FALL 1973 VOLUME XXV

THE ARCHEOLOG

PUBLICATION of the SUSSEX SOCIETY of ARCHEOLOGY and HISTORY

PRESERVATION OF THE "MIDDLE STONES" AT THE SOUTHWEST CORNER
OF THE STATE OF DELAWARE
See Pages 12 to 20

PRICE $1.75

FALL 1973 VOLUME XXV

THE ARCHEOLOG

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CACHED BLADES FROM A MILLSBORO, DELAWARE BORROW PIT

On April 24, 1973, two young boys, Scott Atkins and Tommy Williams, discovered a large number of flaked stone tools while digging in the wall of an abandoned borrow pit near Millsboro, Delaware. Realizing the significance of their find, they immediately contacted Mr. Wayne Burton, a retired Millsboro school teacher. Mr. Burton advised Avery Ellis of the Sussex Society of Archeology and History of the discovery. Upon the urging of Mr. Ellis the writer made plans to visit the Millsboro site the next day.

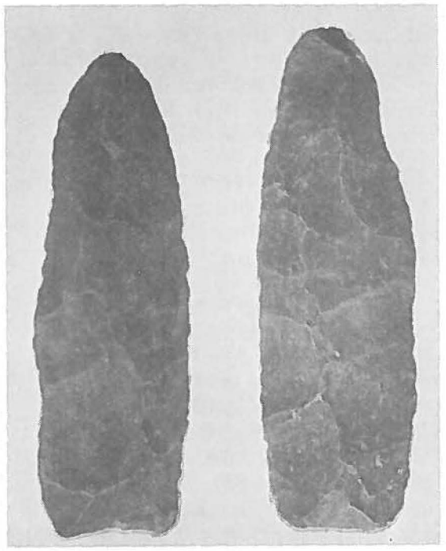
On Wednesday, April 25, 1973, Clifford Lefferts of the staff of the Section of Archaeology was dispatched to the site to conduct preliminary investigations. After determining the spot from which the tools had eroded out of the bank, a fresh cut was made and two "in situ" artifacts were found. Excavations were conducted the next day by Richard Artusy, Lefferts, and the writer with the assistance of Mr. Burton and the two boys. The recently eroded talus was screened and over twenty additional tools were recovered. Within thirty centimeters of the original in place artifacts, three more were found.

After a discussion on the disposition of the cached artifacts, now numbering 44, it was decided that they would be retained by the Section of Archaeology for analysis after which they would be mounted and returned to the boys. The following is a description of the excavations and the recovered items.

The Excavation

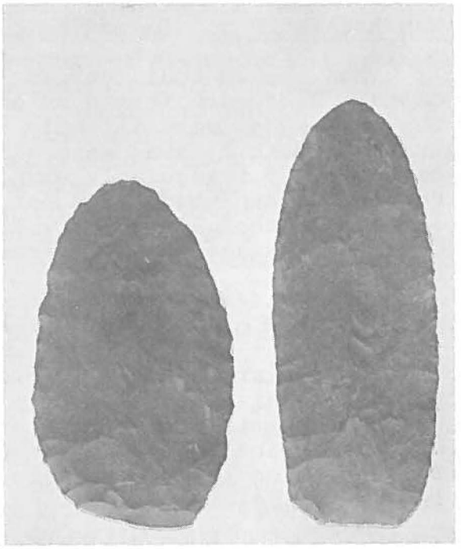
Excavations were festricted to the remnant of the original feature that had eroded into the borrow pit. The five "in situ" tools appeared to be lying slightly above the bottom of the feature, a round-bottomed pit with steep sides. The depths of the tools ranged from 100 to 110 centimeters below the present surface. The two specimens excavated on April 25 were lying overlapping and pointed in a northeasterly direction. They were inclined slightly upward to the northeast. The three found on April 26 were lying to the east of the first two artifacts. Two of the three were overlapped and oriented northeasterly. The third was at a slightly deeper depth and was oriented to the southeast.

The bottom of the pit was marked by a slight difference in texture. It was not possible to follow it up more than twenty or thirty centimeters above the artifacts. A soil sample was retained for further analysis.



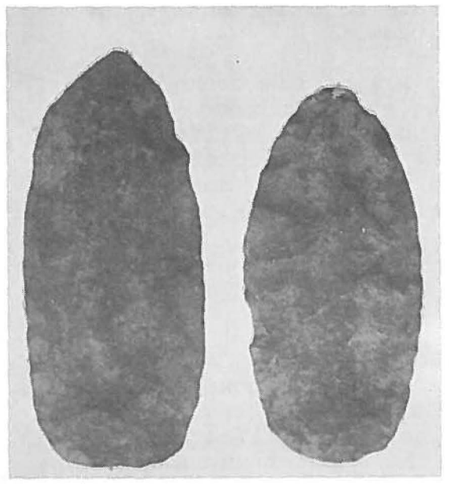
A

A= RYOLITE



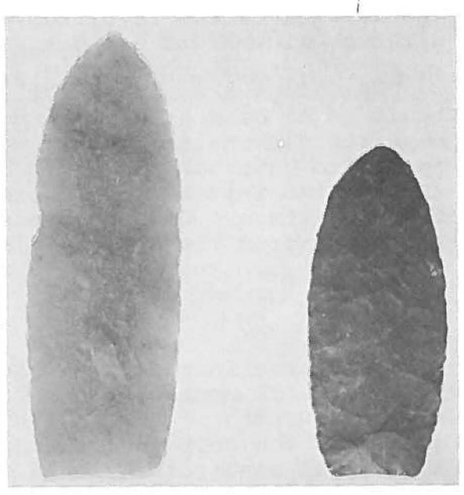
B

B= LIGHT GRAY CHERT



C

C= PURPLE ARGILLITE



D

D= QUARTZ

E

E= PENSYLVANIA JASPER

Millsboro Cache Blades (1/2)

The Artifacts

The cached tools varied in outline from lanceolate to ovate. Tips were formed by sharply converging excurvate edges. The tool edges were slightly excurvate and were irregular for the most part. Bases were well defined and varied from excurvate to irregularly straight. The flaking pattern of both faces was crude with larger flakes often reaching almost across the tool. Secondary flaking was rare although occasional areas of use flaking were noted.

Of the 44 artifacts recovered 19 or 43 percent were manufactured of a material referred to as hornfels (formerly thought to be argillite) which outcrops extensively in the Middle Delaware River Valley of Pennsylvania and New Jersey. An additional 27 percent were of rhyolite from the Piedmont of Pennsylvania or Maryland and 18 percent were made from a material identified as Onandoga Chert from New York State. The remaining three specimens were Pennsylvania Jasper (2) and Quartzite.

The rhyolite artifacts differed significantly from those manufactured of the other lithic materials. The 12 specimens had a mean length of 161 millimeters with a standard deviation of 11.8. Those of chert and hornfels measured 132 and 131 millimeters respectively. The widths ranged from 51 for the rhyolite artifacts to 54 for the hornfels items and 58 for those manufactured from chert. No overlap occurred between the lengths of the rhyolite tools and those of other materials although widths did exhibit a slight overlap.

Although a general similarity among all of the cached tools is to be seen, it is suggested that at least two separate flaking traditions were responsible. The artifacts appear to have been obtained by the local native peoples or transported into the Millsboro area in a finished or near finished stage. Only one jasper industrial flake was recovered from the eroded talus.

Discussion

The area in which the cache occurred was a sandy and well drained knoll some distance from the nearest water course--Whartons Branch of the Indian River. Although an extensive survey of the surrounding area was made, not one artifact of aboriginal manufacture could be found. The site of the cache was obviously not an occupational site and it is difficult to explain the reason for its existance.

It is also difficult to determine the exact age of the artifacts in the Millsboro Cache. The use of hornfels and rhyolite is most extensive during the late part of the Archaic Period of the Eastern United States, although both were utilized in later periods. Onandaga chert and Pennsylvania Jasper are known to have been used and traded from much earlier periods. Both also were used by later peoples. The artifact styles or descriptive types are known from Late Archaic, Early Woodland, and the early part of the succeeding Middle Woodland Periods of the Delmarva Peninsula and the Atlantic Coast.

Whether or not the artifacts were accompanied by materials of a perishable nature could not be determined. The soil sample did not contain a particularly high percentage of phosphorus, a mineral which might indicate the presence of a human burial. It should be noted that the discovery of caches is not uncommon in the Delmarva Peninsula (Omwake 1955; Flegal 1954; Crozier 1940). Unfortunately, in none of these cases was a professional archaeologist advised of the find during the process of excavation. Consequently, no control over the kinds of data collected was exerted. Only the artifacts remain in various private collections with little information other than the location of the farm or field in which they were found. Future cache discoveries can reveal a considerable amount of insight into this practice little understood by archaeology.

Ronald A. Thomas
Delaware State Archaeologist

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TECHNIQUES IN SALVAGE ARCHEOLOGY

Wm. Jack Hranicky

In the past few decades, there has been an increasing concern that archeological sites should be rescued from the onslaughts of modern construction. Where dams and highways are being built, responsible agencies frequently appropriate funds to salvage the sites which will be destroyed by flooding or the bulldozer. Today's archeologist is spending altogether too much time working on sites that are going to be destroyed. Salvage archeology has the element "time" which is against the archeologist. Normally, he can take his time so that proper excavation can be performed. But in salvage archeology, the site must often be excavated in a very short period of time. Salvage archeology is, therefore, based on the premise that some work is better than no work at all. As a result, certain established field methods are not used.

The technique of archeological sampling is frequently used on an excavation where the entire site will not be completely excavated. For a salvage operation, this method will permit as much latitude as possible in determining the scope or cultural contents of the site. The amount of the sample from a salvage site depends on the amount of time and the manpower. Needless to say, if the manpower is available, the entire site could be excavated before it is destroyed.

The cluster or stratified cluster (hot spots) sampling is probably the most reliable. By using this method, the archeologist simply digs where the most materials are found. He can determine this by 1) surface collections and 2) productive middens (levels which produce the most artifacts). Once the "hot spots" have been determined, he concentrates all his manpower to that area. If he has any time left, he can dig the remaining areas of the site.

Another useful technique is to use power equipment to remove the over burden or top soil. While this practice is not recommended for sites that are excavated by normal methods, it does cut down on the time element needed to remove the dirt. Often when a site is being destroyed by a highway project, the archeologist can talk the highway engineers into allowing him to use road graders. The use of power equipment can be extremely helpful, but caution should be used. An experienced road grader operator can remove as little as a half of an inch; and after each removal, the archeologist should examine the area in order to determine whether or not more dirt should be removed. After the road grader has made a pass over the site and cut away a few inches of dirt, the features of a site will usually show up as areas of different colors than the surrounding dirt. This does not always hold true since older sites, for example, may not have any organic remains.

Statistical analysis has often been applied to the archeological sample. By taking a measurement of the amount of earth, screening this earth and counting every artifact, bone, shell, the investigator could devise a formula which will give some value to the materials that were recovered. This sample is then verified by comparing it to

similar cultures in the same area. However, few sites have both quantitative as well as qualitative cultural remains, and the sample, therefore, is only relative to the whole site. This method of statistical treatment of the contents of a site does enable the archeologist to reduce his excavation to a minimum.

The principles for sampling in an archeological site remain the same as if they apply to a major and complete excavation, whether the sampling is done on the surface, during the excavation (treating each level as a surface), or taking soil samples for pH testing, pollen analysis, et cetera. As representative a sample as possible is sought, because if the entire site cannot be excavated, the sample, by analysis, determines just how the site fits the cultural continuum of a particular geographic area.

THE RANDOM SAMPLE METHOD

The random sample method of excavation is a "systematic" digging of an archeological site. This method is based on the premise that excavating beyond a certain point will not produce new information. In other words, the random sample will produce a sample which is characteristic of the total site's cultural remains. An advantage to the random sample method is that the whole site is not destroyed. Archeologists can come back later to the site with newer methods and reappraise the cultural remains again. These later excavations could either verify or dispute the interpretations of former excavations. Sampling techniques are also used in salvage archeology where the key factor is "time."

Choice of the method of sampling should enable the archeologist to gain the manimum of information with a minimum expenditure of time and money. There is no general formula which can be used as a guide since conditions vary with each site. However, these general suggestions can be made.

1. Sample size. A small, carefully collected and analyzed sample can be more productive of information than a big haphazard excavation. The amount of digging necessary to obtain an adequate sample is quite variable since the artifact yield may vary from 0.01 to 100 or more objects per cubic meter of excavated dirt. A rule which might be followed is - stop digging when new information starts diminishing.

2. Sample proportion. In beginning an excavation of a site with unknown boundaries, it is advisable to sample as much of the site as possible, as early as possible. This can usually be accomplished by digging "test pits."

A common practice in sampling is to dig a cross-shaped trench to locate the areas of greatest interest for possible expansion of the digging. This method allows some exploration to determine concentrations and boundaries. See Figure A.

INSERT A

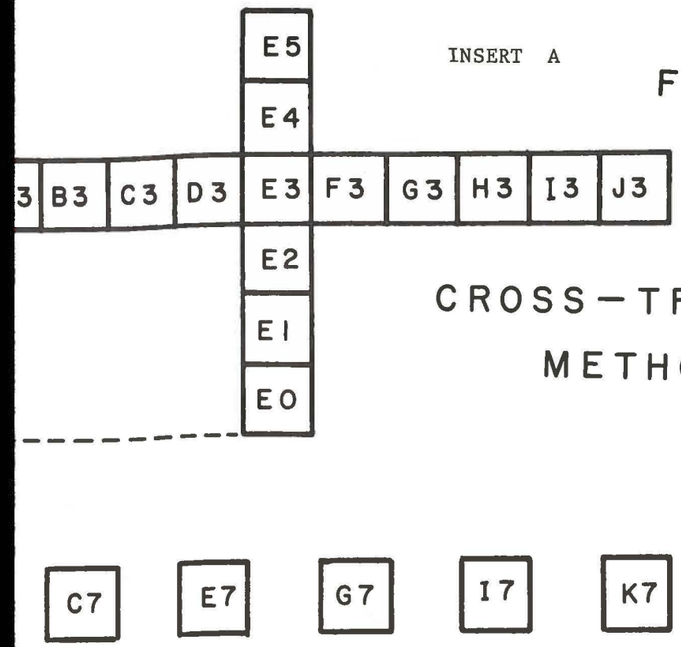
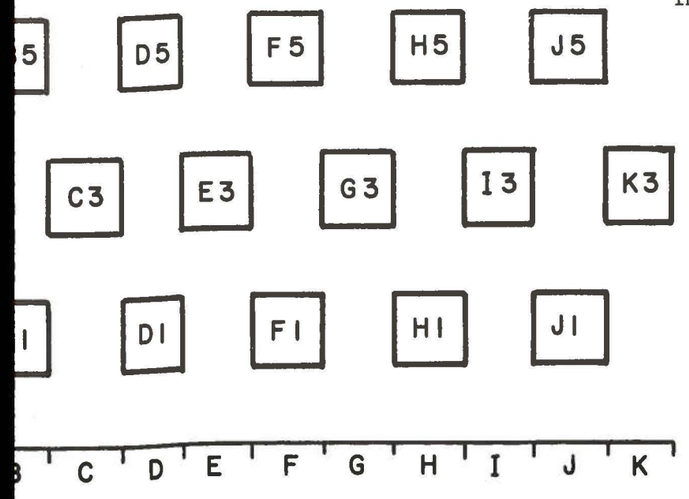


FIG A

CROSS—TRENCH METHOD

INSERT B



B CHECKERBOARD METHOD

The checkerboard pattern is generally more effective for testing a site; the more productive areas of the site are found much more rapidly. The actual area covered is four times greater than the normal method of exeavating with relation to time and labor. With trenches, it is more likely to miss areas of concentrations, and this method allows greater coverage of the whole site. See Figure B.

When we wish to excavate into the nature of a site, it would be ideal if we could examine every artifact and feature of the site; but in many cases, such procedure is out of the question. In many cases, it is literally impossible to examine every element of a site because of the way they are distributed in time and space. By excavating a systematic sample, sufficiently accurate and precise results may be obtained much more quickly and inexpensively by examining only a small part of the site.

A systematic sample is one selected according to some system, such as laying down a grid and excavating every fifth square. This system has an element of randomness, but as a basic assumption, it represents the total site. All archeologists are interested in the information that can be obtained from a site by excavation. Governed by time and labor, the archeologist asked, "How much dirt must I move in order to obtain the manimum amount of information within a specified time period?" Any excavation will produce information which may be represented by the curved line in the following figure. See Figure C.

It should be obvious that exeavation beyond 25 squares does not produce new information, and excavating these squares should be done if the time and labor are available. This curve is a normal distribution curve and would seem not to be the representative curve for all archeological sites, as each site varies with the amount of information it yields. However, the average amount of information each site yields tends to follow this normal curve when considering the total of archeology. The basic question then should be, how many squares must be excavated to produce this type of curve?

There are a number of statistical methods available to analyze the random sample method. These methods usually are equated to the normal curve. Each archeologist develops his method by experience. By using the normal curve, artifact averages can be determined, standard deviations and probabilities can be determined and even percent of reliability of the method can be determined.

By noting the type of excavation and analysis in the final site report, other archeologists can draw their own conclusions about the former inhabitants of the site in question. The random sample technique, often used in salvage archeology, is not as good as excavating the entire site, but even the best technique may still miss important artifacts or features of a site.

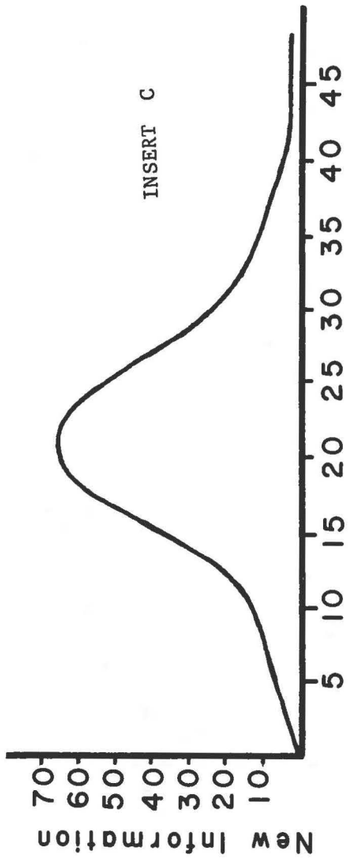


FIG C NORMAL CURVE

Insert D

	Type A	B	C	E	F	G	K	L	R	S	T	W	X	Y
Pottery	335	30	5											
Projectiles				45	17	14								
Misc. Stone Tools *							30	2						
Burials									11	2				
House Patterns *											4	1		
Pits *													12	0

* certain types generally found in the culture area or local area

The dominance of the estimator (pottery type A) indicates that this type would be a good estimate of the pottery used on the site. The other pottery (types B and C) is possibly an experiment they made, an earlier (or later) type, or a type for which they traded. Some explanation for the other pottery types should be attempted. The projectile point type E does not truly represent the major point type since it is equal to the distribution of the other two point types (F and G). In this case, assuming that F and G are not major tool types of the former inhabitants, the archeologist may want to double the number of squares and then again make a statistical inference. This doubling of the number of squares may solve this problem. It also may be the normal distribution of the artifacts and new information may not be gained, but the extra squares could add greater assurance about the projectile point's distribution. The burial type R could be similar to the mortuary customs practiced by the Indians in the locality of the site and, by comparison, the archeologist could assume his distribution of skeletal materials represented the true nature of the site. The house patterns (type T) could be handled the same way. Based on this data, the archeologist would probably be satisfied that more digging will not produce that much more information about the site's former inhabitants. However, if he has the time and the site is going to be destroyed, we are sure he will dig until the machinery starts destroying the site.

With regard to the more serious question of general usefulness, these methods are generally recommended for handling a partial excavation, although no claim is made that the particular procedures illustrated here completely exhaust the resources of statistics. The information derived from them is important as an earnest attempt to discover the cultural significance inherent in archeological remains. The usefulness of any method is entirely dependent upon the wisdom with which attributes are observed and investigated and on the relevance of the context to archeological problems.

A source of uncertainty which has been mentioned is the fact that the excavated materials derived from the sample may not be a true average of the total site. This difficulty is inescapable; we can work only with samples we have, and the excavated materials are surely the best estimate of the total site. To add to this uncertainty, the dimensions of which can at least be estimated on the basis of statistical theory, there is the purely archeological problem of the nature of the relationship of the sample to the culture which produced the artifacts. The whole problem is summarized by the often repeated warning that statistics are never a substitute for thinking. But statistical analysis does present data which are well worth thinking about.

EDITOR'S NOTE:This Paper gives excellent advice for a salvage excavation which must be done quickly to prevent its destruction. We offer some suggestions we have found important in working previously cultivated ground.(1)Use a scraper with the blade behind the tractor wheels.(2)Look for and record any change in color or texture in the virgin soil below the plowline. Such discolorations may lead to important features such as burials,fireplaces,post-moulds,stockades,etc. H.H.H.

THE NEW INFORMATION METHOD

When the archeologist collects data by means of an excavation, he generally does so in the hope that he will be able to arrive at some conclusions about the artifacts and features excavated from the site. Based on his excavation, he wants to make inferences about the former inhabitants of the site which his sample artifact collection is assumed to represent. Short of examining the entire site, he cannot know the actual values of the collection of artifacts; hence, he is faced with the problem of determining what functions of the sample collection should he use to estimate the unknown quantities of the total site.

The New Information Method is digging in a systematic way until new information starts being reduced. That is, the archeologist digs a sample of 10 or 15 percent of the site and continues digging more squares until each new square tells him the same thing as the sample squares.

We refer to the sample quantities we use for this purpose as "estimators." The numerical value obtained by evaluating an estimator in a given instance is the estimate.

Since an estimator is a function of the sample, it is a random variable and has a sampling distribution like the Figure C curve.

Take the following site; it has 1000 squares (determined by test pits or surface finds) and the archeologist excavates 100 squares. We will assume that all the following data represent one level in the site and that the archeologist is digging the site by the checkerboard method. His findings are shown on the chart in Figure D.

Upon examining this data, the archeologist wants to know, "Does this data represent the artifact distribution of the entire site?" This sample can be assumed to represent the total site, but the inferences should be made by studying the sample. By examining the above data, the reader should easily note the dominance of the pottery called Type A. The dominance of this figure is called the estimator and is used to estimate whether or not the archeologist is obtaining a valid sample. There are two minor estimators presented in this data. They are: 1) the projectile points called Type E, and 2) the burials called Type R. Using these estimators, the archeologist is now ready to apply these figures to the actual excavation in order to determine whether or not he is obtaining a sample that reflects the true nature of the site.

The archeologist divides this data by 100 (number of sample squares) to obtain Pottery A, 3.3; Projectile Point E, .45; and Burial Type R, .11. He now compares this data to the actual excavation. In every square that is excavated, he should be getting 3.3 sherds of pottery A, finding projectile point E in every other square and the burial type R should occur in every 10 squares. If the squares are yielding generally this pattern of artifacts, he is probably obtaining a valid sample and could state with some assurance that this is what the site contains.

The Transpeninsular Line

William Penn.Quaker proprietor of the Province of Pennsylvania and The Three Lower Counties-On-Delaware,spent 34 of his 74 years trying to prove his claims to the Bay and River Delaware. Unfortunately he did not live to see his domains recognized by the contending parties.

Following Penn's death in 1718,his heirs were in and out of the royal courts for another 50 years before the Pennsylvania, Maryland and Delaware boundaries were set. On January 11,1769 the Plan devised by Charles Mason and Jeremiah Dixon passed the Privy Seal during the reign of George III who was to become,in the eyes of the English colonists in America,the arch villain of the American Revolution. For all intents and purposes,Penn's contentions were upheld and the modern boundaries of the three states were fixed.

The beginning of the end came in 1750 when Lord Hardwicke, chancellor of the English crown issued a decree reinforcing provisions of earlier agreements made in 1685 and 1732.

A Dutch map printed in Amsterdam in 1659 and used in the Agreement of 1685 shows "Cape Hinlopen" about 20 miles south of the point now known as Cape Henlopen. Both points at the mouth of Delaware Bay were originally named for the early Dutch navigator,Cornelius May, and the present Cape Henlopen was shown as"Cape Cornelius". William Penn,during his lifetime always held the view that"Cape Hinlopen"(Fenwick's Island) was the True southern point of his grant and that the Order of 1685 expressly provided for the dividing the peninsula into two equal parts from the latitude of "Cape Hinlopen".

The Agreement of 1732 provided for a line drawn due west from Cape Henlopen across the peninsula from the center of which another line would be run northward tangent to a circle twelve miles from New Castle. But it was not until after May 15,1750 that the Commissioners authorized by Lord Hardwicke were appointed by the Calverts and the Penns. They met at New Castle on November 14,1750 and two surveyors were sent to Cape Henlopen to start running the east-west line.

Thus the stage was set for establishing the oldest boundary between Delaware and Maryland. We are indebted to the meticulous daily entries of John Watson as recorded in his diary from December 13,1750 to March 18,1751 for an account of his experiences in running the first six miles of this line from Fenwick Island to Chesapeake Bay.

William Parsons and John Watson were appointed surveyors for the Penns and John Emory and Thomas Jones for the Calverts. They met with Commissioners Ryves Holt and Colonel Robert Henry Jenkins at Fenwick Island on December 20,1750.

At the age of 30,John Watson was appointed assistant surveyor for Pennsylvania. He left his home in Bucks County on December 13,1750. After spending the night in Philadelphia where he bought books and surveyor supplies,he continued on his journey on horseback to Christeen Ferry,New Castle,St.Georges, Appoquinomink,Salsbury and Dover. Here he lodged at the Golden Fleece on the 17th and had supper with one of the commissioners, Benjamin Chew. He arrived at Lewes(Lewis Town) on the evening of the 18th. The next day he rode to Blackfoot Town (Dagsboro) and noted that his expenses here were paid for by Chief Justice Holt,another boundary commissioner for the Penns.

On December 20,surveyors Watson,Parsons and William Shankland(Deputy Surveyor for Sussex County) met with the Maryland Gentlemen and Surveyors at Fenwick Island. A northeast storm precluded any further activity until the 24th when Watson went to the beach and shot a curlew. He noted that he had also seen on the evening of the 21st,above the rising waters about 40 yards from Dr.Pike's house, a ball of fire about four inches in diameter which no doubt was the celebrated St.Elmo's Fire, a fairly common sight in storms.

Chief Justice Holt,Jacob Collock(Kollock) and William Parsons arrived at Dr.Pikes on December 25th and were joined by Colonel Henry Jenkins,John Emory,John Watson and William Shankland. However,the 26th was also a stormy day and the commissioners remained indoors at Dr.Pikes who lived near the Assawoman Creek.

The Commissioners hastened to Fenwick Island at 9:00 AM on the 27th as the weather had moderated. According to Watson, Fenwick's Island was also known as Phoenix's Island. Here the Commissioners agreed the surveyors employed on both sides should proceed to run a west line across the peninsula to Chesapeake Bay,"beginning at a cedar post standing on the northernmost part of said island near to the smallest of four mulberry trees growing together". It is likely these mulberry trees were either beach plum or bay berry trees as we know them today.

The weather turned extremely cold for the next few days. After many difficulties,including the loss by fire of their beach cabin, the surveyors John Watson,William Jones,Arthur Emory and Mathew Rogers succeeded in fixing a meridian at 5:00 AM on January 5,1751. This latitude was later calculated by Watson to be $38^{\circ}31'$ N which is very close to the modern latitude of Fenwick Island,Delaware,$38^{\circ}30'$ 30"N.

For the next ten days the surveyors continued to run the line westward for a distance of more then six miles in spite of high winds,rain,snow and very cold weather. Finally,John Emory,the principal Maryland surveyor,the eldest and the most infirm,prevailed upon the others to suspend their operations.

Considering the short days,the bitter weather,the soggy swamps and the difficulty in locating their lines,the surveyors agreed to stop their work for the winter on January 14,1751.

During their westward trek they passed the homes of one Esom(8 perches north of the line),George Hudson(55 yards south of the line),William Hudson(60 perches south of the line), Absolom Hudson(60 perches north of the line),David Hudson(6 perches south of the line and his new home,18 perches north of the line),Widow Patrick's house(60 perches south of the line) and"one Walker,a Mollatto Fellow"(20 perches south of the line). Some of the natural land marks were listed by Watson as Head of Cinapuxon Sound,Miller's MillRomley Marsh,Deep Creek otherwise Miller's Creek being a branch of Cinapuxon Sound,Miller's Creek, an arm of Mill Creek.

To mark their stopping place on the east side of a stream, the surveyors set up a black oak post and another one was set on a hill opposite the corner of Widow Patrick's Field both exactly on the line near the entrance to Gum Swamp.

Watson left Dr. Pike's on January 16 and returned to Bucks County via the same route on horseback. He continued in the sporadic employ of the commissioners until his death at the age of 41 in July 1761 and participated in running other boundary lines for the Penns.

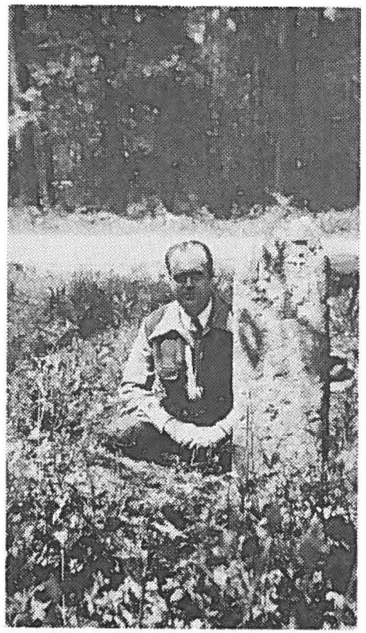
Colonial surveyors resumed their work on the Transpeninsular Line on April 27,1751 and extended the line westward until on June 15,1751 they came to the eastern side of Chesapeake Bay, a distance of 69 miles and 4917 feet from the post on Fenwick Island.

The Maryland Commissioners contended that the line should end at Slaughter Creek,cutting off Taylor's Island. This would make the distance 66 miles from the point of beginning and make the Middle point farther east. The Pennsylvania commissioners claimed that Slaughter Creek being only two feet deep could not be regarded as a part of Chesapeake Bay. This dispute was referred to the Lord High Chancellor and the Commissioners adjourned to await his decision and further instructions from the proprietors.

At the beginning of the survey of the Transpeninsular Line, the surveyors were instructed to mark each mile with a post and to set up stones at the end of every five miles as far as 25 miles. The monuments used for marking each five mile interval were made of native stone,rectangular prisms $4\frac{1}{2}$" X 8" with a rounded top. On the north side they were cut with the arms of the Penns and on the south side with the arms of Lord Baltimore. The design for these coats of arms differed from those used on the stones set later by Mason and Dixon.

Some DELAWARE SOUTH BOUNDRY STONES

The FENWICK ISLAND STONE



The THIRTY MILE STONE

The Original MIDDLE STONES

The Fenwick Island Marker

This is the most easterly marker installed by the earliest surveyors in 1751. The coats of arms were re-cut by the states of Delaware and Maryland in 1952. The stone was painted white in 1972 and arms were embellished with the first names of the unknown "artists". Photograph by the author taken in January 1973.

The thirty-mile marker on the Transpeninsular Line was set by the boundary Commissioners in 1760. After standing for 212 years it disappeared overnight in 1972. It is shown as it appeared in 1939. It was of native stone,cut like the other stones placed nine years before by the surveyors on the east-west line.

The Middle Point Of The Transpeninsular Line in 1939

The smallest stone in the picture was placed by the Boundary Commissioners in 1760 at two feet,eight inches north of the true Middle Point. The Double Crownstone on the right is the only one in existence on the entire Mason-Dixon Line. It was located at the True Middle Point by Mason and Dixon in 1768. Like all stones set by them,it was cut in England of oolitic limestone. The stone in the center of the picture can not be identified.

All three stones are now protected by a shelter erected by the states of Delaware and Maryland in 1961, largely through the initial efforts of Miss Catherine Downing of Milford,Delaware and Mr.Henry H.Hutchinson of Bethel,Delaware.

Photograph taken by the author in 1939,includes Mr.Francis E.Nunvar,retired teacher of Delmar,Delaware

Only five of these monuments were set at this time. All of them were "Crownstones". It was planned to use six,one near the ocean and one at every five-mile interval to the 25th milepost. However,at the 15-mile point,the headwaters of the Pocomoke River prevented placing a stone in this area.

In 1751 while the Transpeninsular Line was being run, Charles,Fifth Lord Baltimore,died in England. He bequeathed his Province to his daughter rather than to his son,Frederick,who inherited the title although he had not yet reached his majority. Frederick's guardian,Cecil Calvert,urged that any settlement be delayed until Frederick,the Sixth Lord Baltimore reached his majority. The son in the meantime hoped to regain some of the points lost by his father in 1732.

A preliminary draft of an agreement was drawn in 1757 and in its final form on July 4,1760,the Commissioners accepted the line run in 1751 from Fenwick Island to Chesapeake Bay. Was the date July 4th a prophetic one? The Commissioners also fixed the Middle Point,first by marking it with a white oak post. When satisfied with the accuracy of their work,they proceeded to set up a cut stone two feet eight inches to the north of the post marking the middle point. A similar stone was placed at the 30-mile point on the Transpeninsular Line since this point had not been permanently marked by the surveyors in 1751.

And so the Transpeninsular Line was established a dozen years or so before Mason and Dixon arrived in America. By this time the colonial surveyors had completed the north-south tangent line and had intersected the 12-mile radius from the spire of the New Castle Court House. It is likely this line would have been accepted had it not been for the fact that the commissioners were informed that Charles Mason and Jeremiah Dixon had been hired to assist them in running the line.

On June 25,1764,the Mason-Dixon party reached the Middle Point on the Transpeninsular Line where they verified the work of the earlier surveyors in 1750-51 and 1760-63. In September 1764 Mason and Dixon returned to the Middle Point and checked the tangent line north to south. The double Crownstone now at the Middle Point was placed there by Mason and Dixon in 1768 and is the only one in existence since the second one installed by them at the northeast corner of Maryland has been lost for nearly 125 years.

An inspection of the markers on the Transpeninsular Line was made by the author on January 23,1973. He was accompanied by an old friend,Mr. Francis E.Nunvar,a retired teacher residing in Delmar,Delaware. We visited some of these markers in 1939 and on other occasions since then. A brief summary of their current condition follows.

MILES		PRESENT AGE
0	Fenwick Island First marker installed 1751 South side of Fenwick Lighthouse. Coats of arms recut in 1952 by states of Delaware and Maryland. Painted white in 1972 and arms embellished with the names of the unknown "artists" Native Crownstone	222 years
5	Near Williamsville,Delaware.Best preserved of all the stones on this Line.Inaccessible and protected by deep woods.Native Crownstone.	222 years
10	In Selbyville near U.S.Route 113. Only the top of this stone is visible.Poor condition and coats of arms indistinct. Native Crownstone	
20	Located in the churchyard of Line Methodist Church near Whitesville,Delaware.Coats of arms weathered. Fair condition.Native Crownstone.	222 years
25	On Line Road about 2.6 miles east of U.S. 13 near Pepper Box Road.Barely visible and was moved from its original position when the Line Road was widened after 1950.There is some doubt about its present position. Condition very poor. Native Crownstone.	222 years
30	This stone stood for 212 years on the Line Road about 2.4 miles west of dual U.S.13,Sometime in early 1972 it disappeared overnight. When last seen by the author,it was in poor condition. Had been placed by the Commissioners in 1760. Was a Native Crownstone.	---
35A	About 7 miles west of Delmar. Was placed by 1760 Commissioners at two feet eight inches north of the true Middle Point. At present,the stone protrudes about a foot above the ground and is protected by a shelter erected in 1961 by both States. Native Crownstone.	213 years
35B	About 7 miles west of Delmar.True Middle Point and is the only existing double crownstone placed by Mason and Dixon in 1768.Likewise protected by the shelter erected in 1961.	205 years

On August 11,1955 President Eisenhower signed an enabling Act of Congress which directed The U.S.Coast and Geodetic Survey to reestablish the north-south line between Delaware and Maryland but provided no funds for this purpose. In 1956 the Survey made a reconnaissance of both Maryland-Delaware boundaries with the view of determining the probable cost of a complete survey. Alas,to our knowledge,no survey has been made for lack of funds and these historic lines continue to grow more faint after nearly two and a quarter centuries!

James A.Kelley

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The PRESERVATION of THE MIDDLE STONES at the South-West corner of the STATE of DELAWARE

In the Spring of 1959,The Sussex Society of Archeology and History held a regular meeting at which Miss M.Catherine Downing addressed us on "Religious Life in Colonial Days". Before her address,we held a short business meeting at which a member reported on the deplorable condition and exposed position of these stones but no specific action was taken at that time by our Society on the matter.

Not long after the above meeting,Miss Downing advised us she had visited the site of the Middle Stones and had taken an option on two plots of land surrounding the stones, one in Delaware and one in Maryland. Miss Downing also contacted the Delaware State Archivist,Mr.Leon deValinger. The land options were taken under the sponsorship of the Delaware State Society of the Daughters of the American Revolution. The land owners who freely gave the options were Mr.and Mrs. George E.Wright and Mr. Harvey C.Ellis.

After Miss Downing's initiative,several members of our Society started to contact various people and organizations especially the Wicomico County Historical Society who enlisted support from the Maryland Historical Society and Maryland State officials.

Eventually,a meeting was arranged and held in Easton, Maryland with representatives of the Maryland State Roads Commission,The Maryland Board of Natural Resources,the State Archivist of Delaware,The Delaware State Highway Department, Miss M.Catherine Downing of the Milford Historical Society and Mr.Henry H.Hutchinson of the Sussex Society of Archeology and History and other interested persons whose names cannot be recalled at this time. At this meeting it was agreed the two State highway departments would take up the land options and jointly protect and maintain the site which they have so well done during the past twelve years.

In improving the site,Maryland provided the landscaping, Delaware supplied the brickwork and metal railing and the Delaware Society,Daughters of the American Revolution paid for the roof and arranged for the dedication ceremony which was held in 1961.

This project is evidence of what can be accomplished by diverse groups working together when led by a charming and dedicated lady.

Henry H.Hutchinson
Editor

NEW LIGHT ON DUTCH CLAY PIPES
and
THE BAKER "CROWNED 5" DUTCH CLAY PIPE

L. T. Alexander

INTRODUCTION - The purpose of this short exposition is threefold: to illustrate a representation of the main types of clay pipes found in Holland; to update locally (Delaware) published literature regarding Dutch pipes in general and to report the find of a Dutch pipe similar to the one described by the late H. Geiger Omwake in THE ARCHELOG (1).

ILLUSTRATIONS - Figures 1 and 2 illustrate the main types of clay pipe bowls found in Holland from c.1590 to c.1930. They were copied (with the permission of D. R. Atkinson -the author and artist) from illustrations in his "Brief Guide for the Identification of Dutch Clay Tobacco Pipes Found in England" (3). The dates shown with each of the bowl shapes were assigned by Mr. F.H. W. Friederich (3) but, as Atkinson mentions in his paper, a "looser date is preferred in England. For example, whereas Mr.Friederich has dated No. 1 in fig. 1 at 1600 a similar English pipe would be dated c.1590-1610." "Therefore", writes Atkinson, "Mr.Friederich's dates should be regarded as median ones when this typology is used." The "looser" dating is also usually followed in the U. S.

UPDATING LOCALLY PUBLISHED LITERATURE - Much information concerning Dutch clay pipes written in the U. S. only a few years ago is now out of date because since then hundreds of Dutch pipes found in dated contexts have been studied in Holland and England. These studies have made it possible to assign more accurate dates to specific bowl forms found in the U. S. and revise our thinking regarding some previously reported conclusions.

A. Oswald and D. R. Atkinson in England, Iain C. Walker in Canade and F.H.W. Friederich in Holland have collected a considerable amount of information regarding Dutch pipes. It would require a book-length discourse to cover all of their combined knowledge but limited space in this publication dictates that only some basic points be reviewed in this paper.

PARALLELISM - Until recently, some writers relied on the relationship of the plane of the bowl rim, and the line of the pipe stem as a valid dating criterion, maintaining when the plane of the bowl, if extended, became parallel with the stem it signalled a date of c.1690-1700. Although Atkinson's type 16 - c.1634 (fig.1) approaches it, parallelism in Dutch pipe bowls did not become popular until c. 1860-1880. In England parallelism occured c.1680 and this new type of English bowl had no exact counterpart in Holland, Oswald (6).

ANGLE OF BOWL - Atkinson's most helpful typology, figs. 1 and 2, of Dutch pipes clearly indicates the obtuse angle between bowl and stem can no longer be used as an "early" characteristic in dating Dutch pipes. To the contrary, some Dutch pipes of the third quarter of the 18th century are more obtuse than those of the first quarter of the 17th century - more than a century earlier. The most obtuse angled pipe he illustrates, type 29, fig. 2, dating around 1770 appears to be approximately twelve degrees more obtuse than those of the first quarter of the 17th century. It should be noted, however, that his type 29 had a long life; i.e., c. 1770 to 1910 so bowl form alone should be used with caution in dating Dutch pipes.

SIZE OF BOWL - Caution also must be used in assigning larger bowls to later pipes because some of the Dutch pipes of the mid 17th century are larger than examples from the first half of the 18th century. In other words, Dutch pipes varied in size, starting as a small, bulbous type (No. 1, fig. 1). becoming longer with the passing of the years and shorter again until about 1750 when they again became larger and apparently remained so.

COMPARISON OF CONTEMPORY SHAPES and WILLIAM III - As Atkinson (3) points out "From about 1630 Dutch shapes diverged from English ones of the same periods - a fact not generally realized until recently." He also calls to our attention that the oft repeated reference to the soldiers of William III bringing from Holland to England a new type of Dutch bowl which influenced shapes of English pipes is "pure fallacy."

GOUDA ARMS - Some Dutch pipes of 1739 and later were marked on the side of the heel or bowl with the arms of the city of Gouda. Heretofore, this was accepted as an indication of a pipe of "fine" quality. Other Dutch pipes were marked with the Gouda Arms, surmounted by a capital "S" which formerly was thought to indicate the pipe was of "ordinary" quality. Still others were so marked on both sides of the spur or bowl.

There is some doubt that we should continue to use these marks as a true or reliable indication of the quality of Dutch pipes. Iain C. Walker makes a point of this in his extensive report on his finds at Louisbourg (7). These finds included some highly polished or "fine" quality pipes with the "S" over the Gouda Arms which, as mentioned above, we were led to believe indicated a pipe of "ordinary" quality. In his Louisbourg paper he calls to our attention apparent inconsistencies in Helbers and Goedewaagen (8) and refers specifically to pages 18 and 48 in that book. More study of these marks is required before we will know the true meaning of them.

CROWN MARK NOT EXCLUSIVELY DUTCH - Omwake (2) argued that the use of the crown surmounting a numeral, letter, or other mark was an exclusive Dutch device. Although the crowned marks originated in Holland (Atkinson, personal correspondence) we

now know that they were employed by the English perhaps as early as 1680 and are "markedly different in style to the Dutch mark, particularly in the shape of the crown" (Oswald, personal correspondence). Some of the English pipes carrying the crown as part of their mark were: the "Crowned MW" of the Westerdale family of Hull, 1724-1817; the "Crowned SA" of a London pipe maker 1700-1740; the "Crowned Sunburst", another London maker also 1700-1740, and others as Oswald (personal correspondence) has verified.

THE DICK PIPE - In the Omwake article (1) mentioned in the introduction, he described a "Unique Dutch White Clay Pipe" marked on the bottom of a small heel with a crown, surmounting a "5" and the Arms of the City of Gouda, Holland on the left side of the heel. This pipe was found by Mr. John H. Dick's son Greg on top of the sand between the Lewes Beach House and the Delaware Bay at Lewes, Delaware. In the article Omwake reported that "Mr. Dick's pipe has the unique distinction of being the first of its kind reported in America."

THE BAKER PIPE - Late in August of 1967, Mr. A. B. Baker kindly gave to this writer a white clay Dutch pipe also marked with a "Crowned 5" and the Gouda Arms in the same positions noted by Omwake. This pipe was found by Mr. Baker's son, Greg, then eight years old, at Lewes, Delaware at the bottom of a sand dune where Felton Avenue meets the beach. This is the second "Crowned 5" pipe reported as being found in America.

The Baker pipe almost takes the uniqueness from the Dick pipe because they are both marked with the "Crowned 5" and Gouda Arms. However, there are some differences between the two pipes. They were obviously made from different molds because the Gouda Arms on the Baker pipe is smaller than the Arms on the Dick pipe. Further, there is a raised dot on the right hand side of the heel (when the pipe is held in the smoker's mouth) whereas there is no dot on the Dick pipe heel. Also, the Baker pipe is approximately two millimeters shorter that the Dick pipe. Although the writer does not place any significance on the stem hole diameters of these pipes, for the record, the Baker pipe stem hole measures 4/64" and the Dick pipe 5/64".

Both the Baker and Dick pipes are known as "standard" Dutch in bowl form or shape and are practically identical with Atkinson's type 29 (fig. 2) and are the most obtuse Dutch pipes this writer has ever seen. They are both well polished and exhibit quality of material as well good craftsmanship. They are "fine" quality pipes.

According to Oswald (personal correspondence) there were three possible Dutch makers using the "Crowned 5" mark: Dirk Bout, 1729 to sometime prior to 1746; Ary van Vliet, C.1740-1746; and Jacob Scholten, 1759-1782 and he suggests the last named was perhaps the maker. His source of this information is 'Pijpkakers EN PIJPMERKEN' by S. Laansma - 1960 (a transcript of marks from 1724 - 1865 from documents in the Gouda archives.) Based on this information and the shape of the bowl, this writer in inclined to date the Baker pipe c. 1760-1780.

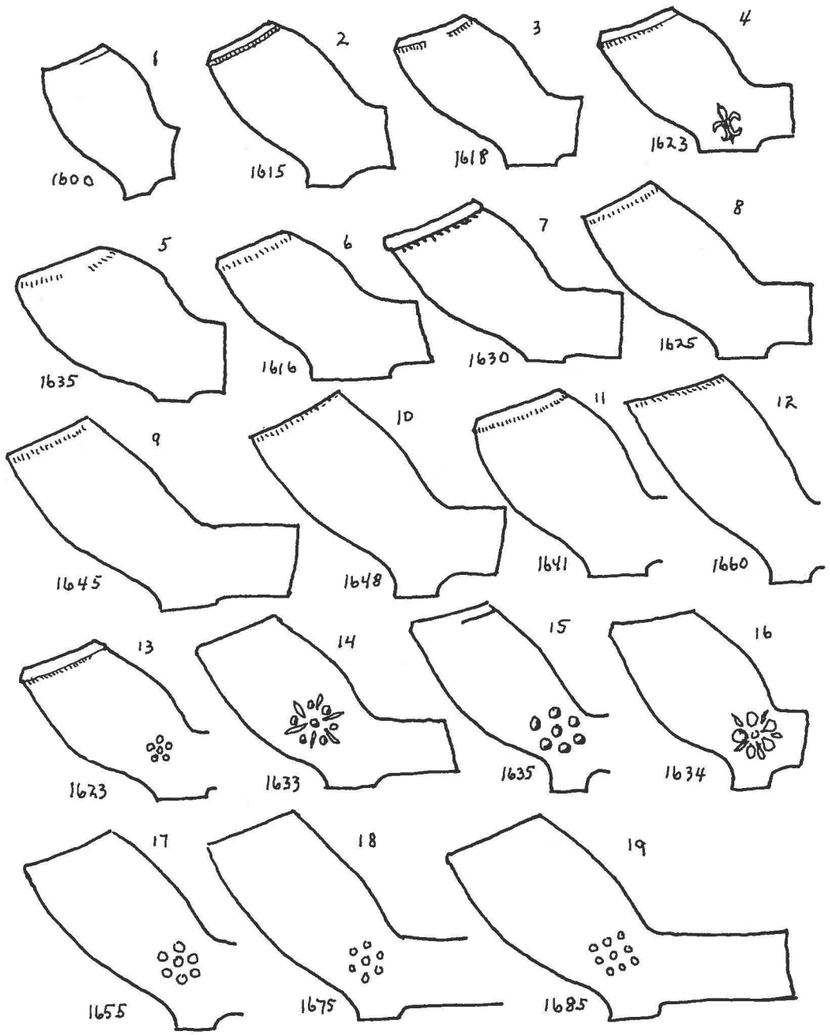

FIG. 1
SEVENTEENTH CENTURY DUTCH PIPE BOWLS
SCALE: ½ L.T.R. AFTER D.R.ATKINSON

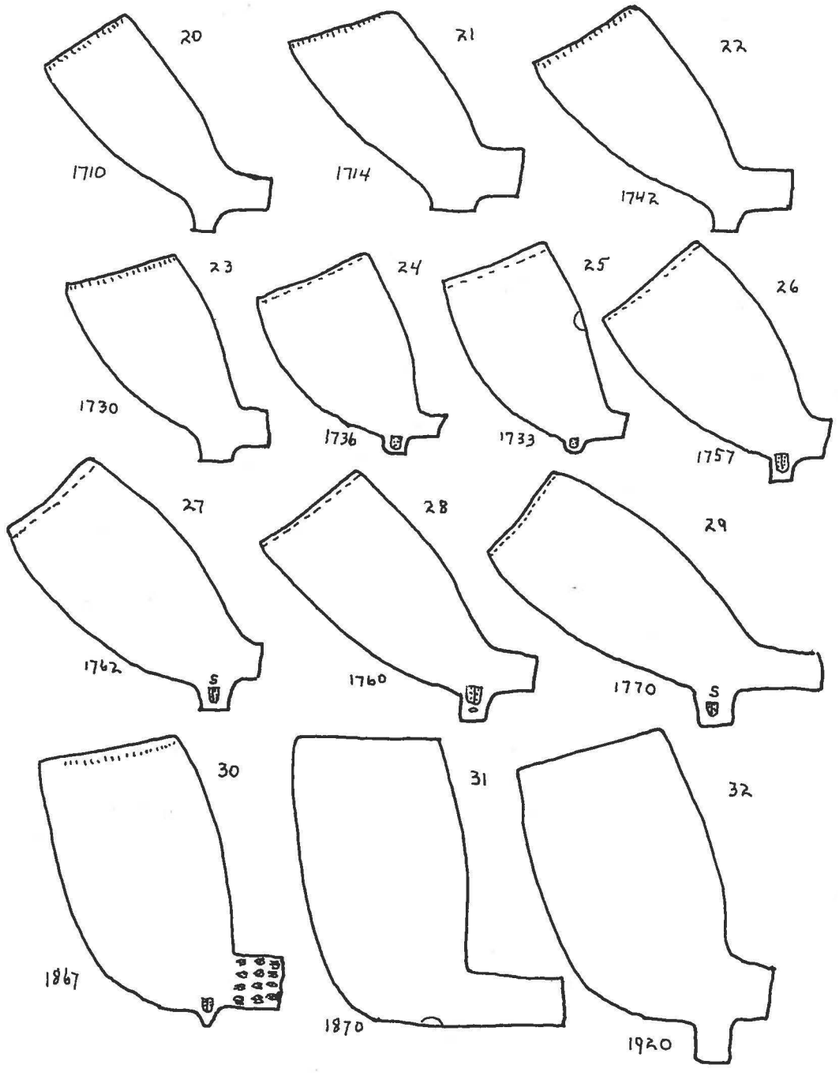

FIG. 2
DUTCH PIPE BOWLS - C. 1710 - 1920
SCALE ½ L.T.A. AFTER D.R. ATKINSON

SUMMARY - It is hoped that figures 1 and 2 will aid in the dating of Dutch clay pipes found in the U. S.; that the information regarding parallelism, angle of bowl, etc. will also help in assigning more accurate dates to pipe specimens recovered on this side of the Atlantic; and the comments about the Baker and Dick pipes will encourage others to report their finds to students of clay pipes so that they can be studied and reported on, thus contributing to knowledge.

Finally, the triple coincidence of the Dutch "Crowned 5" Baker and Dick pipes, their being found at Lewes, Delaware, by young boys, both named Greg, is remarkable.

ACKNOWLEDGEMENTS - The writer is indebted to D. R. Atkinson for his permission to use the illustrations in his "Guide" (3) as a basis for figures 1 and 2 and for the suggested changes he made to this manuscript.

Also, my gratitude to A. Oswald who likewise reviewed and added information to the manuscript. His patience in answering my innumerable queries for many years is deeply appreciated.

And to Iain C. Walker, another faithful and helpful correspondent - my sincere thanks.

Mainly because of their encouragement and willingness to share their vast knowledge they have made this paper feasible. However, if any errors have crept into it they are mine.

Thanks also to John H. Dick who kindly loaned his pipe for study, making it possible to compare it directly with the Baker pipe.

Last, but not least, I certainly appreciate the generosity of A. B. Baker and his son Greg for giving to me the pipe which prompted the research culminating in this article.

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FIG, 3

THREE VARIATIONS OF THE CITY OF GOUDA ARMS
L.T.A, AFTER HELBERS AND GOEDEWAAGEN