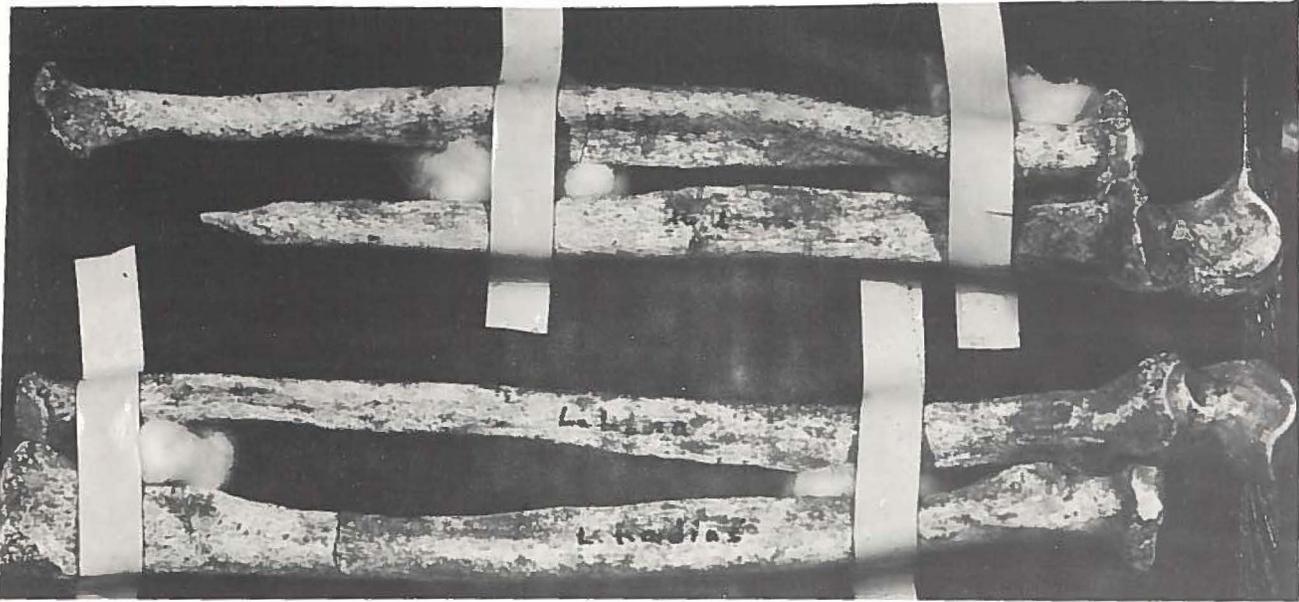


Figure I. The character of the incised line on the sherd at the top left is somewhat more common on pottery from the pits than is the rim sherd at the top right which shows about the limit in simplicity of design and boldness of execution. Middle row left is also bold and suggests the work of the same hand. Middle right is made from a piece from Pit 8 and one from Pit 12. The clay of this pot of which many pieces were found was probably obtained from a clay stratum below the stream at the site. The fragments of these two upper rows are all shell tempered, and fit well into the time limits of the Townsend site. We suppose all of the fragments of the bottom row to be much older. The one in the left corner, found on the surface and the one next to it from Pit 12 may be from the same vessel. Both are net impressed and both are tempered with what seems to be steatite. The three fragments at the right are grit tempered and impressed with net of very small mesh.

Figure 2. The pieces of this pot were all found in Pit 21 and assembled to the extent here shown by Dr. Marine. There were several other pieces which seemed to be of the same vessel but their edges were worn so that unquestionable connections could not be made. However the date of the site (Draper) can safely be taken to be that of this pot which is typical of many found in Sussex County and of wares still being produced at the time of the coming of the sites. It is shell tempered and shows an all-over brick imprint somewhat smoothed down and a cord-and-stick decoration below the rim. The large number of shell-tempered vessels which have been stored or listed as restorable compared with the few, even partially restored, grit-tempered ones seems a reliable indication of the greater age of the latter in this area.





Burials

The only burials found were in pits No. 7 (human) and No. 15 (dog).

Pit No. 7 measures approx. 50 x 52 inches in diameter. Below the plow line (9 inches) there is a packed mass of shell averaging 24 inches in thickness and almost devoid of artifacts. The side walls are nearly vertical. At 33 inches below the present ground surface sticky wet clay was encountered with the shells scattered. At 35 inches an intact human skull was found with its occipital portion propped against the vertical southeastern wall. At the level of the lower portion of the skull the arm bones were exposed flexed across the chest, the femora sharply flexed upward on the pelvis and the tibiae flexed on the knees. Both the femora and tibiae were tilted to the left as was the skull. Shells had penetrated between and below the bones in the soft clay, and water began to seep into all the pockets around the exposed bones. Shells were absent at the depth of 42 inches. We were of the opinion that originally the shells had been placed on the skeleton and that some of them had settled between and below the bones because of the soft wet clay.

As is usual the skull and lower jaw were the best preserved. There was a slight flattening of the occipital region but the rest of the skull was definitely dolichocephalic. In the lower jaw all the molars and two bicuspid teeth were absent and the alveolar arches atrophic and rounded. The canine and incisor teeth were intact but greatly worn down. The sex was not established but the flare of the pelvic bones and the wide angle of the necks of the femora suggested female.

One interesting finding (illustrated above) was the healed fracture of the right ulna. The lower fragment was not found. Atrophy of the lower third of the right radius and some hypertrophy of the left radius are indicated. Since the length of the right and left radii are the same this indicates that the fracture occurred after full bone growth.

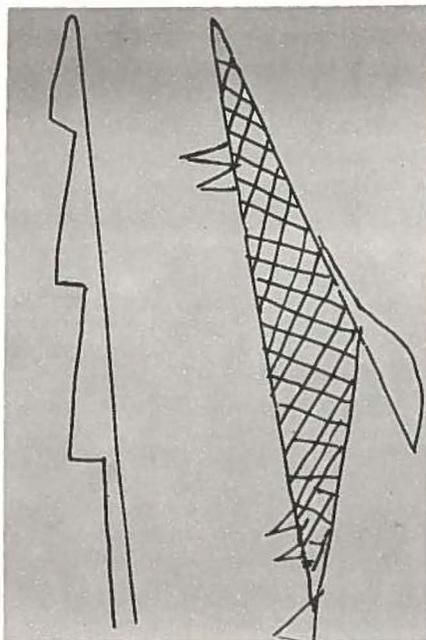
Artifacts were unusually rare - three sherds and one flake comprised the total. A few fragments of deer bone, an antler base and many pieces of turtle bone were found in the shell layer.

The dog burial was in pit No. 15 which was shallow with sloping sides and roughly 2 x 3 ft. in diameter with an overall depth of 18 inches. The skeleton was that of an adult fox terrier sized dog with all bones intact. The skeleton was lying on its right side with head pointing to the southeast as was the case in the human burial. There was a thin (1-2 inches) layer of shell which covered only a part of the bones. No artifacts were present.

In striking contrast with these two burial pits all refuse pits excavated contained large numbers of bone fragments - mostly deer and turtle.

David Marine

I.



2.

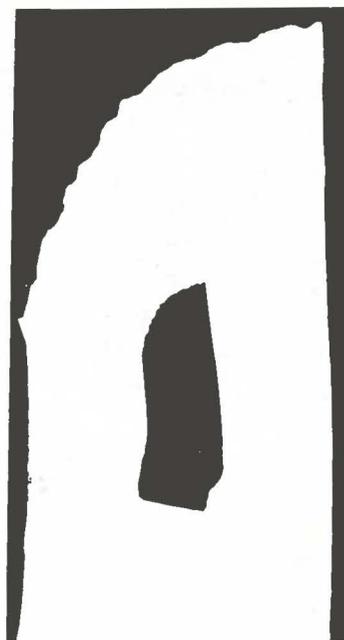


Figure 1. On a rim sherd from Pit I7 we detected what we thought to be an attempt at representation. The lines though sharply scratched were thin and it seemed impossible to make a satisfactory photograph so we put the sherd in a reflecting enlarger and traced the lines carefully on an 11 x 14 piece of paper. A photograph of this tracing is shown above. After much hesitation we decided that the "animal" might be a beaver and the other object a harpoon. Man's first drawings were of his weapons and the animals he hoped to kill with them so we asked several other members if they could see the representation of anything on this sherd. One said the animal was a dolphin and the cross-hatching was scales. We doubt if dolphins have scales but we did not look up this point. Another said it was an Indian suspension bridge; while a third thought it was the nose-cone of an Indian space ship. There were other opinions but this sampling will suffice.

Disconcerted by this consultation we re-examined all the sherds of Pits II and I7 and found five that were evidently of the same pot, three of them with some of the same thin scratching. There was plainly no attempt at representation in them. In fact they seemed somewhat aimless and gave the impression of a person incapable of the idea of representing an animal -- much less, ^{of} executing such an idea. This judgment may seem severe but many an artist has seen his reputation damaged by exposure of his lesser works. We have not changed this conclusion but since making it we have found as many persons who disagree with this negative view as disagreed with our positive one so we append further reasons which led us to switch opinions: The lines which suggest a harpoon appear also in another part of the decoration found on two small rim sherds but in this instance they are combined in the cross-hatching of a triangular element of the design so they do not suggest a harpoon or any other object. These two lines may have been used as markers to locate the design around the vessel. No repeat of the "animal" is shown but the short strokes which seem to be legs are made like a fringe where, if they represent legs, they must be those of a centipede. This other element is a rough triangle filled in with lines in various direction and is like hundreds of decorations on ceramics of this area. In contrast the part we reproduce seems unfinished and may have been left that way because of an error in laying out the design. However these sherds will be preserved for study by any who are not satisfied with this investigation.

Figure 2. This small jasper flake (illustrated in silhouette against an enlargement of its edge) was picked up from the surface at the Draper site. The edge looked as it would be sharp but we were surprised to find on touching it that it had a very fine serrated edge. There would have been many uses for such a tool. Dr. Frank Speck has mentioned their use by Indian medicine men for minor operations.

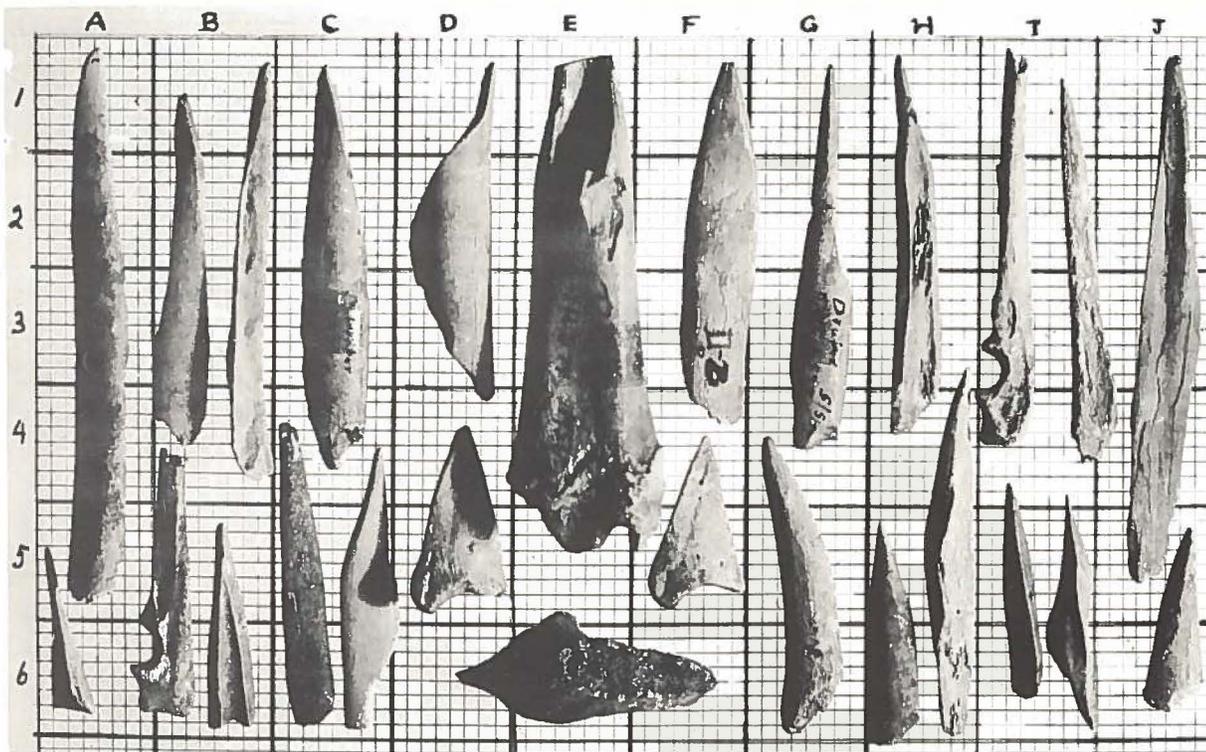


Shaman's Pebble

An exhaustive search through illustrated archeological books has not produced for us anything closely similar to the polished stone illustrated above. An incidental observation during this search was of the astounding number of objects massed under non-committal designations such as: ceremonial stones, problematics, discoidals, charm stones or simply Indian artifacts. We had intended to play safe by using some such term, but we have decided instead to risk giving an opinion because doing so might help to give substance to the discussion we invite. The opinion is that this pebble was once part of the collection of an Indian medicine man or witch doctor. There was no circumstance in the finding of this pebble that could be used to support this opinion, for this worked stone was in a lot of mud-covered hammer stones and other pebbles picked up on one of the large cultivated fields at the site. The theory derived from what we are convinced the stone represents, i. e., a female breast, and from the fact that when the base is thrust through a slit in a piece of deerskin (Fig. 1) the effect is to give that realism upon which the shaman counted to impress his patients.

In contrast to the imagined ceremonies of the Archaic, about which nothing positive is known, the profession of the Indian medicine man, because of the curiosity of early explorers and settlers, is well documented by comments that are in good agreement. Emma Lila Fundaburk and Mary Douglass Foreman, editors of "Sun Circles and Human Hands" (1957) sum up this testimony as follows: "Ethnological publications - Colonial writers and historic investigations - have often referred to the medicine man's employment of pebbles." And they quote Hewitt (1939, p. 155) regarding Creeks: "as soon as the disease was known the remedy was known and recourse was had to a medicine man. The person possessed a pouch usually made of the whole skin of some animal, which was well filled with the remedies known to him or her. Some were compounded from roots, leaves, or herbs as well as pebbles, shells, or other strange objects, each of which had been acquired in accordance with certain esoteric formulae known to ... the medical fraternity."

The great fondness of the Indians for their children is also well documented as has been their high mortality in early years. The Indians are known to have made a pabulum with chestnut flour, but this was not always available, and the fear or the reality of not having milk for her infant would have been one of the great anxieties of the Indian mother or expectant mother. This is a situation the witch doctors would be certain to exploit - first, perhaps by good advice as to diet, but also by appeal to the supernatural which was the most prized device of their profession.



DRAPER SITE : WORKED BONE

The 21 pits of Draper site No. 1 produced a very large number of deer bones and bones so broken that they could not be identified, but many probably were deer. From pits 9, 10 and 13, which were excavated as a unit to determine if they were related to each other, 2300 bone fragments were reported, as well as a large quantity of those too small to be worth counting. No doubt most of them were cracked for the marrow or to make stews, but they may have been put aside as raw material for the relatively large number of awls or other pointed bone tools found in the pits. These and many pieces of very large antlers from which the more usable parts had been cut off suggest that deer were second only to shell food in the ecology of the site.

Some comment on the way this sample of worked bones has been presented here may be of interest. Most of our halftone screen negatives are made directly from the artifacts arranged on the light table. This eliminates two photographic operations - the making of a continuous tone negative and a paper print, and as we do this work ourselves, the saving in time is important, but numbering the objects on the flashed opal glass of the light table is not easy, for it refuses even the pencils made for writing on glass. Numbers on small pieces of film can be used, but putting them in place with a large collection of objects that slide around on the glass at the slightest touch is difficult, and numbering each object in ink has disadvantages - some numbers on the shadow side would not show, and if any composition is attempted the numbers may be all out of order, which is serious when a list numbered in sequence is required below the plate.

For this experiment a piece of transparent plastic was used with an inch grid divided into eighths. and it was expected that each bone would be identified by the location of its point. For example: D-4 and F-4 are bones from the hoofs of deer from which the Indians made bone fish hooks.

In the case of these fragments of worked bone exact measurements are not important, but for many artifacts they might be, and reference to a scale is often unsatisfactory, especially when the objects are photographed at an angle, so in some instances a ruled grid of this sort might be advantageous.

Pipe Fragments from Draper Site

From the pits of the Draper Site, only two pipe fragments were reported - both indubitably Indian, but from the surface of the general area, a large number of pieces of pipes (presumably trade) have been picked up, but none was reported from an excavation below the top soil; hence, where intrusions are not suspected Indian pipe fragments are dependable time indicators for us. They are all the more useful for the fact that there is a chronology for Indian pipe styles that is generally accepted.

Of the two fragments illustrated here, one is real Indian, and the other a hastily made imitation. It was made to show how the Indians may have done their pointillist work or "rouletting", as it is sometimes called. In the case of the imitation, it was done with the pieces of clam shown in the photograph, and did not require more than two or three minutes. The dentate edge of the inside of the clam shell was used after being slightly ground on both surfaces. To make a clearer photograph the impressions were filled with chalk, but the similarity is greater without it, for the bottoms of the dots show the rounded and somewhat beveled form of the clam's "teeth".

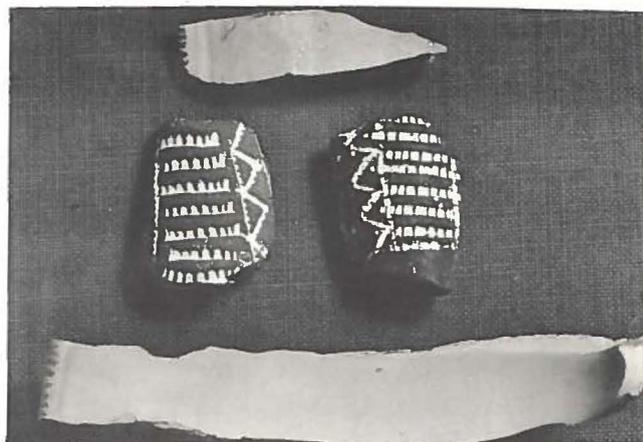
This kind of decoration of clay pipes is certainly late, for it was used in historic times and imitated in trade pipes by the use of a knurling tool or real roulette. Another indication of its lateness is the fact that even in the hands of the Indians, it is only an imitation of the broken line decorations on stone pipes that must have been made with a flint burin and required greater skill.

A single very short section of a rouletted line on a trade pipe may be almost impossible to distinguish from a clam shell imprint, but it is difficult to start a rouletted line at the same point with the dentate wheel, while with a piece of clam shell held in the hand this is normal, so several lines together permit a decision as to which means was used. From a large number of fragments of pipe stems from the Draper site we found one which showed rouletting. The dot was the same as made by the smaller piece of clam shell shown above - neither more or less regular, but it was seen that the line spiralled around the stem and was continuous. Had an Indian made it there would have been rings of dots around the stem and probably breaks or laps at one or several points.

Several clay pipe fragments were found on the Townsend site with this clam shell imprinting. On one there seemed to be only non-dentate gashes in the clay, but soft modelling wax picked up the tooth marks at the bottom of the gash. The piece of shell had been pressed too deeply.

A LETTER FROM CHARLES STEIN, who is located at present in Brussels, contains a short translation from a book by Abbé Breuil and R. Lantier "Les Hommes de la Pierre Ancienne" (Men of the Paleolithic). Abbé Breuil is the great authority on the caves of South France and northern Spain -- to which Stein recently made an extended visit. The excerpt follows: "In the light of documents of all types, to which the archeologist has access, the least one may say is that the existence of paleolithic man appears as excessively rude and precarious. Also the length of life was notably shorter than that of man of today. Dr. H. V. Vallois points out that of 187 subjects of determinable age, more than one-third died before reaching the age of 20 years, the great majority of the remainder died between the ages of 20 and 40 years. Beyond this limit there remain but 16 subjects, of whom almost all had succumbed between 40 and 50 years. Three only exceeded the age of 50 years. Still it was not a question of old men, for rather important segments of the sutures (of the cranial vault) were still open. We are also led to admit that notable differences existed between the length of life for men and for women: among the Neanderthal the four subjects older than 30 years are all men; among subjects of the Late Paleolithic, out of eleven of known sex having lived more than 40 years, ten are men, and during the Mesolithic, the three subjects having lived more than 40 years are all men. The proportion is exactly opposite for mortality between 20 and 30 years. Female mortality was therefore much more frequent before 40 years."

" This short life span of humanity is the fatal consequence of the precariousness of the paleolithic and mesolithic populations, depending uniquely on hunting and the gathering of food. Before the knowledge of agriculture, it was almost impossible to accumulate the reserves of indispensable foods, and the life of the hunter was exposed to many dangers and to severe privations." Our paleoIndians did not fare any better as the layers of "quids" in the dry caves of the West are mute testimony. Quids are what is left when grass is chewed for its slight nourishment.





The PROBLEM of RELATING the DRAPER SITE to OTHERS of the MIDDLE ATLANTIC AREA.

In treating this problem we are using the name Draper Site to mean only the 180 by 200 foot rectangle in which 21 pits were excavated. It has been proposed to divide the Slaughter Creek area into four parts giving each a number but the order of future excavations is not yet fixed and is almost certain to take precedence over any arbitrary numbering system. By either system, however, this would be Draper Site No. I. It represents a very small portion of the Indian occupations of Slaughter Creek but it is a good sampling of one manifestation -- shell pits.

The Draper site undertaking has come at a time when the need of relating our investigations with those of nearby states, so this section will not continue to be a blank, has been impressed upon us. The lack of information on Delaware in Karl Schmitt's paper on the territory comprising the present states of Virginia, Maryland, Pennsylvania, New Jersey and Delaware in "Archeology of the Eastern United States" is so obvious that we have a pressing duty to make up this lack. We have been --and still are -- at a disadvantage in doing this because the Eastern States Archaeological Federation has seen fit to apply in our case a rule that each state shall have only one accredited society. Such a rule may be an organizational convenience but it can hardly have been intended to operate the virtual suppression of all reports in Delaware except those made by the "official" society. When this society excavates in Pennsylvania, as it frequently does, we hear a good deal from it about the unimportance of state boundaries in Indian matters. Of more consequence than these artificial barriers is the fact that it is difficult to relate our typical sites with, for example, the Abbott Farm in New Jersey when we find that Dr. Dorothy Cross lists only three shell pits at Abbott Farm out of a total of 245 other pits, and she remarks that, of these three, two containing oyster shells may be modern. This suggests that we need to inquire if there are not in New Jersey other unofficial societies like our own, which have made a study of Atlantic Shore sites having the characteristics of ours.

On an early day of the Draper dig, five or six of us were standing around pit No. I with, on all sides, the expected evidence that oyster shells were to be the main feature of the site. I made the suggestion that we make a count of the shells in each pit by putting them in a box or basket of known

capacity before throwing them out. This proposal was voted down because "there were too many variables." But are the variables unlimited? Some, at least, seem to cancel out. Indians, we are told, were abstemious but our estimates must allow them enough so they will not starve. Having made a rough count of the total number of oysters we could find the average number of Indians because the keeping time of the oysters would not be a variable. I proposed that we get about a bushel of oysters and bury them in one of these pits to test this factor, but it was conceded that they would last two or three weeks but probably not much longer. So the variables of the problem are much reduced. In fact the rate of disposal of the refuse would average about the rate of consumption of the oysters and this would be within the relatively short range of their keeping time in a storage pit. It is very important to recognize stratigraphy and intrusion but it is no less important to be aware of their absence. In the diagram of Pit I3 we see that shell and charcoal was swept or pushed into the pit from the left side before crushed shell was pushed into it from the right side. The minimum time between these operations could have been a few minutes-- at least there was not a severe mud carrying rain in between, such as there was before the next shell layer was put in this pit. And between that and the time the pit was full of refuse there was another though less severe rain. Whether we base our calculation on the incidence of eroding rains or on the keeping quality of oysters, we can count the working existence of a storage-refuse pit in weeks or months rather than years. In contrast we have the absurdities of pseudo-stratigraphy: an archaic spear point is found -- let us say -- in the lower levels of a pit and a triangular arrow head or even trade goods in the upper level and from this the age of the pit is assumed to be two or three thousand years. We simply do not consider such estimates. Not in the case of shell pits.

Here a quotation from Karl Schmitt is pertinent (Archeology of the Eastern United States, p. 59)
"The methodological procedure in establishing the chronology of the Middle Atlantic area consisted of two steps. The first of these was the comparison of complexes from historic sites. Such a procedure, when stratigraphy is lacking, as is almost the case in the area under discussion, is the best means for the establishing of a relative chronology. A second was the comparison of Middle Atlantic complexes with those of chronological significance in neighboring areas." Our own role in this would be to supply material on the chronological significance of our local complexes. In not very simple words this is the answer to those who ask what are the ultimate purposes of our investigations.

Of the sites we have examined, the Russell site may be the one that existed into historic times, although trade goods did not appear frequently in the pits. Typical shell pits were common, showing that this feature continued into historic times so one end of its chronology is established. Pits of many kinds may be as early as the use of tools and weapons, but it has become a common observation among us that really early stuff is not found in shell pits and this Draper site may help to tell us what justification there may be for this impression. Early hunters are supposed to have followed their game and to have camped -- when possible -- where they killed it. There is evidence also that when they wanted shell food they went to salt water and left the shells on the surface where they ate, ^{but} from the Draper site it is about five miles to the oyster beds and in the summer a large canoe load would raise the question of preservation. A hole in the ground was the Indian's answer to this problem. Because we call them refuse pits many persons imagine that the Indians dug these pits, some of them extending down six feet, for the laudable purpose of "policing up camp". That idea is simply not tenable. Early White settlers threw shells in a low spot in the road or in a heap in the woods. The Indians could have dumped, to advantage, all the shells we excavated at the Draper site in the woods near the creek, and so far as keeping the camp clean, we do not suppose the camp to have been here. It might be called their picnic grounds, but first of all it was the shell food storage area. Dr. Ritchie (1944 Pre-Iroquoian Occupations of New York p. 64) covers 274 pits in the following sentence: "Beyond reasonable doubt the majority, if not all, were primarily cache (storage) pits, later serving as refuse repositories and in 36 instances as graves. "

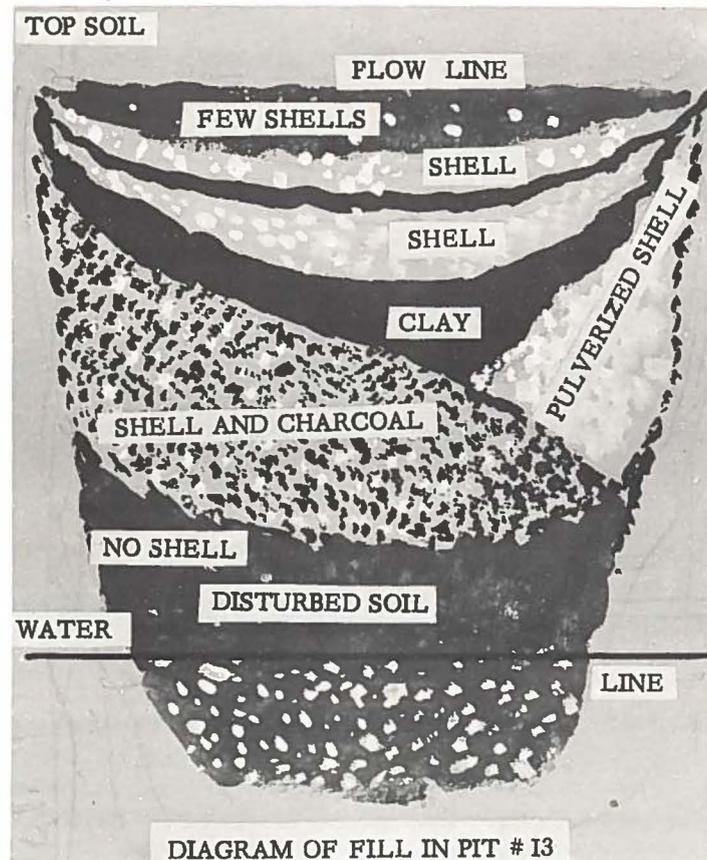
A service of supply such as is indicated by the shell pits at the Draper site suggests a village, at least semi-permanent, of the type brought into existence by agriculture. Sea food may be thought of as an alternative to that produced by agriculture, but shell storage pits seem to belong to a time when agriculture was fully developed. Objections may be made to this correlation as a general proposition but in the case of Draper Site No. I, there can be no doubt that it should be dated as late as the Townsend site -- an established and well-populated village such as was made possible by agriculture.

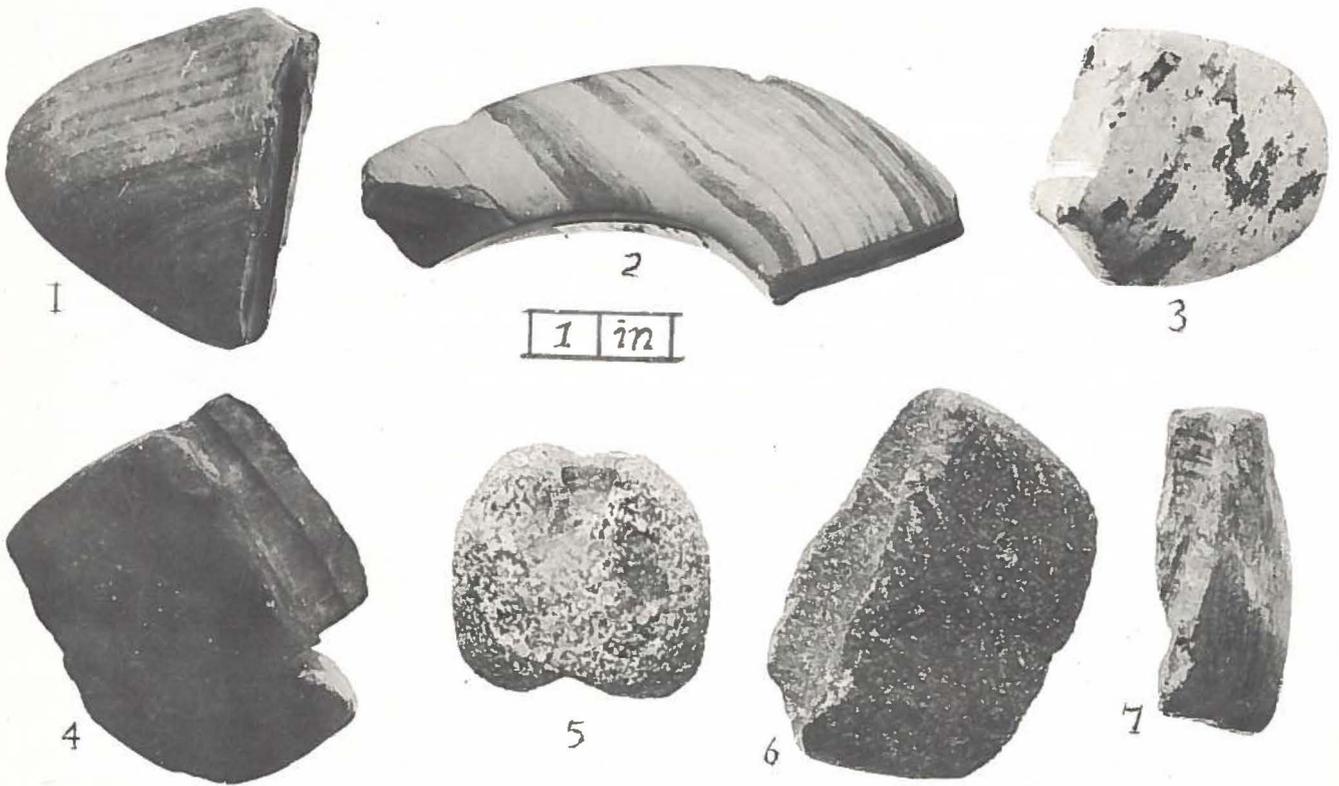
Except for the redder color of some of its pottery, the bulk of Draper sherds cannot be distinguished from Townsend sherds. Eighteen, half from Townsend and half from Draper were placed before the three diggers of Draper Pit 8, who were asked to pick their own on a basis of design. They confessed trying to use a memory of shapes but the result was four Townsend and five Draper. There may be many designs not exactly duplicated in both sites but chronologically they must be related closely. This is the opinion of Dr. T. D. Stewart who is familiar with both sites.

The Slaughter Creek site as a whole seems to have a time span greater than any of the several we have investigated though Missillon may have an almost equal time depth. It is plain however that we shall have to use other methods than excavating shell pits to locate these older cultures. Removing the top soil in strips as was done at Missillon seems the most promising way when permission to do this can be obtained.

The July, 1958 number of American Antiquity has an article on ecological interpretation in which ways are proposed for the conduct of shell midden analysis that are much more time consuming than the one suggested in this paper. Soon something of this sort will be expected in every excavation of shell pits.

O. H. PEETS





BANNERSTONE RELATIONS

With the exception of No. 5 which is whole, all the stone objects illustrated here are broken - approximately in half, and all except No. 5 were found in that area west and north of the Draper canneries where more artifacts, accepted as very ancient, have been found than elsewhere on the site. It is generally agreed that the worked stones of these shapes (they are frequently of banded slate) are at least two thousand years old. But if there is agreement as to their relatively great age, that is almost the only point upon which there is any agreement concerning them, and the controversies of which they have been the subject are as many and varied as are the shapes of these interesting objects which seem related among themselves only by a hole about the size of one's little finger, drilled often through their longest dimension. Thousands have been found that have been broken where this hole has made a weak place in the stone, and hundreds have been found that were repaired after having been broken at this hole. There were many different shapes and also variations within a given shape. As for this hole, however, it was evidently a real "sine qua non".

For many years they were called problematics or ceremonials but the discoveries of Schliemann in the ruins of ancient Troy and Evans in Crete made familiar to the American archeologists of the last century the votive double axes or bipennes of Mycenaean times and the similarity, of not one, but many, of these forms with this category of our Indian "ceremonials" must have struck every Americanist of the period. No one writer is given the dubious credit of having invented the name "bannerstone"; it must have been proposed almost in chorus. The most marked likeness is in the Indian stones of the sub-title "bipennate". With them the conformity of several of their shapes with the several forms of votive double axes of the Aegean is really astounding - enough, in fact, for Dr. Holmes to suggest that one of the Norse ships must have brought the first models to these shores, but Dr. G. B. Gordon demolished this idea (1919, *Stone Ornaments of the American Indians*, Chap. 27, p. 369) by showing that our Indians were making these things many centuries before the supposed advent of Eric the Red.

The acceptance of the name bannerstone was not unanimous, however, for J. D. McGuire (1894, Report of the National Museum, p. 650) in a study of primitive methods of drilling, says this of bannerstones: "the name of these graceful objects is unfortunate; for that they were in any way used for any ceremony or were carried in procession as banners are assertions but little more entitled to consideration than would be the statement that they were used as evidence of debt." Others called the name meaningless and the wide distribution of these objects suggests large religious or political groupings not imagined for the sparse and hard-pressed Indian populations of the Archaic and a banding together more extensive, in fact, than those of historic times.

As knowledge of the circumstances of the Archaic increased, it was to be expected that there should be reluctance in using a name seeming to have a precise and rather full meaning, whereas nothing whatever had been turned up to show that these objects had been used as the name implied.

Clarence B. Moore, in reporting some of his excavations (1916, Journal of Natural Sciences, Philadelphia, 2nd Series XVI, p. 440-87) called examples of the somewhat more rectangular bannerstones "net spacers" and the antler hooks he found with them he called "netting needles"; this in spite of the opinion of C. C. Willoughby of Peabody Museum, Cambridge, that they were probably atlatl hooks. Objections to Moore's suppositions were prompt and led to a review of all the evidence and to the conclusion that the thick pieces of antler, the stones and the antler hooks all bored with the same size hole and found frequently in alignment, were the handles, the weights and the hooks of atlatls of which the wood part had rotted away.

What is the function of a stone weight on an atlatl and why this diversity of form? A fully acceptable answer to these related questions has not been published but may be expected soon, for we have the concrete elements of this problem before us, and satisfactory answers will have a bearing on the basic bannerstone-atlatl controversy, if there still is one, and in any case the spear thrower which existed before the bow and arrow is an interesting and important subject in itself.

The modern maker and user of atlatls is made uneasy by the growing habit of saying that an atlatl is "powered" by the stone weight. A heavy spear does seem to get under way better with a well placed stone weight, but the inertia of the weight has to be overcome as well as that of the spear. However, there is a marked gain in ease of handling when the atlatl-dart combination is brought into balance on the hand. Those very slight corrections of alignment which make for accuracy must be possible without too much effort and in a small fraction of a second.

Even the crudest spear has, of course, its point of balance, but collectors of spears know that the best weapons are weighted at the proximal end to bring the balance back from near the head to a point near the middle, which is where changes in direction are produced most quickly and easily. The atlatl has many advantages, but normally it is out of balance due to the fact that there are two or three times as much of the dart in front of the hand as back to the hook. The Basketmaker atlatl shown in the small illustration has a stone bar weight that could be moved along the atlatl to the right place and fixed there, and many other stones with round holes could be run up or down an atlatl with a round shaft until the right place for it was found. As to the location on the atlatl of some of the other drilled stones, there is room for much experimentation. In the case of the prismatic stone with the hook ground in the stone, the correct position would obviously be at the distal end where the hook must be placed. The three winged stones found in Delaware with holes only half bored through, if they are finished as seems probable, could only be placed at the end of a wooden atlatl beyond the hook. Several other forms would be most advantageously placed beyond the hook on a wooden atlatl. There is where the least weight would balance a long and heavy spear. James H. Keller, author of the most complete study to date, "The Atlatl in North America" (1955, Indiana Historical Society, Indianapolis) notes that the geniculate and butterfly forms have not been found in association with the antler hook. However, with the hook carved in the wood no hook of antler would be required.

With many light darts no weights would be required for the whole of the atlatl back of the hand acts as a weight. A light reed with one of the small bifurcated-base points, several of which were found near the broken stones here illustrated, would make a very good dart for waterfowl, for it would penetrate easily if it hit and float if it did not. According to this view, that its function is to create a balance on the hand, the stone atlatl weight would be a refinement to increase the accuracy of the heavier spears, but not a requirement of every atlatl or throwing stick. The variations of these weights might be likened to the changes of gun locks from the fuse, the match lock, the wheel lock, flint lock, the percussion cap, etc., for each served the same purpose but with advantages that were quickly recognized.