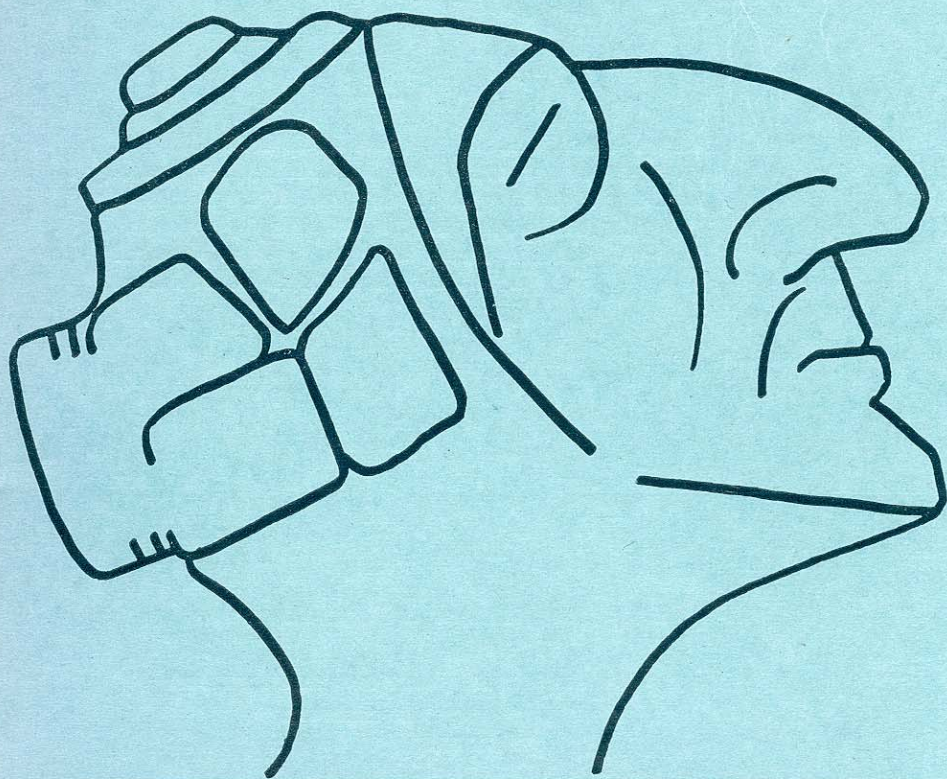


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PAMUNKEY
POTTERY MAKING

BY

THEODORE STERN

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CHAPEL HILL

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INTRODUCTION

One of the major remnants of the Virginia tide-water Algonkians, the Pamunkey Indians, numbering now some 150 members, still dwells on the reservation, secured in 1677, along the Pamunkey River some twenty-five miles northeast of Richmond. The reservation lies entirely within a meander of the river, so that no point on the reservation lies more than half a mile in a straight line from the river. The land is low and unrelieved, with swamps, deeply dissected by creeks, in the lowest places. Marshes and swamps comprise approximately half the total area of the reservation. The people are predominantly fishers; hunting comes next in importance; while agriculture trails. The Pamunkey are governed by their own laws, their legal position being defined by the Code of Virginia.

Within the fabric of their culture, the Pamunkey retain several craft techniques fundamentally unaffected by outside methods. One such craft, the subject of this paper, is pottery making. An examination of the Pamunkey potters' craft should prove of interest in two respects: information is still available on the traditional methods of pottery making and is useful for comparisons with the surviving procedures among other ethnic groups, and the recent history of pottery making at Pamunkey should yield to analysis data illustrative of some of the acculturational forces now at work. The material here treated is presented in two parts, the first dealing in detail with the traditional procedure of manufacture, the second outlining recent developments in the craft.

The Pamunkey recognize two techniques of pottery manufacture, namely the "old-type" or traditional, and the "new" method, which is taught in the State-sponsored pottery school (*vide infra*). To regard either as a single technique is not quite accurate; but in so terming them I am following the native classification. The "old-type" technique, which is the subject of the first section of this paper, is by no means purely aboriginal. It is rather the method followed as far back as the traditional memory of informants will go. Roughly, it may be considered as having been stable in practice from about the end of the eighteenth century to recent times.

TRADITIONAL PROCEDURE

PREPARATION OF MATERIALS

OBTAINING AND PROCESSING OF CLAY.—Whether or not the Pamunkey ever exploited more than one or two sources of clay upon the reservation is open to question, but it is certain that there is no lack of local clay. Indeed, it may well be that the presence of suitable potter's clay was a factor in the selection of the permanent reservation. Pollard wrote:

“The clay used is of a dirty white color, and is found about 6 feet beneath the surface. It is taken from the Potomac formation of the geologic series, which yields valuable pottery clays at different localities in Virginia and Maryland, and particularly in New Jersey.”¹

According to native testimony, the clay is to be found at any exposed place on the shore, an arm's length down (Mrs. C.). Informants concur, there is only the one clay suitable for pottery making and it is white. In reality, when freshly dug it is a pearl-gray hue. Measurements made at the present source of clay reveal this stratification:

100 cm. (in thickness) Topsoil and reddish brown sand; small quartz or quartzite pebbles.

50 cm. Gray clay streaked with brown; occasional pebbles.

Extending down indefinitely. Fairly homogeneous gray clay with intermittent streaks of brown clay.

The deposit is exposed on the side of the short vertical drop whereby the land falls off to the riverside strand. The lowest utilized surface of the clay at this place is approximately sixty centimeters above the high tide level. There seems to be no difference between the gray clay and the brown save color. The latter seems gray clay contaminated by large concentrations of iron salts. Both clays are used without discrimination by the Indians, but from their descriptions it is apparent that the gray is in their minds. It is of high ceramical quality—an expert sent down by the State Department of Education to investigate its possibilities found that, although a small admixture of solids would secure a better ring to fired ware, the clay could produce good results when used alone.

¹—Pollard, J. G., 1894, p. 18.

To understand the Pamunkey ownership of clay deposits it is necessary to consider the tribal laws governing land tenure. Of these, Pollard states:

"Besides these written laws, there are others which have not been committed to writing, the most important of which relate to the tenure of land. The reservation belongs to the tribe as a whole. There is no individual ownership of land. The chief and council allot a parcel of cleared ground of about 5 acres to the head of each family. The occupant is generally allowed to keep the land for life, and at his death it goes back to the tribe to be reallocated, unless the deceased should leave helpless dependents, in which case the land is rented for their benefit. The houses on the reservation are individual property and can be bought and sold at pleasure."²

In the light of the basic ownership of all land by the tribe, statements made by the Indians regarding ownership of clay deposits become intelligible. Thus Chief Walter Bradby explains: "The whole tribe take their clay from the same spot. No person can own that land—as a natural resource it is public. Under the same privilege, any member of the tribe can use the clay from private property without [being guilty of] trespassing. The tribe will thus share any natural resources." Accounts from Paul Miles and Mrs. Cook corroborate that of the Chief. Pollard elicited a pertinent statement from his informant, Terrill Bradby: "In former times the opening of a clay mine was a great feast day with the Pamunkey. The whole tribe, men, women, and children, were present and each family took home a share of the clay."³

According to Mrs. Cook, the present clay deposit has been used "ever since I know." Her grandmother, born about 1796, used it. "No care is taken of the mine—you don't cover up or care for it. It takes care of itself." In April, 1940, there was a puddle fifty centimeters deep immediately before the deposit, impeding access to the clay.

The potter, if a woman, would send the children of the house, often accompanied by their father, to secure a supply of clay. If the potter was a man—which is occasionally the case—he would send his children or go himself. Any available implement was used in digging the clay, after which it would be carried

2—Pollard, 1894, p. 17.

3—Pollard, 1894, p. 18.

up in tubs and bags, and taken home in a cart (Mrs. C.). Speck illustrates the digging of the clay.⁴

It is apparent that securing the clay was ranked as a chore; usually for the children. A man would help only where their efforts were inadequate; to gather her own clay a woman would have to neglect her household and other duties. The same view was taken whenever other materials necessary for pottery making were to be secured.

Once the clay was brought to the house, the potter picked it over to extract large inclusions, such as sticks and rocks (Mrs. C.). During this time the clay was kept in a sieve to permit freer access of air. It was then dried out of doors, exposed to sun and wind (A. B., Mrs. C.). In three days of favorable weather it would be dry (A.B.). If the weather were inclement the clay might be stored in the house to dry (Mrs. C.). When satisfactory dryness was attained, the potter pounded the clay in a hardwood (*e.g.*, dogwood, hickory) mortar, with a pestle of iron wood, or stone⁵; no preference was expressed for any one pestle-material. Mortar, pestle, and sieve used in the preparation of the clay and shell were reserved for that function alone—"Everything is for its special use." (Mrs. C.).

Once pounded, the clay was sifted through a commercial sieve—no other being remembered. At present a flour sifter is sometimes used, the mesh of which is said to be equivalent to that of the old sieve. After this treatment the clay may be stored. The reason given for thus preparing the clay indicates empirical observation: "They always liked to get the grit and sand out, since a pot would sometimes burst if too big a pebble had been left in" (Mrs. C.). Sifting made it unnecessary to sort or pick over the clay subsequently.

OBTAINING AND PROCESSING OF SHELL.—Until recently when the pottery school proved otherwise, it was thought that pottery would fail if crushed shell were not added to the clay. The large and numerous pebbles present in archaeological sherds are even

4—Speck, 1928, fig. 104.
clay.

5—Cf. Pollard, 1894, p. 18. "The first steps in preparing the clay are to dry it, beat it up, pass it through a sieve, and pound it in a mortar." Of mortars, *op. cit.*, p. 19: "They are . . . made of short gum logs, in one end of which the basin of the mortar is burnt out. The pestle referring to a specimen . . . is made of stone."
Speck, 1928, fig., 103, illustrates two stone pounders used in crushing shell and

now explained away as really original in the clay, just not removed. It is unanimously denied by all informants that such organic substances as blood, hair, bone, feathers, grass or moss—or, indeed, any material other than mussel shell—were ever added to the clay. The reasons given for the inclusion of shell vary widely. It is stated that pure clay or clay admixed with sand would crumble⁶ (Mrs. M.), that the shell was added to make the pottery shiny (Mrs. A., H. S.), that the shell melts in firing (A.B., Z.L.), and that it serves as a binder to keep the pot from cracking (P.M.). Ada Bush stated that it is the shell that puts the “sing” in the pot—*i.e.*, that a pot containing shell would ring louder when rapped than would one lacking it.

The shells were gathered by the children of the potter, a favorite source being the banks where muskrats had piled the remains of their meals⁷ (Mrs. C.). Although oyster shells are found in cultural deposits on the reservation, informants deny that they were ever used; mussel shells are in all cases specified. There was no preference between sizes of shells (P. M.). Pollard said that “fresh-water mussels, flesh as well as shell,”⁸ were roasted and added to clay. The use of the flesh was emphatically denied by all my informants. It is possible that Terrill Bradby, Pollard’s informant, a vigorous man, may have utilized live mussels gathered in the course of his fishing activities, while children would go directly where the bare shells could most easily be obtained. It is reported by one of his relatives (A. B.) that Bradby was also in the habit of crushing his clay in a wooden trough with an axe, a process not elsewhere reported.

Once gathered, the shells were variously treated. Mrs. Ada Bush, a meticulous potter, first washed the shells to clean them thoroughly of grit and sand; the others did not. Mrs. Cook stated that she roasted her shells out of doors on the cleared ground: a layer of cornstalks was first laid down, then, on them,

6—Cf. Holmes, 1903, p. 48: “The Pamunkey Indians of Virginia, who were found practicing the art of pot making only a few years ago, calcined their shells, and, as a consequence, where a large percentage of the material was used in tempering the clay, the vessels are inclined to fall to pieces from the slaking that follows use in water.” And again, p. 152: “The paste lacks coherency, and several of the specimens have crumbled and fallen to pieces on the shelves, probably as a result of the slaking of the shell particles.”

7—Cf. Speck, 1928, p. 410.

8—Pollard, 1894, p. 18.

a layer of the shells, then again a layer of cornstalks, and so forth until the top layer, which was always of cornstalks. Paper was used to light the pile, which was then allowed to burn down to the ground. Paul Miles, on the other hand, dug a small hole, approximately twenty centimeters deep, in which he piled wood of any kind and covered it with mussel shells—in about half an hour he pronounced his shells “done.” Other informants were unable to state what the “old” way of calcining the shells was, merely adhering to the more recent practice of roasting them in the oven for a day (*e.g.*, A. B.). In considering the two methods claiming the title of “aboriginal,” it must be borne in mind that Paul Miles, a truthful informant and in general conservative, is also an innovator within the limits of his conservatism; and that sometimes a process he himself is convinced is aboriginal is really the fruit of his own experiments. It may be that his method of calcining shells in a pit fire is a case in point. On the other hand, a man might choose to dig a pit where a woman would be satisfied with a surface fire. Ada Bush said that “probably they used to burn the shells in a pit fire.”

The effect of calcination is to destroy binding substances within the wall of the shell, leaving small laminae consisting principally of altered calcite. In this state the shells are easily crumbled in the hand. Informants were at a loss to explain why shell was calcined before using; it was just a thing that the “old people” always did.

Once the shell had been calcined and had been roughly broken up between the hands, it was pulverized in the mortar used in treatment of the clay, and usually was then sifted through the clay sieve. Paul Miles stopped with the grinding, Mrs. Cook went through with the sifting, and Ada Bush went still farther: She employed a fine-meshed tea strainer for a second sifting of her shell. She stated that the shell was always ground finer than the clay, since by this refinement a smoother paste was attained. Here again it is necessary to consider the informant, and such a consideration suggests that Mrs. Cook’s methods may be closest to the traditional, although possibly those employed by Paul Miles may have been practiced side by side with them.

PREPARATION OF THE PASTE.—The dried and pulverized clay and shell could be, and often were, stored indefinitely until needed. Then they were mixed together in empirical proportions, with enough water to form a satisfactory paste.

The proportions in which the ingredients were combined changed in the course of time, due to certain factors to be discussed presently (*vide infra*). At this time discussion must be confined to the proportions given for the period under consideration. Mason, in noting the work of Dalrymple among the Pamunkey and closely related Mattaponi, says:

“The most interesting feature of their [the Pamunkey’s] present condition is their preservation of their ancient modes of making pottery. It will be news to some that the shells are calcined before mixing with the clay, and that at least one third of the compound is triturated shells.”⁹

It was not until Speck made his observations that we have another statement on the shell-clay ratio. “The constitution of the clay material is about one-fourth powdered mussel shell and three-fourths clay.”¹⁰

These statements may be compared with more recent figures:

Mason (1877)	$\frac{1}{3}$ shells	$\frac{2}{3}$ clay
Speck (1928)	$\frac{1}{4}$ shells	$\frac{3}{4}$ clay
Stern (1940)	$\frac{1}{16}$ shells	$\frac{15}{16}$ clay

These statements stand together as against present-day testimony, given it must be added, only twelve years after Speck’s account. Mrs. Cook, one of Speck’s informants, though not necessarily authority for the statement quoted above, gave as the old proportions “half a cup of shell to half a gallon of clay,” that is to say a ratio, roughly, of one to sixteen. Ada Bush could give no figures, though she stated that only a small amount of shell was added, and in demonstrating the compounding of the paste “arbitrarily” added less than one cup of shell to eight cups of clay; this yields a ratio approximating that of Mrs. Cook. Further corroborative evidence from the Mattaponi group must be deferred for the present.

Yet we may inquire whether Paul Miles’ procedure is not closer to the traditional, namely, the empirical mixture, with

9—Mason, 1877, p. 627.

10—Speck, 1928, p. 409.

texture as criterion, and without measurement. A number of features of the truly aboriginal technique support this view, but in the period now being considered it is difficult to ascertain which method prevailed. Probably actual measuring clay and shell is a fairly recent innovation.

Be that as it may, the amount of shell added by Mr. Miles to a given quantity of clay comes much closer to the present ratio than to those of Mason and Speck. Because, as will be shown later, a number of factors explain the difference in terms of change, the present testimony of ratios must be eliminated; those of the earlier authors no doubt approximate conditions common to the better part of the traditional period. A statement by Speck suggests that less shell was employed in the paste used in making pipes: this ratio he gives is one to five.¹¹ Contemporary informants were unaware of any difference in proportion between pottery paste and pipe paste.

Less difference is encountered in descriptions of the manner in which the paste was mixed. The procedure took place out in the yard, the potter being seated on a board on the ground or upon a low stool. Before commencing she washed her hands, though no folk-beliefs could be deduced for the practice. It is probable, as I shall attempt to show later, that it may be explained in terms of the domestic techniques of women. In front of the potter, arranged on the ground if she was seated there, or on a special, low table (*vide infra* for description) when she used a stool, she placed the necessary equipment: directly before her a shallow, wooden tub, about twenty-five centimeters across, in which the paste was to be mixed; to the right a small container of water; with occasionally a board of non-resinous wood near by, to be held later either on the lap or on the table as a base for kneading the paste. Regardless of the type of vessel to be made, the proportions of the solid constituents were the same (Mrs. C.). The clay was first measured out, then the shell on top of it, after which the two were sifted together into the tub (A. B., Mrs. C.).¹²

If the potter was right-handed, she now used that hand to pour in water a little at a time, while with her left hand she

11—Speck, 1928, p. 424 f.

12—Cf. Pollard, 1894, p. 18, for corroboration of this order of procedure.

"worked" the paste. At intervals she would use both hands to knead the paste vigorously (Mrs. C., P. M.). Consolidation of the paste consisted of finger-kneading and squeezing, of tearing the paste apart and then pounding it back into a single lump with the fists or the heel of the hands; often the mass would be raised between the opposed palms and tossed down from a height of thirty centimeters upon the bottom of the tub or upon the board (A.B., Mrs. C., P. M.). The correct amount of water, and the thoroughness of mixture might be determined in a number of ways. The operator would cut through the mass to see whether dry lumps persisted (A. B., P. M.), or she would tear it apart to judge, from tensile strength, whether it was too "short" (A. B., P. M.). The paste might be squeezed between the fingers and the fingers then drawn apart: too wet a paste would stick to the fingers, too dry a paste would be hard (A. B., Mrs. C.). Again, the paste was thinned between the fingers to discover, for elimination, lumps of dry clay or shell (P. M.). Another test, described by the informant as "old," involved biting through the paste: if it was of proper consistency the teeth should feel no grit (P. M.). When such tests indicated that excessive water had been added, more of the dry mixture was dusted over the surface of the lump and worked in.

Paste, once prepared, could be used immediately or it could be stored for some time.¹³ To be stored, it was wrapped in a wet rag "something like a towel." Often as many as three or four bundles of paste were so prepared. While awaiting use, they would be kept in the "dairy," a small handy-shed common on the reservation. Every day or so the potter would test them for dampness by prodding with a finger. If they proved unyielding, she added water until they had regained the proper consistency. Paste thus treated would keep indefinitely and needed no preliminary reworking before use (Mrs. C.).

One circumstance has to do with differences due to the division of labor according to sex. A grossly aberrant element is found in the practice of Terrill Bradby, as described by Pollard, or in the practice of Paul Miles. Over against these, the methods followed by the women stand as a group. Among the women,

¹³—But cf. Speck, 1928, p. 410: "When the day of pot-making comes, this clay (i.e. the dry shell-clay mixture) is made wet to the proper consistency."

differences are in small refinements of techniques by certain of the more careful potters. In the preparation of the paste, utensils, motor habits, and general procedure are virtually identical with those employed in the preparation of breads, as we see in Ada Bush's statement: "You mix your paste just like bread dough."

MANUFACTURING PROCEDURE

TOOLS.—The equipment used in pottery working was simple. In earlier times the potter sat upon a board laid upon the ground. Later she sat on a low stool and sometimes worked at a small table. Mrs. Cook, who described the stool and table, had a set made specially for her pottery work. The table stood at regular height and measured less than a meter on each side. Not many others, she added, had a special stool and table. A square board, from thirty to sixty centimeters on a side, was at times employed as a base upon which to build the pot. In general it was specified that a non-resinous wood be used, for informants asserted that if, for example, the board were of pine, the "turpentine" would adhere to the clay and cause it to crack in the firing. A board made from black walnut, highly esteemed for its fine grain, was preferred. Held in the lap or, in the later stages of manufacture, resting upon the table, the board facilitated the turning of the nascent pot.¹⁴

In addition to the stool, the table, and the board, there was a container for the water used in moistening the clay. Informants were unable to recall having seen gourd or native clay vessels serving this function. The vessel, usually a cup or a tin dish, was placed at the right side of the right-handed potter, within easy reach.

As a general manual implement, a mussel shell was used, prepared by working down one end of the lip of the shell to form a rounded cutting edge (A. B.). Interestingly enough, a comparison of specimens of the mussel shells that form an ingredient of the paste with a mussel shell knife prepared by Ada Bush reveals that, in this case at least, two different families of *Unionidae* were used. The shell used for paste (*Anodonta cataracta*, Say), because of its shape and its fragility, seems less

14—Cf. Speck, 1928, p. 410.

well adapted to service as a pottery-making tool than the flatter and more rugged shell (*Elliptio northamptonensis*, Lea) from which Mrs. Bush made her tool. The shell was employed as both a knife and a scraper. Informants denied having ever heard of gourd rind or ground-sherd scrapers or of reed, cane, or wooden knives. For the building and shaping of the pot the shell was the sole tool.

Another tool was the polishing stone. As among many other peoples in both the Southeast and the Southwest, it was (and, to a minor degree, still is) a cherished object, handed down from mother to daughter. Informants who had never made pottery always knew two features of its construction, namely, that shell was compounded with clay to form the paste, and that the piece, once formed, was polished with a "slick (*i.e.* smooth) black stone." Speck also illustrates such stones.¹⁵ It would appear that any fine-grained pebble would do, but since pebbles of corundum, which is black, are of exceedingly fine grain, they predominate, both in usage and in the memory of the people. Such pebbles seem to have been used just as they occurred in nature, without artificial refinement. All the examples I have seen are exceedingly small, averaging about an inch and a half along the major axis. Mrs. Cook has best described the stone: "Rubbing stones were used exclusively here—they never did use a bone polisher. Rubbing stones were black and flat; some would be the shape of your fingers where you had held it for years. These stones were handed down in the family."

Decorating tools will be described in the portion devoted to their application.

PRELIMINARY PREPARATIONS.—Clay was worked the year round (A. B., Mrs. M., Mrs. C.), Paul Miles being alone in asserting that "pots were not made in freezing weather." Operations under clement conditions took place out doors, although Mrs. Cook preferred to work inside "where sun and wind could not affect the clay." Potters worked individually, each in her own yard, in the intervals between household duties; or several might gather together for a potting "bee" (Mrs. A., Mrs. C.)

15—Speck, 1928, fig. 106.

The potter, ready to work, seated herself at her table, a dish of water handy at her right, her tools within easy reach, and her paste before her. If it had been stored for some time, the paste was worked into condition first, being kneaded by small quantities. The operator now began to build her pot.

BUILDING AND SHAPING.—In discussing the building techniques of the traditional period, I shall follow the classification proposed by Fewkes.¹⁶

The order has been somewhat altered. For reference back to Fewkes' original arrangement, each item is followed by the symbol there associated with it.

Modeling (1)

Morsel-building (2;II)

Fillet-building (2;I): Annular procedure (A):

Circuit variant (1): Single Fillet (a), Composite Fillet (b)

Molding

The classification has as sole criterion manner of construction. Shaping is logically extraneous to the classification. Yet the categories of manual building considered were rarely realized in pure form among the Pamunkey. Modeling, as will be seen, was sometimes used alone to build a pot, but more frequently it was employed as adjunct to the other manual methods. This was likewise true of morsel-building. Of the fillet-building processes, the single fillet was more frequent, but the line of demarcation between it and the composite fillet method was vague. If the general categories were not clear in practice, they were somewhat clearer in the mind of the operators. Single fillet, it is true, was not differentiated by potters from composite fillet, but, grouped together, they were clearly distinguished from the other building techniques. A description of procedure follows, with pipe-making—and hence the use of molds—treated separately. Native terms will be indicated in parentheses but will not be used in description. As only right-handed potters were observed, all accounts are in terms of the right-handed potter.

Modeling. The operator took the desired amount of paste from the supply at hand and compacted it between her hands

¹⁶—Fewkes, 1940, p. 172 f.

and on the board. She then patted and rolled it into a ball, which, with her shell, she cut into two unequal portions, retaining the larger. Basing it upon the board, she held it with the flat surface produced by her cut uppermost, and with her right thumb made a small indentation in the center. Now by gradual pressure, she worked her thumb out toward the edge, against the other fingers of the right hand, held together opposed to the thumb, on the periphery of the paste. The left hand held the board in place, turning it, when needed, counterclockwise to present a new portion to the action of the right hand. At times the left hand would support the paste mass itself. When the cavity had been expanded enough, she inserted her left thumb and used her left hand like the right, but directly opposite it. She now pressed the bottom of the piece down upon the surface of the board, the force being applied by the thumbs working together, with some inward and downward pressure exerted by the opposed finger. At all times, she kept her fingers moist and free from superfluous paste. If the paste became too wet, she might put the piece aside for a time to dry out, or dust some of the dry mixture on to absorb the moisture. She then used her thumbs on the basal part of the interior in order to flatten it and render it of even thickness. Next the wall was thinned by manipulating the fingers opposed on the outside to the thumb within, while the right hand was drawn up the wall. She used her left hand to steady the piece, and to turn the board as needed. The vessel was either given its shape in the process of extending and attenuating the wall, or a blank was produced to be shaped subsequently. The finishing of the rim, the attaching of handles, lugs, etc., was done in the manner to be described later (Mrs. C., P. M.).

Morsel-building. A pat of clay was torn from the main supply and was compacted and rolled into a ball. Pressed down upon the board with the heel of the right hand, the ball became a disc with a thickness, under average conditions, of 0.6 cm. to 1.3 cm. The edge was refined with the knife until the form was as nearly circular as possible. Usually the base was then modeled until a low wall was produced as foundation for the paste to be added. A moistened finger running upon the wall, or, lacking that, upon the periphery of the base, prepared

it to receive the morsels. These, formless lumps of paste torn from the main supply, were pressed upon the moistened surface with the thumb and the first two fingers of the right hand; then the thumb and the fingers were drawn up, extending the morsel. The board was turned, so that equally, though unevenly, the wall rose. When it had reached the requisite height it was finished off, as will be described below. This was the method demonstrated by Mrs. Lou Bradby as one practiced formerly. Its special attraction, she maintained, was "little pieces are easy to handle." Corroboration as to its former use came from other informants (Mrs. C., P. M.).

Fillet-building. Of the three major manual techniques practiced, fillet-building was most frequently remembered as old. The following description is based on verbal and gesticulatory information given by Mrs. Cook, whose failing sight made impossible a demonstration, together with repeated exhibitions of the technique by Paul Miles and Ada Bush; statements obtained from other informants supported the evidence thus gained. Except in minor physical differences and differences of background, the information exhibited a surprising homogeneity of technique. The procedure selected for description is that of Ada Bush, although because of her refinement of method, it is in some respects atypical for the general run of Pamunkey performance.

Taking from the supply of paste a large mass, she rolled it to consolidate it, then broke it into three pieces of approximately equal size, which she worked separately. Frequently, she wiped her hands with a wet rag. She tested the consistency of the paste by cutting off a segment and lightly patting it down with the heel of her right hand; at times she raised the lump to assure herself that the paste was not sticking to the work-board. She turned the flattened piece over, patted it again, then, dissatisfied, balled it up and worked it over again, forming it as before. Lifting the crude disk so created, she held it pendant by the flat surfaces between thumb and forefinger of the right hand. She then tapped the edge of the disk upon the board, adjusted its shape to that of a circle, then rolled it along the board, thumb and forefinger serving as an external axis, to cor-

rect the edge. This done, she dropped the disk from a height of three cm. on one of its flat surfaces upon the board. The final disk formed was ten centimeters broad and 2.5 cm. thick.

Nearby her on the left, Mrs. Bush kept a cup of water in which she washed hands and scraper occasionally. The sedimentary clay resulting she called "slip," and used it in moistening surfaces. After moistening her fingers, she tore from the remainder of the first lump of clay a piece of some size, rolling it first into a ball between her opposed palms, then upon the board, rolling it out into a rope, or "coil," two centimeters in diameter. Striking it lightly with the heel of her right hand, then reversing it and repeating, she flattened the rope into a fillet 2.5 cm. broad by 0.6 cm. thick by about thirty centimeters in length. With her mussel-shell she cut down along the whole length of the fillet close to one edge, to plane it for application to the base; its breadth was then two centimeters. Moistening her right forefinger with the "slip," she ran it around the edge of the basal disk. She then took up the fillet, placing it immediately before her; then, with the left hand supporting the fillet as it was laid in place and moving the disc clockwise, she fed the fillet on to the base with her right hand. She pressed down this portion before removing her hand, then followed through with the remainder of the fillet firmly on the base. She used fingers of either hand to stroke the exterior with an upward movement to compact the paste; she pressed with her thumbs upon the top of the fillet to force a bond with the base. The ends of the fillet were then cut squarely off, moistened, opposed, and joined together; she used her fingers to bond them. Next the shell, held in the right hand toward one end of the hinge line, was applied inside, first with a downward motion, to bond the juncture of the wall and the base, then upward, to compact and bond the wall, and at the same time to force it outward. Morsels were added inside and out at the juncture of fillet ends and of fillet and base. The nascent vessel was then reversed and, held in the left hand, was first thinned in wall by pressure between fingers and thumb of the right hand, then scraped with the back of the shell from the edge of the wall upward to the base. She scraped on the side away from her, and then turned the piece clockwise to a fresh surface. With the vessel again,

upon the board, right side up, she formed a new fillet as before. The top of the wall was flattened somewhat, the moistened thumb, forefinger, and middle finger, held together as if grasping a pencil, were drawn clockwise around the edge. The surface so produced was planed with the surface of the wall, so that the next fillet added would follow the direction already taken by the wall. The fillet was then applied directly on top of the wall, being adjusted as before, and was bonded by pressure exerted by the left thumb as it was laid in position by the right hand. Its ends were cut flat and joined as previously described; and the shell was employed to scrape upward first inside and then outside. The adding of morsels then proceeded, the interior being treated before the exterior, both hands working simultaneously at the same spot. She discovered an air bubble at the juncture of the fillet and the wall. It was relieved by a cut, some "slip" was rubbed in, and, with morsel addition, the hole was carefully and smoothly filled. The top of the wall was then cut flat, and smoothed by applying "slip" with the right forefinger, a variant of the method described before. A new fillet having been made, its edge was flattened at an angle by being carefully dropped on the board at a slant. Since that fillet proved too short, Mrs. Bush employed an additional piece which she quickly made and laid in place. This proving too long, she over-lapped the ends of the circuit and cut them through, and joined the ends. The terminal junctures of the fillets were not placed one above the other.

So the vessel rose, fillet on fillet, bonded, thinned, and shaped as the potter progressed. When the wall was turned outward, morsels were incorporated first inside, then outside; and when the wall turned in, the order was reversed. Each fillet was placed directly on the preceding one, save only when the wall, having been curved in, was to be flared again. In that case neither wall nor fillet was planed off, but the latter was laid just outside, overlapping the wall. Long circuits were built up of several fillets (composite method), for facility of manipulation. At intervals the vessel was inverted on the board for scraping; and after the wall had been laid in, the vessel was rested on its side, mouth to the right, for subsequent treatment. When the orifice grew too small to admit the scraper, the in-

terior of the vessel was smoothed with the index and the middle fingers of the right hand. The final touch in shaping the body of the vessel was the flaring of the rim, in some bowls, its incurving. This was achieved by holding the left index and middle fingers underneath, while tapping lightly on the top of the rim with the heel of the hand.

Handles, lugs, and legs were applied in the following manner. A lump of paste was rolled out to the required diameter and length, and one end of the fillet was then pressed out to form a small untapered peg of paste. With a stick or with a knife a hole was cut through the wall of the vessel at the point at which the fillet was to be applied. Both peg and hole, as well as the surfaces adjoining them, were then moistened, after which the peg was pushed through the hole. The vessel was supported inside by the left hand, while the peg was inserted with the right. The fillet on the one side and the protruding end of the peg on the other were then carefully bonded with the wall, after which the fillet-blank could be shaped. For the operation to take place the vessel needed rigidity, but the bond would be imperfect if it had dried past the "leather state."

If at any time during the building of the pot the clay became too dry, it was moistened by sprinkling with water. On the other hand, if it became so wet that it could no longer be controlled, it would be set aside in the shade, uncovered, until sufficient water had been lost.

Paul Miles supplied information as to pot holes which were bored through the clay with a stick. Although Mr. Miles has gained much from the inspection of the surface sherds which occur over the reservation, his explanation of their function is of interest: "A hole was made on either side a short distance below the rim. By inserting a stick in each hole, you could lift the pot off the fire. You could also suspend it over the fire for cooking." Peter Kalm, in a passage in which Holmes says he "appears to refer to the use of pottery in New Jersey,"¹⁷ states that "Many of these [clay and pot stone] kettles have two holes in the upper margin, on each side one, through which the In-

17—Holmes, 1903, p. 60.

dians put a stick and held the kettle over the fire as long as it was to boil."¹⁸

Analysis of the demonstration in the light of statements offered by other informants makes it possible to eliminate details extraneous to the general traditional technique. Informants agreed that the base was always a solid unit. Paul Miles asserted that base and walls were modeled from a single lump of paste and that "you didn't have to coil as long as you could get your fingers inside." Highly suggestive though his statement is, no other informant supported it; and because it may be rooted in his own difficulties, in the breakage of his "coiled" pieces on firing, it must be pronounced at least questionable. It seemed more common to true the basal disk by cutting it even with the shell, than to round and refine it as did Mrs. Bush. Again, while the dimensions of the fillets she made were consistent with descriptions— Mr. Miles said the breadth of the fillet always lay between one inch (2.5 cm.) and one and one-half inches (3.8 cm.)—her practice of squaring off one edge was mentioned by no one else. The top of the wall, however, was planed off as demonstrated by her. The rim might be flared by pinching it out with the right thumb over and upon the right forefinger held horizontally just below.

Comment must also be made on a statement of Speck, which might be misleading. In the work previously quoted, he says—and emphasizes his statement by placing it in italics:

" . . . The walls [are] built up by adding thin layers of clay paste, or, if the vessel is a small one, by pressing it into shape from a soft lump of material. The coiling was not followed in recent times. This is a noteworthy fact."¹⁹

Speck recognized the former practice of fillet-building, though asserted that only modeling and morsel-building were employed at the time of his observation. Moreover he himself qualified his statement and allows me to present it here. The pertinent information was collected in 1920, at which time pottery-making was newly renascent. Mrs. Cook, his informant, demonstrated the morsel-building technique only on low bowls. The technique at least at Pamunkey, is still limited to such forms. Only low bowls or small vessels are made at Pamunkey. Other evi-

18—Kalm, 1770—1, Vol. II, p. 41.

19—Speck, 1928, pp. 410-411.

dence, such as that offered by objects in museums and datable examples in the hands of the Indians, asserts the true antiquity of fillet-building. Archaeological evidence will be given below.

Pipes were made either by modeling or by molding. Two methods were given for modeling the short-shanked clay pipe fitted with a "reed," pipestem (usually *phragmites communis*, Trin.). Mrs. Cook rolled paste mixed as for vessel making into a thick cylinder. She then bent this over to approximate a right angle and trimmed the shank to a length of about 2.5 cm. When the clay was almost "leather hard," she cut out and shaped up the bowl, using a little penknife and her fingers. She then bored out the shank with her knife and inserted the pipe stem about 1.5 cm. "for shape."

The second method for making a short-shanked clay pipe was also that employed in making the all-clay pipe, as demonstrated by Ada Bush. A lump of paste, mixed as for a pot, was molded over her thumb, fingers alone being used. Trimmed with a knife, it was set aside. Next a long fillet of clay was rolled out, no special board being used, and cut to a length of about thirty centimeters. Any wire or stalk could be run through it to bore it, Mrs. Bush stated, and selected a stalk of broomstraw (*Andropogon virginicus*, L.). Several attempts were made before it could be forced through the whole length of the clay rope; when this had been done, the stalk protruded for two centimeters or so at either end. Holding the fillet by its center in her left hand, Mrs. Bush then rubbed one end to a point, forming what was to become the mouthpiece of the pipe. Now the bowl was taken up again, and toward the base a small hole was cut through the wall with the end of the knife. This was a little larger than the diameter of the broomstraw stalk. Holding the bowl by the wall, left index finger inside, just above the hole, Mrs. Bush pushed the end of the straw through the hole and rotated the rope slightly until it adhered to the wall. This was termed "working the stem in." The stem was blended into the bowl with the fingers. Morsels were added to the juncture and the whole was worked down and smoothed off with the moistened fingers.

Molds. Pipes were less frequently molded than made by hand. I was unable to observe the procedure, but have secured

descriptions of it. Molds were made from a paste without shell. A hand modeled, fired pipe was taken as the original and clay was built up around it. This was divided into two halves and taken apart, after which the central form was removed. The mold was then fired. To make a pipe, paste was shaped manually to approximate the desired size and form, and was then pressed down into one half of the mold. The other half was then added and pressure exerted. Superfluous paste which oozed out of the central depression, keeping the mold-halves apart, was cut away. With several repetitions of the procedure, the paste assumed the desired form of a blank and was put aside until it had reached the "leather state." When this had been attained the bowl and the shank were carved out with a penknife. The "reed" stem was fitted in "for shape," and the pipe was ready for decoration.

One intimation, and one alone, was given of former beliefs. Paul Miles stated that it was formerly thought that if a person were to look too hard at a pot in the making, it would break. Nanny, his wife, said that a similar belief held in spinning. (See also the statement of Ada Bush, given below in the discussion of firing.)

DECORATING AND SURFACING.—If its walls had the proper firmness—judged from the behavior of the paste during the building process—the vessel was decorated immediately after construction. Otherwise it was placed in the house, usually upon the mantleplace, or in the smokehouse until it had attained the proper state. This was judged visually and tactually, out of the operator's experience.

The various methods of applying ornamentation are here described under several headings.

Methods Employing Purely Digital Manipulations.

"Thumb groove": (P. M.). The fingers of the right hand were inserted inside the neck of a freshly-made pot, while the opposed thumb exerted gentle pressure inward and downward on the outside. The decoration was carried all the way around the pot, producing a channel girdling it. The same effect was also produced in the base of a shallow milk pan.

"Water wave": (P. M.). Into the fresh wall of a vessel, the right index finger was pressed in and upward; the result was a depression with a ridge just above it. The design was reproduced all around the pot. In the next row below, the depressions were produced between every two elements in the first row. The design was said to carry over the entire body of the vessel. It does not seem to have been common.

Rim decoration: (A. B., Mrs. M.). Flared rims were sometimes decorated by pressing with the thumb above down upon the index and middle fingers below, to produce a scalloping of the rim. The treatment was carried around the rim.

Methods Employing Tools (Non-cursive impression).

Corncob: (Mrs. C.). An old corncob that had lost its "limberness" was dried in the oven (in the old days in the fireplace) "until the fuzz had been scorched off"; scraping removed the charred fuzz. Moistened, the corncob was held horizontally and rolled down the surface of the vessel. The left hand supported the wall inside.

"Grain": (P. M.). A heavy-dent, kernelled ear was applied like the corn-cob.

Cord-wrapped stick: Paul Miles demonstrated the making of the cord-wrapped stick. Picking up a stick at random, about two centimeters in diameter, he tied one end of a length of butcher's cord to the middle. Holding the stick in his right hand, he threw a loop over his left thumb, then slipped it on the stick and tightened it. As he repeated the operation, a series of half-hitches grew upon the stick. In addition, then, to the corded surface of the stick, there was a line of knots where the cord turned on itself to produce the half-hitches. The stick was moistened and applied vertically to the vessel, being parallel to the rim, with handle down to avoid the rim. The left hand supported the wall from the inside. When the knot-line was applied, it produced a distinctive design.

Cord-wrapped paddle: (Mrs. C., P. C.). A paddle was made of wood selected at random, about which cord was wrapped. Wetted, it was carefully pressed against the surface, being held either vertically, like the cord-wrapped stick, or horizontally.

When applied to the whole surface of a vessel it might be slapped on.

Wooden paddle: (Mrs. C., P. M.). The surface of a paddle of fine-grained wood, usually of black walnut or cedar, was grooved in criss-crossed diagonal lines, sawn or carved into the wood. A hot wire laid into the grooves rounded them somewhat. The design produced was called "shad net." It was applied as for the cord-wrapped paddle. Speck illustrates the wooden paddle.²⁰

Net: (P. M., Mrs. C., P. C.). An ordinary fishing net, with a mesh about the size used for minnows, was moistened and applied in any of three ways. Spread out, it was either applied directly to the wall or was wrapped around a paddle and pressed upon the surface. Bunched up, it was patted lightly all over. The left hand supported the wall inside.

Cord: (A. B., P. M.). A length of cord, wetted, was pressed into the paste, one end being held down with the left thumb, while the right hand laid the cord in the desired line.

End-stamp: (Mrs. C., P. M.). The end of a stick of wood was sometimes notched to produce a simple pattern. Wetted, it was then applied end-on to the surface to be ornamented. A plain stick was sometimes used instead.

"Reed" design: (A. B., Mrs. C., P. M.). The end of a pipestem or other hollow stalk was applied like the stick end-stamp. This seems to have been a very popular mode of decoration among the Pamunkey.

Punctate: (P. M.). The thorn of the "honey shuck," or honey locust, tree was applied like the end stamp.

Stick edge: (A. B., P. M.). The edge of a stick or of a plant stalk was sometimes applied to walls and rim.

Other methods: Shell-surfaces seem to have been little applied. Combs, however seem to have been used, as were thimbles, railroad seals, watch chains, buttons, the denticulated edge of fossil sharks' teeth, the fluted surface of a muskrat's tooth, the end of a key, a string of beads. Indeed Mrs. Cook stated that anything that had a pretty mark on it was applied: she herself favored glass pieces with flower designs cut on them. Doubtless the vessel most ornately decorated by impression of this sort is the one shown by Speck.²¹

20—Speck, fig. 95., e.

21—Speck, 1928, fig. 109.

Methods Employing Tools (Cursive Impression).

Incised line: In incising, the sharp edge of a knife or of a splinter of wood is drawn across the surface, cutting into the paste. In cross-section the line produced is V-shaped. The tool was moistened previous to application.

Grooved line: The tool used to produce a groove is not edged, hence the cross-section of a groove is either round-bottomed or flat. At Pamunkey, a stick or stalk was held like a pencil and drawn across the surface to be ornamented.

"Pine tag": (P. M.). A bunch of pine needles (*Pinus echinata*, Mill.) was drawn repeatedly across the surface to be decorated.

Watch-wheel roulette: (A. B., Mrs. C., P. M.). A watch wheel was rolled over the surface, the cogs leaving a row of regular indentations.

Corncob: (Mrs. B., Mrs. C., P. M.). The corncob, whose preparation was described above, was held vertically and scraped sideways over the surface of the vessel. Fine horizontal or diagonal striations were produced.

Painting. Paints seem to have been little used on Pamunkey pottery. Mrs. Miles described a stripe carried around the neck of pots, as well as floral designs. Nothing was known of the provenience of the paints. To my knowledge, the only example of painted ware is a small bowl, with crude floral design in red, in the Museum of the American Indian, Heye Foundation (12/5551). Sealing wax decoration seems to have been unknown.

It is necessary to consider, at this point, the combination of design elements in Pamunkey ware. When designs occurred on tall vessels, they were limited to its upper half (A. B., Mrs. C., P. M.). Sometimes the whole surface of a pot was decorated; this, the breaking up of a smooth surface, was called "texturing." Methods employed in surfacing were: "water wave," corn-cob (both applications), "grain," cord-wrapped stick, cord-wrapped paddle, net (all applications), grooved-line, "pine tag." As a matter of fact, we have no extant examples of any of these methods save only grooved-line within the past 140 years, when the traditional method must be considered to have flourished. There is no evidence, either in museum collections or in traditional lore, that surfaces were "textured" during that period.

Rims were waved by finger treatment, more generally "notched" by the edge of a stick or plant stalk; one example shows a series of "reed" impressions on the edge with a line produced by comb or watch-wheel running down the middle of the edge. Often rims were left plain.

Tall vessels were rarely decorated as far down as the shoulder. Bowls, on the other hand, carried the ornamentation in a band across the middle or in two strips equidistant from the middle. The thumb groove has already been discussed. Common grooved designs were a line that swung along in repeated arches; a line that dipped down into a circle and rose, again to repeat; and a series of X-marks carried around the vessel on the neck. Such designs had no significance; they were purely ornamental. End stamps were not frequent. "Reed" impression seems to have been popular. A good example of its application is illustrated by Speck.²² The edge of a stick or plant stalk was most effectively used, usually producing a smooth, well-rounded groove. The objects noted under other methods for non-cursive impressions were generally employed in combination. A good illustration of the effects produceable by such tools is the vessel referred to in note 19.

Incising was rare at Pamunkey. Together with watch-wheel roulette, comb decoration, and punctuation it was limited to application on pipes and handles and lugs. Plain stick and stamp and reed were also thus applied though not so limited in use. Paul Miles suggested that these types of decoration, especially punctuation, were for the purpose of "cooling the clay" in use. Another reason might be that the decoration produced by the restricted methods is so fine that it would be lost on a large surface.

The use of applique, called "stuck-on" decoration by the natives, is recognized by them as recently adopted. Where it came from they do not know, but the designs produced by this technique resemble those seen on the cheap, elaborate vases in common use during the latter half of the past century.

Decoration seemed not to have varied otherwise with the type of vessel to which it was applied.

22—Speck, 1928, fig. 112.

Pipe designs, while more elaborate than those occurring on pots, were simple in execution. They consisted of incised or impressed banding and spirals around the stem and banding and rectilinear outlines upon the bowl. What seems to have been a popular outline was that of spikes radiating from a common base; this was usually executed in an impressed or rouletted technique. Small, incised x's were sometimes arranged regularly upon the bowl. Reed and end stamp impressions were placed to follow the general line of the bowl and shank.

The potters do not recognize the classification of method of decoration outlined above. The potters recognize the individual methods without distinguishing them farther. It may be observed in passing that grooving, incising, and stick-edge decoration are grouped together. In this informants claim to exemplify former attitudes.

It seemed general for the operators who were demonstrating old methods of decoration to improve upon the designs once they were made. It was also observed that they sometimes seemed uncertain, that they were inclined to steady their strokes by resting the elbows on a table. Since the designs were simple and non-significant, some degree of inventiveness was demanded from each operator. In general the more skillful operators in the construction of the pot were also more skillful and inventive in the application of design.

All vessels to be sold were decorated to enhance their appeal. Culinary vessels on the other hand, were left plain, since they were soon blackened by soot. There seems to have been no rule whereby a special type of decoration was reserved to a special category of vessel.

It was asserted by Mrs. Cook that the potter sometimes facilitated identification of her pottery by grooving her characteristic lucky mark on the bottom. Other informants were unable to corroborate or deny the statement.

Once decorated, the vessel next underwent surfacing. If it was not dry enough for treatment, it was put aside to dry—as before, either in the house or in the smokehouse—until it had reached the requisite condition. Usually it was ready within two days, rigid, hardly plastic, yet still yielding, a state termed by the potter "leather hard." The only implement used in surfac-

ing was the polishing stone, previously described. The vessel was held sideways braced somewhat against the chest, left hand gripping it by the rim with the fingers inside, thumb out. In this manner the wall was well supported. The stone was held in the right hand pinched between thumb and middle finger while the index exerted pressure downward. Without moistening it, the operator began to apply the stone to the wall, beginning in the middle of the wall or below the shoulder, swinging her stroke parallel to the rim. At first pressure was gentle. When one portion of the vessel had been gone over, the operator rolled it over counterclockwise and continued. After the vessel had been polished once, it would be gone over again. Special attention was paid to rim and shoulder. The pot might be gone over again, within a few hours. It might be necessary this time to wet the stone. The polishing left small, horizontal facets easily visible under a lamp.

Not all vessels were polished. Some—especially culinary types—were smoothed by rubbing with the damped fingers. Pipes, though usually polished with the stone—and that more carefully than in the case of pots (Mrs. C.)—were sometimes merely finger-smoothed. Both methods were termed “polishing” by informants.

The effect of the surfacing was twofold: First, the pressure exerted by the stone or finger further compacted the paste and perhaps by squeezing contained water to the surface hastened drying. Informants were aware of the former effect but had not realized the latter. Second, the surface was polished, to informants the major purpose of the procedure.

Mrs. Cook claims that thin walled pieces, being incapable of withstanding the pressure of the polishing stone, were smoothed down with sandpaper. The others had never heard of its being done.

DRYING.—When surfacing had been concluded, the vessel was returned to the house or to the smokehouse to dry. Principally, the desire was to keep it in shade and away from frost; for it was said that exposure either to sun or to extreme cold would crack a pot. Pieces were kept away from the hearth. Mrs. Cook described her arrangements for drying the quantities of pots she

used to make. She set them on benches ranging the walls in her house, in winter, but in summer she stood them on shelves of tables or on benches placed against the walls in the smoke-house. Pots with legs were inverted at first, otherwise the legs, still plastic, would "sweg," i.e. go out of shape.

Mrs. Cook stated that the normal drying period, varying with the size of the piece, was from one to three weeks. Other informants were inclined to disagree, saying that the period was much shorter; but none gave it as less than one week.

The criterion of dryness—when the pot was considered to be almost wholly free of water—was color: the pot would be "clay-white." Unfired specimens, compared with Ridgway's²³ standards, showed a color that ranged from deep to pale olive-buff (21" b to 21" f). Comparisons were made, it is true, some time after the pots had been pronounced dry, but little or no change could have taken place after so long a drying period. Paul Miles indicated that the color of the bottom was examined in determining dryness—"if it's dark on the bottom, it's not dry."

It was recognized by informants that pieces shrink, or "draw up," during drying. Measurements made on paste prepared by Ada Bush in the manner previously described showed an average shrinkage of $\frac{1}{8}$ linearly. Such figures would vary with the amount of shell added; this was well understood.

FIRING.—While the pieces were still drying out, the potter sent her children out for fuel. Any wood could be used for kindling, but only hard woods, such as oak, ash, hickory, or cedar, and cornstalks were good for "burning" pottery. Repeatedly referred to was pine bark; it seems to have been the constant ingredient. Some persons said that pine bark alone was used; compare the statement of Pollard quoted below. The bark was preferred that came from a tree that was dead but standing: it would be dry and easy to remove. Informants (A. B., Mrs. C., P. M.) said the bark could be used off any dead pine; Paul Miles, in demonstrations, once obtained bark from a live pine (*P. echinata*, Mill.) and once from a dead one (*P. taeda*, L.). In the former case, he cut the bark off with an axe, from one side of the tree—so as not to kill it by girdling, he said; in the latter, he

²³—Ridgway, 1912.

beat about the base with the butt of the axe-head until large slabs of bark came down. Gathered up into a bag, they were carried home, where they were broken down to a length of about thirty centimeters, a breadth of several centimeters.

Firing was carried out at any time of the year, save when the ground was wet or frozen; the day must be clear, without sign of rain or of wind. All things must be regulated; all uncertainties removed: it was the time of test, when skills were proven and errors bared. More pieces failed here than at any time before. If, as usual, the pots were to be sold, pin money for the potter was also at stake. Here, one would think, old beliefs and practices would tend to cluster, attempts to control the uncertain. Strangers, said Mrs. Cook, would be allowed to watch the firing, but they would have to pay for the privilege or help the potter in her work. She didn't want outsiders to learn how she "burnt" her pots, she explained. To wish bad of the pot of another, Ada Bush said the old folks used to think, might injure it. The injury, she thought, would be most likely to occur during firing. If such beliefs are held today, they are well concealed. For the main part, the operator, always the potter, controls conditions realistically; and from the descriptions one gathers that the same was largely true of former practice.

Several variants in method were related. The first was demonstrated fully by Ada Bush, in part by Alberta Bradby, described by Mrs. Cook,²⁴ and referred to casually by others.

A level place in the yard was raked and swept clean. On it was built a small fire of random kindling, lit with paper; cornstalks or hard wood, of the varieties mentioned previously, were then added. If several large pots were to be fired, the fire might be extended a short distance; otherwise it was circular in shape. The pots to be fired were stood about sixty centimeters from the blaze to warm; they were rotated by hand and gradually moved closer. When they had become too hot to handle, the operator inverted them to warm the bottom, protecting her hands with a cloth pad. Now, held between two sticks, or manipulated with a paper, each pot was placed upside down in the fire. When all were in, the potter covered them completely with

²⁴—Who earlier demonstrated it to Dr. Speck—see Speck, 1928, p. 411. The only statement there contained that was not given me by informants is that "Occasionally the pots are fired by allowing them to stand close to the embers."

pine bark, smothering the flame. The bark was continually replenished; the process continued all day. The pots became red hot.²⁵ If a wind sprang up, the dread of the potter, she quickly braced up a wind shield—anything from the miscellanea of the yard would do: Mrs. Bush used an automobile fender that she kept for that purpose. The shield was shifted with the wind. At the end of eight hours the fire was allowed to burn down. The pots were allowed to remain in the fire until they became cool enough to handle. Under no circumstances were they allowed to remain over night—"the dew would affect them" (Mrs. C.). There was no color criterion by which to determine when the firing was complete, nor was there a "ring" test at this point: the firing was by rote—fire the pot eight hours and it is done.

Sometimes, as in the demonstration of Mrs. Cook, quoted in Speck (note 22, *supra*), the pot was set down and the fire kindled around it. When the fire was going well, it was smothered with pine bark, which covered the whole pot. The firing then proceeded as before. The principle of the self-kiln is involved here, as in the procedure just described: the fuel acts to prevent the admission of too much air—the main difference being that there is no preliminary heating of the pot.

If the weather was windy and the firing could not be deferred, the pots were placed under the iron cauldron, or "wash pot," of which each family had at least one, and the fire was built up around it. In a demonstration given by Ada Bush, no fuel was placed under the cauldron save three corncocks spaced equidistantly about the pots; the function of these she declined to reveal to me. Ash kindling was placed about the base of the cauldron so as to exclude air, and the fuel—hickory wood to make the pottery hard and pine bark to blacken it—piled neatly upon it. An automobile fender was used as windshield in addition to the cauldron. Because I wished to be present when the pots were removed, they were left in the fire overnight, protected from dew by the cauldron; otherwise they would have been taken out that evening. In the morning, the pots, when uncovered, were too hot to touch; on exposure they cooled down

²⁵—Regrettably, no firing temperatures could be measured.

sufficiently in 15-20 minutes. The pots were uniformly black (1: Ridgeway).

The corncobs had been carbonized through to the center. Some informants (A. Br., P. M.) placed fuel also inside the cauldron, but all stated that the main function of the cauldron was to keep the wind out, not to keep the smoke in. Paul Miles, besides using a self-kiln of the type previously described (the type noted by Speck), but covered over with dirt to further exclude air, also followed another method. It involving the digging of a hole twenty-five centimeters deep, putting in fuel and pots; the fire lighted, it was carefully controlled and the pots were rotated the while, so that they would warm up evenly; finally, a board or inverted dishpan was placed over the hole to regulate and "smother that fire."

Pollard relates the method of firing detailed to him by Terrill Bradby:

"The dishes, bowls, jars, etc., as the case may be, are then placed in a circle and tempered with a slow fire; then placed in the kiln and covered with dry pine bark and burnt until the smoke comes out in a clear volume. This is taken as an indication that the ware has been burnt sufficiently. It is then taken out and is ready for use."²⁶

The mention of a kiln is unique in the descriptions of Pamunkey pottery-making. It is possible that the self-kiln is referred to; possibly Paul Miles' pit kiln is meant. It is not clear from Pollard's account whether he witnessed the procedure or depended upon verbal information from the Indians. These now on the reservation were unable to illuminate the statement, although one at least (Mrs. Cook) was making her own ware in the days when Terrill Bradby outlined the method to Pollard.

It is of interest to note that small vessels and pipes were fired on the hearth (A. B.), though more recently they were fired instead in stoves and ovens (Mrs. C., P. C.), being placed within before the fire was lit, then left there for the day. Finally, another method seems to have been employed, namely the inverted-cauldron method previously described (Mrs. A. B., Mrs. C., Mrs. M.). The pipes fired by the latter method were always described as black and shiny. The importance of the point is historical, as will be shown later.

The effect of the reducing atmosphere in firing, it may be suggested, is twofold: it seems possible, in the first place, that iron oxides present as impurities in the clay may be transformed into the black ferri-ferrous oxide known as magnetite. In the second place, tiny particles of carbon seem to be deposited for a short distance within the fabric itself. The former reaction is merely suggested here; the latter seems to be rather generally assumed to be operative. It is not my purpose to deal here with the chemico-physical aspects of ceramics, but mention of the possible reactions effecting the darkening of the ware is necessary as a referent for native explanations. Generally, it was understood that the smoke produced the blackening, though Mrs. Cook was of the opinion that sometimes—she could not state when—the same effect was produced by the action of wind.

POST-FIRING TREATMENT.—When, after about fifteen minutes, the vessels were cool enough to handle, they were lifted out of the ashes and set down. Ashes were wiped off the surface with a dry rag. The vessels were now given post-firing treatment, an examination for defects. The pot was tested for "ring": the nail of the right forefinger, pressed against the ball of the thumb, was suddenly released, to tap the rim of the piece. If whole, the pot emitted a clear, resonant sound; if flawed, its noise was wooden. When the defect was insignificant in the eyes of the potter, the vessel was retained; otherwise it was thrown away. The successful vessels were rubbed with a greasy rag or a piece of bacon rind. Explanations given for this practice (A. B.) were obscure and appeared to arise only from a desire to satisfy the questioner. At no time was corn-meal mush applied to the vessel.

Vessels successfully completed were stored in the smoke-house or, occasionally, in the house itself. No special place seems to have been reserved for the storage of pots. Their destination was usually the market. The subjects of marketing and of form will be deferred, because of their importance in historical discussions.

A few concluding remarks may be given as to associated practices and beliefs. No origin myth could be remembered. Of beliefs not associated with pottery manufacture itself we have only one example: Mrs. Miles stated that when you break one

cup or one saucer, you must break one or two more and your luck will change for the better. Paul Miles had heard "the old folks"—Dick Allmond, Terrill Bradby (*i.e.*, the preceding generation)—say that pottery was buried with people; Ada Bush had heard from her grandmother, Ellen Francis Page, that the favorite pottery of the deceased was buried in the casket with him. Mrs. Cook gave an interesting description of geophagy. Some of the old folk, in the course of making pottery, put clay on boards and put it in the back of the chimney to smoke it. They would then eat the clay while working. No explanation could be offered for the practice. Terrill Bradby, she said, also ate clay in the manner described.

The foregoing is what remains of old methods in the fingers and memories of the Pamunkey today. This is the answer that the people give when asked, "How did the old folks make pottery?" The answer is not given in a single voice: there is no single set of detailed procedures upon which all present-day potters will agree. The rather considerable variation exhibited in the described techniques may stem in part from a traditional freedom of selection permitted the potter; but it also arises from the fact that through the years the Pamunkey have been exposed to diverse influences. The history of Pamunkey pottery making exhibits marked trends, including a phase in which it declined to the threshold of extinction. These factors, to be discussed later, have made it necessary that the entire body of data, rather than a sample, be assessed. Fortunately, the restricted size of the present-day pottery-making community makes assessment feasible. Although we thus avoid the bias involved in recourse to a single informant, there is the danger of identifying generality of testimony and practice today with surviving technique. Actually, such a traditionalist as Paul Miles may well preserve a feature replaced everywhere else on the reservation. Above all, it would be erroneous to expect by this means to recover in detail the aboriginal pottery-making complex: only insofar as indigenous elements have passed into the traditional methods of manufacture known locally as "the old way" do they survive today.

ARCHAEOLOGICAL EVIDENCE

When the Pamunkey refer to "the old way of making pottery," they are speaking of the techniques employed prior to the advent of the pottery school. It is a different thing they have in mind, however, when they apply the term, "old," to the sherds they find in the fields. Then the "old" pottery becomes that which is decorated over the surface by fabric-impression and incising, sherds that bear crushed stone aplastic as well as shell, in contradistinction to the shell-bearing smooth-ware intermixed with it on the surface, which is recognized as more recent.

It is probable that there has been an almost uninterrupted occupation of this land since aboriginal times. Smith, in speaking of the York river, states: "At the ordinary flowing of the salt water, it divideth it selfe into two gallant branches.

"On the South side inhabit the people of *Youghtanund* . . . On the North branch *Mattapamant* . . . Where this river is divided, the Country is called *Pamavnke* . . . ²⁷ While the chief village of Opechancanough, ruler of Pamunkey and brother of Powhatan, was situated near the confluence of the two rivers, the "principall Temple or place of superstition . . . at Vttamussack" lay upriver not far from the site of the present reservation. The archaeological material on the reservation testifies to the presence there in former times of a considerable settlement, perhaps the "Accossuwinck" of the Smith map. Within historic times, the Pamunkey are known to have continued their residence within their old territory, until in 1677 they obtained from the Virginia Assembly the permanent reservation which they now hold.

There is accordingly some justification for seeing in the "old" sherds the aboriginal pottery of the Pamunkey. They merit careful consideration, but it would be unwise to separate them into types and wares, inadequate as they are in number and gathered chiefly from the surface.²⁸ There is every probability that the samples include representatives of pottery wares already identified elsewhere. These, however, are taken here as forming

²⁷—Smith (Map of Virginia), 1884 (Arber edn.), p. 51; also map, facing p. 384.

²⁸—Cursory attempts to establish a stratigraphic sequence met with no success, because of the thinness of the cultural deposits at the points investigated.

together the aboriginal threshold, from which the native component of the traditional pottery of Pamunkey may be traced.

Viewed *en masse*, the "old" sherds fall within the characterization of the Potomac-Chesapeake ceramic province.²⁹ They are relatively soft and usually reddish brown in hue. In thickness, wall sherds average 9.5 mm., although even within the same sherd wide variation may be observed. Vessels tend as a rule to grow thicker toward the base. The paste contains stone, either in the form of quartz or quartzite pebbles; or it contains shell fragments; and infrequently there is a combination of both. The pebbles resemble those found in the present clay deposits, although they are often present in greater proportion than occurs naturally; and frequently they have been crushed. In sherds containing shell, leaching is often demonstrated. The major forms of aplastic tend, by and large, to cut across categories of decoration.

There is abundant evidence that fillet-building by the circuit method was practiced; moreover, fillets fall within the dimensions stipulated by present usage. Some basal sherds exhibit fillets, and since these do not appear to have been laid up in a spiral, it seems likely that here too a circuit technique was applied. It is possible that modeling and morsel-building may also have been practiced. There is little doubt that the widespread method of construction by means of fillets was aboriginal in Virginia.³⁰

The surface of the vessels was roughened by the application of knotted netting (usually bunched, but occasionally spread out on the surface of the pot), twined and twilled fabrics, or cord-wrapped paddle. Decoration was usually in the form of parallel lines and angular designs applied by grooving or incising over the fabric-marked surface. In combination with these, reed-stamp impress occurs. I have seen only one sherd indubitably stamped with a carved wooden paddle. There is no conclusive evidence for the use of the polishing stone, although in some instances some tool seems to have been used in partially obliterating fab-

29—Holmes, 1903, pp. 150-2; Speck (1923, figs. 99-100) illustrates representative sherds from the reservation.

30—See e.g. Holmes, 1889, p. 248f.; Bushnell, 1935, p. 30 and fig. 8, p. 32f. and fig. 9; Bushnell, 1937, pp. 21-5 *passim*. Cf. Ritchie for New York: "coil" building is listed for the Laurentian (1944, Trait Table, p. 379).

ric impressions. On the interior face of a few sherds roughly parallel striations appear, apparently produced during the thinning and smoothing of the vessel walls.

The most general form of the "old" vessels, judging from sherds alone, accords well with the depictions by early colonists. From a direct, undifferentiated rim, a cylindrical body—often of a diameter exceeding 40 cm.—tapers to a conoid base. Collars and thickened or flaring rims are rare or absent; lugs are extremely uncommon and handles not in evidence; while, on the other hand, pot-holes—or mending-holes?—are present.

Special interest attaches to a few sherds—scarcely half a dozen in the entire sample—which may be classified as plain-ware. Buff-colored, sometimes containing crushed steatite, it combines a simple, direct lip with an undecorated wall. One sherd bears on a concave surface a clear mat-impression. There is no indication of the use of the polishing stone: neither a smooth surface nor the facetting characteristic of its use is in evidence. These sherds may derive from the Potomac valley, where they have been noted.³¹ Other plain-ware sherds are also present as a minority type.

Without knowing the chronological position of plain-ware at Pamunkey, it would be hazardous to attempt an appraisal of its relationship to local developments. It might indeed be that they form a transitional stage between the wares classified as "old" and the smooth-ware of historic times; but current indications point toward a distinct and separate history.

Of decidedly exotic character is a vessel, reported to have been found on the reservation, and now in the possession of Mr. Sam W. Pennypacker, 2nd, through whose kindness I am permitted to refer to it here³². Briefly, it combines the use of shell aplastic with a fillet-building technique. In form it comprises an oblatelately spheroidal body surmounted by a short, wide neck, with a rim that is only slightly flared. Two opposed loop handles, each bearing a median groove down its dorsal surface, curve outward and downward from the rim, to blend into the shoulder. Approximate dimensions, as scaled from a photograph, give a

31—Holmes, 1903, p. 157; Manson, 1948, p. 225, pl. XXIV A. For New Jersey, cf. Cross, 1941, pp. 60, 65, 88.

32—Since Mr. Pennypacker intends to publish separately on this interesting specimen, I refrain from illustrating it or discussing it in full.

height of about 12.7 cm., a maximum diameter between 17.5 cm. and 20.2 cm. The surface, which is plain, has been so altered by deterioration that the method by which it was smoothed cannot now be ascertained.

It may be, of course, that the vessel represents modifications upon the local ware made by the infiltration of European techniques and standards. The commoner wares in early colonial Virginia were smooth wares—although they were often glazed—they were frequently handled, and even bore a median groove down the outer side of the handles³³. Even the form might possibly be approximated within their range.

On the other hand, parallels are far more easily found within an Indian context, in particular in wares from the Chickamauga Basin, Tennessee, and to a lesser extent in pottery from North Carolina³⁴.

A second vessel said to have been found on the reservation comes much closer both in form and in fabric to the traditional pottery of Pamunkey; yet if, as alleged, it came from a shell midden or occupation site near the present source of potter's clay, it might conceivably derive from a prehistoric horizon. Unfortunately, the vessel itself, formerly in the possession of Walter Bradby, is said since to have been lost in a fire which destroyed his house. In form, it was a shallow bowl, with a rounded bottom and a direct rim. Two horizontal, triangular lugs, attached diametrically at lip level, bore the sole element of decoration, a groove closely paralleling the entire free edge of each lug, with pendant grooves at right angles to it running out to the edge. Approximate dimensions of the bowl, as scaled from a photograph, indicate a maximum diameter of about 20 cm. in conjunction with a height of 5-7.5 cm. Upon close examination, the vessel clearly revealed the presence of shell, as well as the traces of broad fillets applied in the circuit technique. The exterior seemed to have been smoothed with a stone, although it is possible that the fingers alone were utilized.

33—Peterson, 1936, fig. 1, front row, left; Forman, 1938, p. 131, lower right.

34—Hiwassee Island: Harrington, 1922, pl. LII: (loop handles) p. 178f., fig. 25. Lewis and Kneberg, 1946, pl. 48 A, top row, No. 3; pl. 59, b. Cf Griffin, 1943, pl. CXXXI, 3, and pertinent remarks, p. 115.

North Carolina: Holmes, 1903, pl. CXXXIX, rear row, center; comment on p. 144.

It may be pointed out that Harrington attributed the Hiwassee Island material to the Cherokee and that the somewhat divergent North Carolina material is referred by Holmes to the same people.

Altogether, the form of the Bradby bowl is suggestive of types more common in the pottery of the Southeast, although the analogy is more general than specific. From another point of view, however, it might be at home in the Tidewater area of the historic period, and might even be a copy in clay of wooden vessels known to be indigenous there. So long as a reasonable basis exists for referring it to a local context, it would be unwise to consider it an importation.

The fact cannot, however, be overlooked that various smooth- and burnished-wares were prehistoric in the Southeast and that it is in that direction that the strongest similarities to the "recent" sherds in native concept are evinced. As Speck points out.

"The smooth ware which finally usurped the style and technique at Pamunkey was known to the natives over much of the east. Sherds of the same texture and surface are found in the Cherokee region, among the Catawba, and all over the tidewater Algonkian habitat from the North Carolina-Virginia boundary to the head of Chesapeake bay. We have specimens to illustrate this from the Chickahominy through the country to the Nanticoke area of Delaware."³⁵

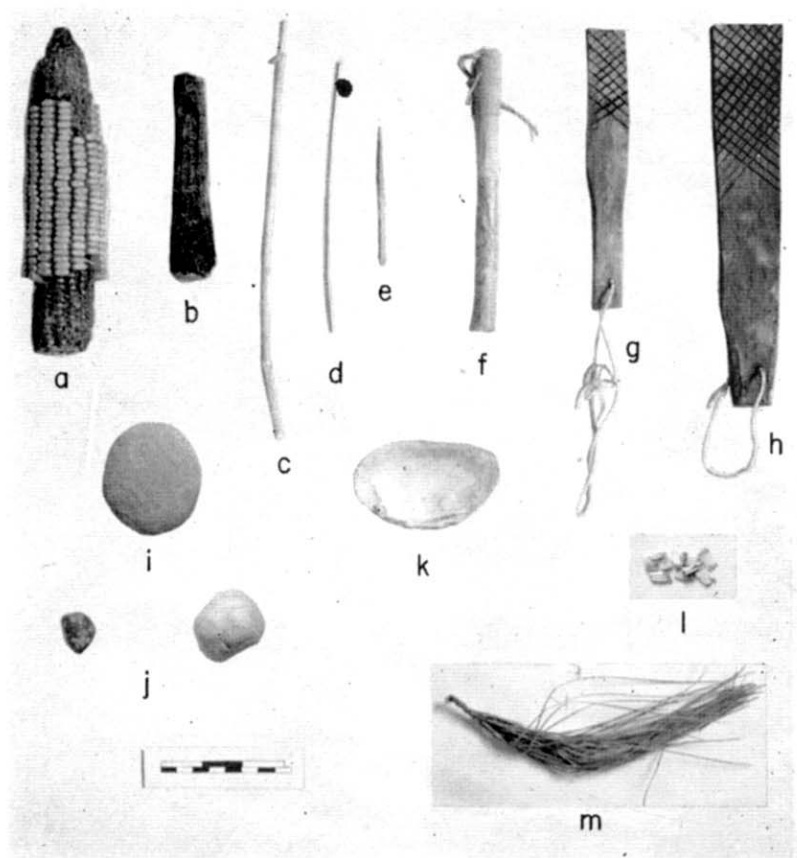
"Let us examine some series of these smooth sherds from the places where they abound on the present Pamunkey and Mattaponi reservations. In the first place, the fragments from both places are exactly alike; hence the conditions of development in both loci are correspondent (figs. 101, 102). The ware is characterized by being very smooth, hard, and fine-grained, the clay free entirely from sand and grit, yet full of powdered mussel-shell. Its color is light-brown or uniform drab or gray. No incised or depressed decorations are found in the body. A few rims only show any attempt at embellishment, which then consists of fine impressions or dents, sometimes of fingermarks. Next is the most important thing: numerous angular bottoms, parts of curved handles or lugs, legs and knobbed lids, together with evidence of flat bottoms and the exclusive lipped rim style (fig. 102), are indications of a modification in form, bringing them into correspondence with the common European forms. Here then is the secret, and comparing this material with the historic Pamunkey ware, we are forced to conclude that the later archeological material is transitional, forming the link between the pre-European and the modern pottery."³⁶

The Bradby bowl suggests, though it does not establish, that southern influences were felt in the pottery of Pamunkey even in aboriginal times. The extent to which the Virginia Algon-

35—Speck, 1928, pp. 411-412. Fewkes (1944, p. 105), apparently on the basis of personal information from D. S. Davidson, attributes smooth-ware to the Slaughter Creek site in Delaware.

36—*Ibid.*, pp. 402, 404; figs. 101-2 (the bottom row in fig. 102 is made up of legs, not handles).

PLATE I



POTTERY-MAKING TOOLS

a. "Dent" ear; b. Corncob; c. Twig; d. Broomstick; e. Thorn of honey locust; f. Cord-wrapped stick; g, h. Wooden paddles for "shad-net" decoration; i. Rough "smoothing" stone used by Paul Miles; j. Polishing stones; k. Mussel shell knife (*Elliptio northamptonensis*, Lea); l. Muskrat teeth; m. "Pine tags" (*P. echinata*, Mill.).

PLATE II



a



b



c



d



e



f

THE MAKING OF POTS

a. Paul Miles breaking up clay; **b.** Paul Miles compacting clay; **c.** Ada Bush bonding first fillet to base; **d.** Bonding third fillet to wall; **e.** Bonding and truing the body before applying neck fillet; **f.** Bonding of neck fillet in reversing curve of wall (see Plate IV, **b.** for finished pot).

PLATE III



a



b



c

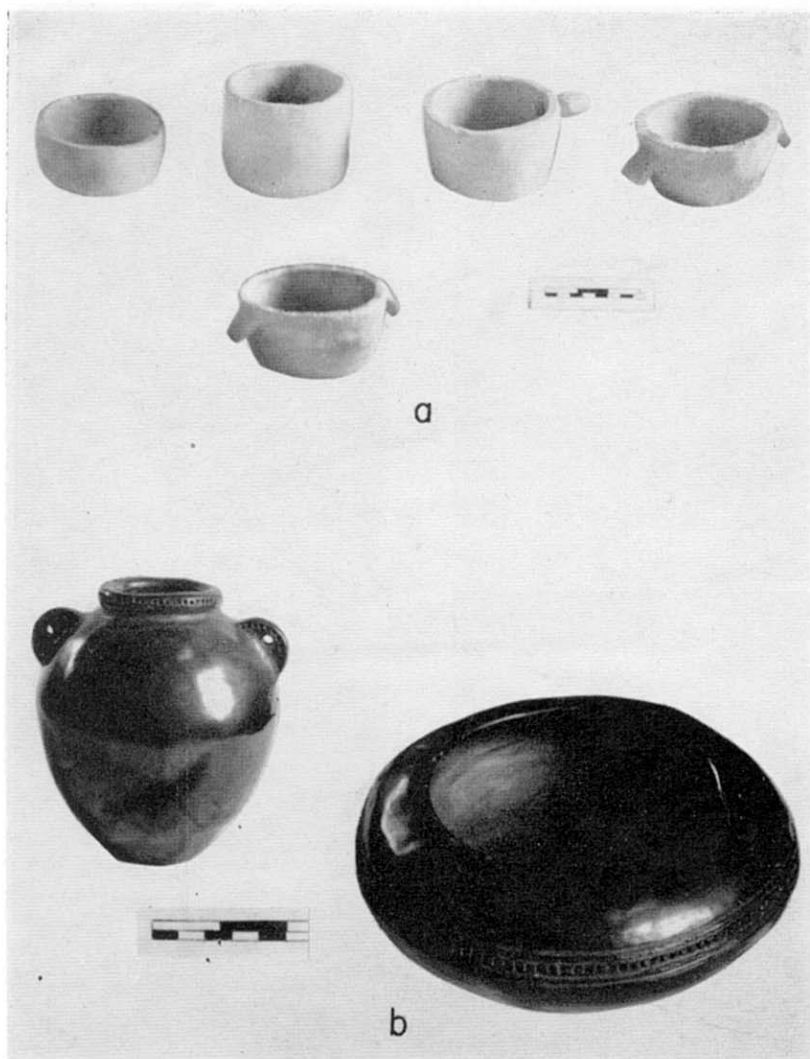


d

THE FIRING OF POTS

a. Paul Miles gathering pine bark for fuel; **b.** Paul Miles preparing a pit kiln; **c.** Ada Bush preparing kiln. (Note corncobs, fuel, and iron cauldron; see Plate IV, **b** for finished pots); **d.** Ada Bush's kiln being fired.

PLATE IV



RECENT POTS

a. Series representing construction stages made by Paul Miles (now in MAIHF); b. Pot and bowl made by Ada Bush, decoration applied with a twig and stalk of broomstraw, time of construction for the pot is shown in Appendix I, the steps of manufacture and firing are shown in Plates II, c-f and III, c, d.

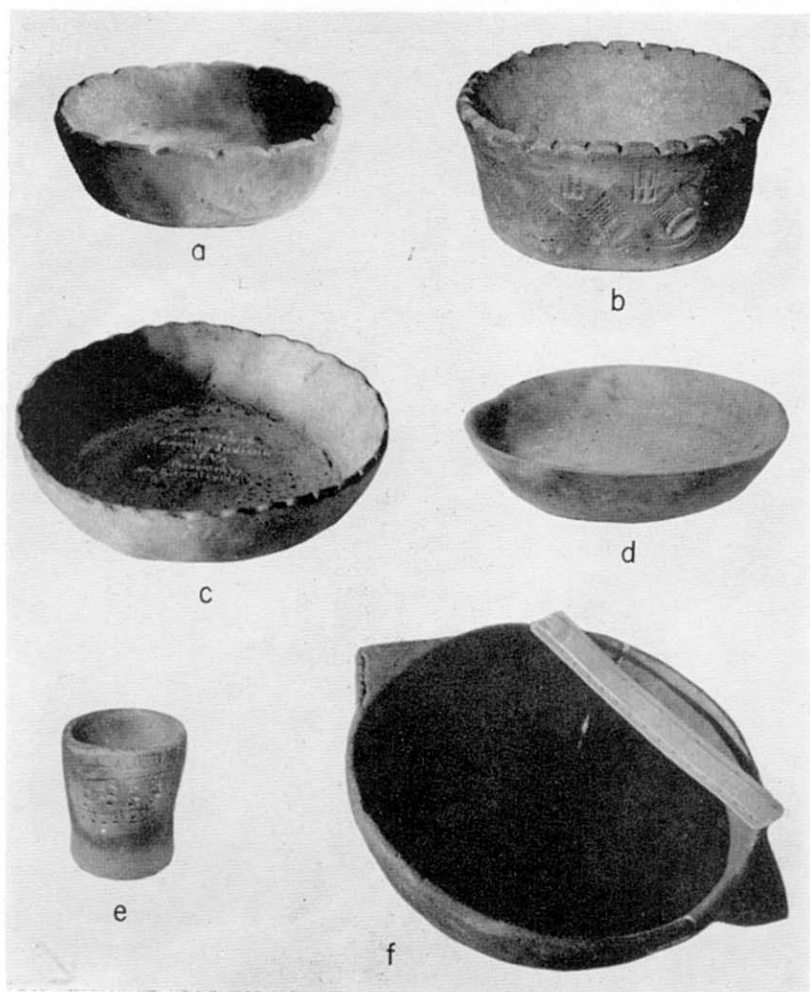
PLATE V



TRADITIONAL FORMS

a. *Pandja* and lid, made after 1880 (AMNH 50.1/6561); **b. c.** "Two cups" (USNM 165453); **d.** "Skillet" (MAIHF 11/8124); **e.** "Skillet" with horizontal loop handle (USNM 165451); **f.** "Pipkin and lid," made 1801, earliest known form of the *pandja* (USNM 31851).

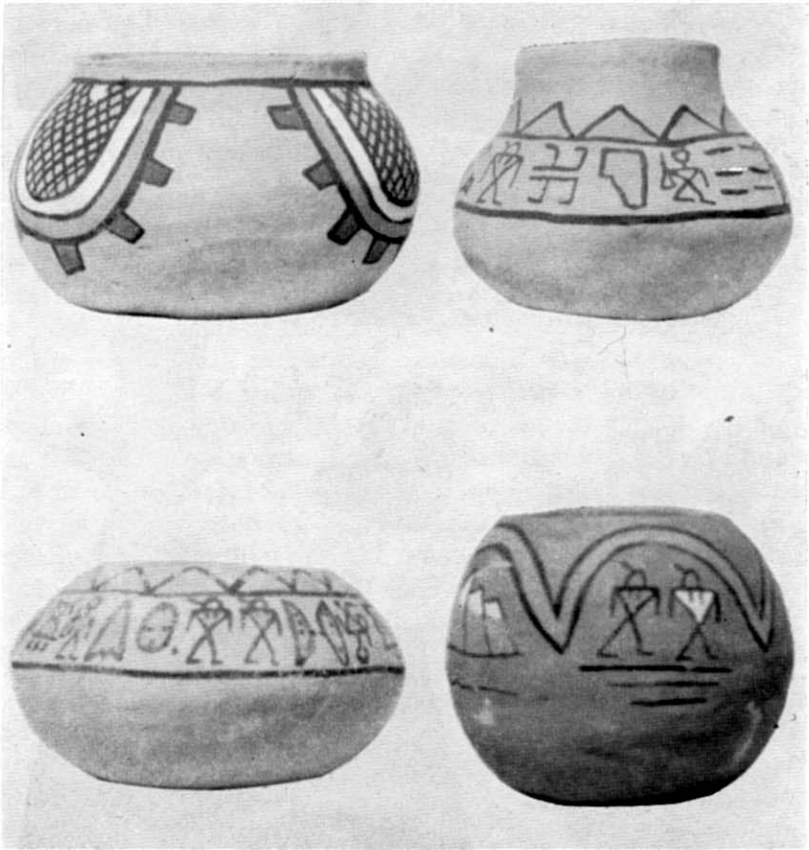
PLATE VI



TRADITIONAL FORMS

a. "Milk pan" made about 1912 (AMNH 50.1/6563); **b.** "Bowl" made about 1880 (MAIHF 10/5723); **c.** Bowl collected by Rev. E. A. Dalrymple made about 1800 (USNM); **d.** Bowl collected by F. G. Speck about 1920 (MAIHF 11/8127); **e.** Jar collected by M. R. Harrington before 1908 (MAIHF 1/8813); **f.** Archaeological bowl from reservation (Chief Walter Bradby).

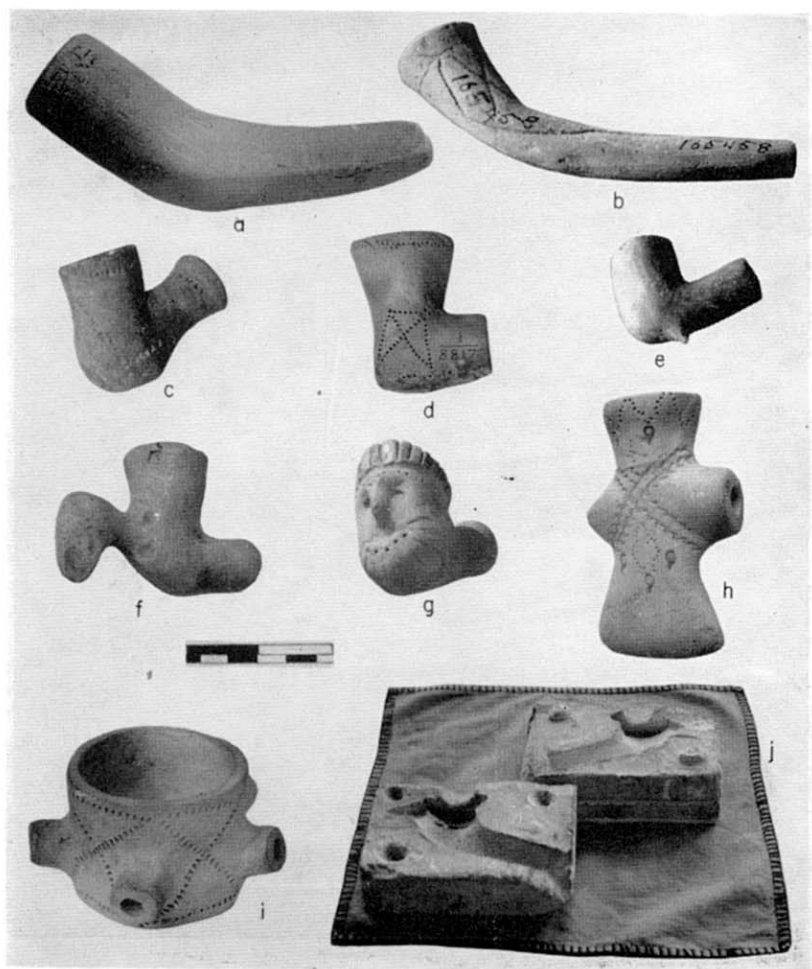
PLATE VII



POTTERY SCHOOL VESSELS

These vessels illustrate the foreign elements of form and decoration introduced by the school after 1932.

PLATE VIII



POTTERY PIPES

a. Pipe made by Paul Miles; b. Pipe in traditional form (USNM 165458); c. "Old clay pipe" suggests Catawba influence (MAIHF 1/8815); d. Pipe (MAIHF 1/8817); e. Trade pipe imitation (USNM); f. "Clay bird pipe" (MAIHF 1/8818); g. "Indian head" pipe (MAIHF 1/8819); h. "Tomahawk" pipe (AMNH 50.1/6552); i. "Pipe for joy" (MAIHF 11/8128); j. A pipe mold.

kians participated in the cultural province of the Southeast was indicated some years ago by Speck, and has been more recently restated by Swanton³⁷. It is evident that there is a case for the Southern origin of Pamunkey smooth-ware: Nonetheless, it is just as plain that the smooth-ware appears in what are commonly European forms, giving rise to the suspicion that it imitated European forms.³⁸

By and large, the smooth-ware of Speck, the "recent" sherds identified by native informants, and the ware of the traditional period are one and the same, in general homogeneous as to shell content, color, thickness, surface finish, and form. That it covered some span of time is evident. Its lower limits must lie in the early years of culture contact, if they do not actually extend, in such features as a stone-polished surface, into the shadows of pre-history. At the upper levels—if one excludes for the moment the modern ware of the Pamunkey—an indication of its recency is presented by the statement of Mrs. Cook that in the boyhood of her deceased husband (about 1880-90) one Susan Girley lived on the hill behind the Cook house and made the pottery represented today by the smooth-ware sherds found there. These are indistinguishable from other "recent" specimens.

A brief note may be offered here as to the existence of the tubular tobacco pipe at Pamunkey. Its occurrence is indicated by a specimen of the so-called "tadpole" variety (MAIHF 11/37) found by Speck in the shell heap referred to before (Speck, 1928, fig. 119. a.). Surface finds of other tubular pipes are shown by the same author (*op. cit.*, figs. 117, b; 119, c.). Other examples from Virginia have been illustrated by Bushnell.³⁹ The elbow pipe is present on the reservation in large quantities, but since there is lacking a typological sequence with which to reveal possible influence from colonial pipes, it is difficult to discuss their provenience. Archaeological specimens gathered from the reservation merely corroborate statements made by Speck about pipes, to which the reader is referred.⁴⁰

37—Speck, 1924, especially pp. 196, 197-8. Swanton, 1946, pp. 799ff.

38—For a parallel development, not necessarily contemporaneous, in New England, see Willoughby, 1935, p. 200.

39—E.g., Bushnell, 1935, pl. 21, fig. 2 a. p. 43f. (chloritic schist); 1937, pl. 14, fig. 2, p. 53 (clay).

40—Speck, 1928, pp. 418-424.

One final word may be said on the subject of the archaeological sherds as a group. There is no doubt in my mind, after close observation of informants, that sherds have acted as a powerful stimulus, primarily with respect to remembered modes of decoration. To a lesser degree, they have also conserved the memory of obsolete forms, and perhaps of bygone functions as well. When it is considered that museum specimens going back as far as the beginning of the 19th century show no evidence of many decorative techniques that can still be demonstrated on the reservation, it must be concluded that either the imitative powers of the Pamunkey potters, or their memory, has been aroused by the constant contact with these remnants of their past.

HISTORICAL DATA

Against the archaeological background it is possible to project the historical development that has led to the modern pottery of Pamunkey. Although a number of matters relating to technique must be discussed, attention will be directed primarily to details of form, here best considered in their historical context. The data which can be brought to bear include contemporaneous descriptions, both directly allusive to the Pamunkey and inferentially applicable to them; as well as the vessels preserved in museums and traditions retained in the memory of the people themselves.

The earliest reference to the pottery of the Indians of the general area now embraced by coastal Virginia and North Carolina is to be found in the water-color drawings of John White, now in the collection of the British Museum. One of them, with the legend, "Their seetheynge of their meate in Potts of earth," is reproduced by Holmes;⁴¹ it shows a pot set upon a fire. The wall is straight, converging slightly toward the base, which is conical and ends in a pronounced teat; the lip is but slightly differentiated. Most interestingly, there occur at regular intervals at least ten lines engirdling the wall parallel to the rim. While they may be intended to indicate incised decoration, it is possibly that they represent unobliterated fillets, such as are sometimes discernible on the walls of large vessels. Bushnell states, "The drawings made by White among the villages on the northeastern coast of the present State of North Carolina would have applied to the tidewater section of Virginia. . . . One drawing shows the method of preparing food in an earthen vessel."⁴² This is the picture to which reference has just been made. The same vessel is shown in plate XV of the De Bry edition (1590) of Thomas Hariot's "A briefe and true report of the new found land of Virginia, etc."⁴³ This picture has been slightly altered from the original and two figures have been added, though whether they give the true scale of the pot in the John White original cannot be said. The engirdling lines in the De Bry en-

41—Holmes, 1903, pl. II.

42—Bushnell, 1940, p. 129.

43—Hariot, 1893 (Quaritch Edn.), pl. XV.

graving are fewer—only five are visible—and the teat at the bottom has been redrawn. The accompanying text seems translated out of the Latin of the artist himself. It runs:

"Their woemen know how to make earth-vessells, with special cunninge and that so large and fine, that our potters with thove wheles can make noe better: ant then Remoue them from place to place as easelye as we can doe our brassen kettles. After they haue set them vppon an heape of erthe to stay them from fallinge, they putt wood vnder which being kyndled one of them taketh great care that the fyre burne equallye Rounde abowt. They or their woemen fill the vessel with water, and then putt they in fruite, flesh, and fish, and lett all boyle together like a galliemaufrye, which the Spaniards call, olla podrida. Then they putte yt out into disches, and sett before the companye, and then they make good cheere together."

Perhaps inspired by this vessel is another shown in Captain John Smith's map of Virginia (1608) in the illustration in the upper left corner.⁴⁴ Although somewhat squatter than the White vessel, it is of the same general type; and upon its exterior three horizontal lines are discernible. These illustrations, together with the White text, comprise the extant early information on the form and method of construction of pots in the region. Bowls, as has been indicated (*vide supra*) must have existed, but the early references to vessels are ambiguous as to material and are non-descriptive as to form.

Other details however may be culled from the early references. Thus Strachey states, ". . . there is a clay which the Indians call *assasqueth*, whereof they make their tobacco pipes, which is more smooth and fyne then I have ellswere seene any."⁴⁵ That he specifies a clay for pipes without mention of other earthen ware suggests the distinction made by the Catawba of South Carolina between "pipe clay" and "pan clay."⁴⁶ Such a distinction, if one did exist, has not been recorded for the Pamunkey in historic times and is at present denied by the Indians themselves (see the preceding section).

For the division of labor in pottery-making, there is Smith's statement:

"The men bestowe their times in fishing, hunting, wars, and such manlike exercises, scorning to be seene in any woman like exercise. . . . The women and children do the rest of the worke.

44—Smith, 1884, opp. p. 384; clearer in 1907 (MacLehose) edition, opp. p. 396.

45—Strachey, 1849 (Hakluyt Edn.). p. 31f.

46—Fewkes, 1944, p. 73.

They make mats, baskets, pots, morters; pound their corne, make their bread, prepare their victuals, plant their corne, gather their corne, bear al kind of burdens, and such like."⁴⁷

A second statement by Smith seems opposed to that just quoted: "For the king [*i.e.*, Powhatan] himself will make his owne robes, shooes, arrowes, pots; plant, hunt, or doe anything so well as the rest."⁴⁸ The context hardly suggests a slip of the pen, and Smith's use of the word "pot" throughout is consistent with the sense of earthenware, so that a real exception seems to exist. The king makes pots, which the other men scorn as a craft reserved for women and children. Can this not be regarded as another indication of the freedom of the King from censure? A modern parallel is to be found at Pamunkey, where Terrill Bradby, long a moving spirit in the tribe, of which he was once elected chief, is said to have been the first man to take up pottery making: his male successors have been George M. Cook, son of Chief Cook, and Paul Miles, himself formerly chief of the tribe.

There are no early references concerning implements used specifically for pottery-making. However, a number of the tools mentioned in other connections could have been applied to that manufacture, and are therefore of interest. Smith, and after him Strachey, mentions a mortar for pounding up corn and a basketry sifter; knives of reed and of shell, and nets and cords, which might have been employed in the decoration of the vessels.⁴⁹

All this is admittedly inferential. More to the point is the mention made of the functions performed by earthenware. Although none of the early authors add to what White had already stated concerning the culinary application of earthenware, their passing notices offer good corroboration of what he says. It is of interest to compare a statement of Holmes in reference to the archaeological pottery of the Potomac tidewater region. The use of pots, he says, was generally culinary, "but the vessels were not infrequently diverted to sacred and ceremonial uses, as we know from historic evidence. It is instructive to note,

47—Smith, (*Map of Virginia*). 1884, p. 67.

48—Smith, (*Generall-Historie*), 1884, p. 400.

49—Mortar and basketry sifter, Smith, 1884, p. 62; Strachey, 1849, p. 73. Reed and shell knives: Smith, 1884, p. 68; Strachey, 1849, p. 106. Nets: Smith, 1884, p. 69.

however, that such special functions had apparently not yet, as in the west and south, given rise to special forms."⁵⁰

Smith speaks of the use of a pot to cover the coals in the sweat-house.⁵¹ Strachey makes the sole reference to the ceremonial pottery. Speaking of the mortuary rites of the great, he says, ". . . scraping the flesh from off the bones, they dry the same upon hurdells into ashes, which they put into little potts (like the auncyent urnes). . . ."⁵² It seems probable that the "little potts" were of earthenware.

Beverley, in 1722, is the only one to describe the pottery drum. He says, ". . . their drums are made of a skin, stretched over an earthen pot half full of water."⁵³ Discussion of the historical significance of the pottery drum must be deferred for the present.

Hariot, followed by Strachey, mentions the use of "pipes made of claie"⁵⁴ for smoking. Percy describes a pipe used at Kecoughton, "made artificially of earth as ours are, but far bigger, with the bowls fashioned together with a piece of fine copper."⁵⁵

To consider the ceremonial function of smoking in Virginia would take the discussion too far afield. Nevertheless, it is of interest that Beverley illustrates a "pipe of peace wch. I have seen," which is of the calumet form, and says: "They take a pipe much larger and bigger than the common tobacco pipe, expressly made for that purpose, with which all towns are plentifully provided; they call them the pipes of peace."⁵⁶

So much then for the early aboriginal pottery of Virginia. A consideration of the effects of White contact is now in order. Among the articles early used as trade attraction were "copper (i.e., brass) kettles"; but because of the value attached to the metal, they were probably cut up to make ornaments rather than being used as vessels.⁵⁷

50—Holmes, 1889, p. 249.

51—Smith, 1884, p. 74.

52—Strachey, 1849, p. 89.

53—Beverley, 1855, p. 177.

54—Hariot, 1893, p. 25.

55—Percy, 1884, (Arber Edn.) p. lxiv.

56—Beverley, 1855: Pipe of Peace: Tab. 6, Book 3, Page 132. Quotation, p. 143. The common tobacco pipe is shown in Tab. 10, Book 3, Page 141, the illustration and pipe therein being largely a copy of De Bry's etching No. XVI; the pipe does not exist in the John White original, which De Bry followed. De Bry's pipe may not have much value as indicating an *Indian* pipe, but Beverley has redrawn it, so that it doubtless conforms with what he observed in his day. For the pipe as a sign of friendship cf. Percy, 1884, p. lxvi, Smith, 1884, p. 518

57—Cf. Barlowe, 1906 (Burrage Edn.), p. 232.

It seems certain that the earliest models to influence the Indian ware were utensils of the colonists. It must be remembered that the earthenware of the Indians themselves was almost wholly confined to utility forms; furthermore, although there is no specific note of such practice, the Indians were probably most commonly received in the kitchen.

For the early culinary utensils of the Virginia colonists, we have several sources. A list of "Necessaries for Virginia" (1623)⁵⁸ specifies as requisite for a family and six slaves "1 iron pot," "1 Kettell," "1 Large Frying-pan," "1 Gridiron," "2 Skellets," "1 Spit," and "Platters, dishes, spoones of wood." Other early accounts give similar lists. Inventories of early colonial effects,⁵⁹ found in home and store, include earthenware porringers, milk-pans, bowls of several sorts, earthenware pots, pie-plates, cauldrons, earthen jugs, and many other vessels that do not concern us here. To these we may add the earthenware pipkin and such iron vessels as the spider—a three-legged frying pan—and a flat-bottomed, tripod cauldron.

In the excavations at Jamestown there has turned up a distinctive ware, best described in the words of one of the archaeologists:

"The crudest items are simply burned-clay dishes glazed on the inside to make them waterproof (*fig. 1*). Those pictured here are not decorated, but each piece has a simple, unaffected integrity of form, texture, and color. The glaze is transparent and generally greenish, the effect being identical with that of the early English glazes produced by dusting on powdered lead ore before firing."⁶⁰

Examples of this ware are illustrated in Peterson, 1936, *fig. 1*; Bailey, 1937, *pl. 2*; Foreman, 1938, *p. 131*, lower, right. The consensus among recent workers on the site is that the green-glazed ware was made in Virginia.⁶¹ How early such earthenware was produced in the colony is not known, although in 1619 a committee for the Virginia College mentioned "potters" among tradesmen needed for the college land.⁶² In 1623, Butler, in his "The unmasking of our colony in Virginia, etc.," mentioned "The

58—Smith, (*Gen. Hist.*, Lib. 4) 1884 *p. 609*.

59—Bruce, 1896, Vol. II; in homes: Page 162, 168-185 *passim*; merchandise in stores: 382-5.

60—Peterson, 1936, *p. 183*.

61—E.g. Peterson, 1936, *p. 192*; Bailey, 1937, *p. 499* (*by inference*): Foreman, *personal communication*.

62—Brock, 1887-9, vol. 1, *p. 11 ff.*

iron works," then "The furnaces for glass and pots."⁶³ Because it appears that the casting of iron utensils may have come in somewhat later, it may be that the "pots" manufactured were earthenware. By 1677 it is certain that earthenware was being manufactured in the colony.⁶⁴

The forms indicated in the green-glazed ware are a flat baking dish with "pie-crust" edge; a deep plate; a pot with a grooved handle; a pitcher, similarly equipped; a pot with two opposed horizontal loop handles and a lid with a central loop handle; deep and shallow bowls suggested as the "milk bowl" of wide use; and a shallow, open pipkin with three small legs and of rectangular cross-section, its globular sides rising to a short vertical neck with unflared rim, and the whole provided with a straight lateral handle. The *floruit* of the latter type of vessel, according to Mr. J. C. Harrington,⁶⁵ is assignable to around 1650.

Together with the utensils previously mentioned, the green-glazed ware of Jamestown appears to constitute, at least in part, the prototypes of the later ware of Pamunkey. It would be of interest to the student of cultural dynamics to discover how the change in the Indian ware took place; unfortunately the contemporary accounts thus far consulted offer only a hint. The mechanism of trade appears fairly early. The first possible reference in Virginia is to be found in Bacon's Laws (June, 1676), Act II, entitled "An act concerning Indian trade and traders." After making certain provisions for relations with friendly Indians, it continues:

"*Provided also that such neighbour Indian friends who have occasion for corne to relieve their wives and children, it shall and may be lawfull for any English to employ in fishing or deale with fish, canooes, bowles, matts or basketts, and to pay the said Indians for the same in Indian corne, but noe other commodities. . .*"⁶⁶

Bushnell⁶⁷ interprets "bowles" as "pottery vessels," but the term is not without ambiguity. Better evidence is found in the journal of one Durand, a French Huguenot, who visited Portobago Village, on the Rappahannock, in 1686. The author describes briefly the life of the natives, then says, "They [the

63—Brock, 1887-9, vol. 2, pp. 171-2.

64—*Vide* Wm. and Mary *Quarterly*, ser. 1, vol. 15, p. 185f.

65—Personal communication, Dec., 1940.

66—Hening, 1809-23, vol. 2, p. 350.

67—Bushnell, 1937, p. 8.

women] make also pots and vases from earth and pipes to smoke, the Christians buying their pots or vases fill them up with Indian Corn and that is the price. . . ."⁶⁸ If this account is to be accepted in its entirety, it might be believed that a non-utilitarian function was creeping into Indian pottery, doubtless induced by trade: pots and vases are twice distinguished in the short reference quoted.⁶⁹

It is unnecessary, then, to cite further evidence for the persistence of pottery in the Powhatan area, although general evidence is not lacking. It seems probable that trade pipes were now (1687) being copied,⁷⁰ at the same time that aboriginal models were also retained. Although it is not certain that vessel forms had already begun to change, the fact that Durand's account shows a new, perhaps non-functional, category suggests that white influences may already have been at work.

In 1715, John Fontaine came upon a single Indian hut "possibly," says Bushnell, "about due north of the present Pamunkey Indian Reservation."⁷¹ In his description of its inhabitants and furnishings—which do not differ much from what Smith recorded almost a century before—he notes, "All the household goods was a pot." It seems probable from the cultural context that the vessel was earthenware.

By 1801 the first vessel surely of Pamunkey origin comes to light. This was collected for the National Museum by the Rev. Dr. E. A. Dalrymple and was given the accession number 31851.⁷² It is described as "pipkin and lid. 1878. Made by the last survivors of the Pamunkey and Mataponi Indians in the year 1801." The body is roughly cylindrical, curving in abruptly to a plain rim. It is supported on three peg-like legs; the base between the legs forms a dome, concave from without. A vertical strap handle, tea cup fashion, is attached to one side. The lid, de-

68—Voyage d'un Francois. Exile pour la Religion, avec *Une Description de la Virginie* and Marilan dans L'Amerique. A La Haye, Imprime pour l'Auteur, 1687. The part quoted was translated and presented for the first time by Bushnell (1937, pp. 39-42), from whom it is taken.

69—For other mention of Indians pots as a trade article in transactions with colonists: St. Catherines, Guale (Carolina) 1670: Milling, 1940, p. 48, quoting *Shaftesbury Papers* (1897).

Mowhemcho, Monacon Town (Va.) 1702: Bushnell, 1930, p. 9, quoting Va. Magazine (1916), which quotes Michel (after 1702, vol. II, p. 123).

70—Earliest reference to an English pipe-maker in the colony is to be found in Smith (Map of virginia), 1884, p. 108. Among the supply of 1608 was one Robert Cotton, a Tobacco-pipe-maker."

71—Bushnell, 1930, p. 32, from whom the quotation is taken.

72—Shown in Holmes, 1963, pl. CXXXVI, rear row, second from left.

pressed in the center, rises sharply to a notched rim. A peg handle, rectangular in cross-section, juts up from the center of the lid. Except for the notched rim of the lid, the vessel is undecorated. This is no Indian vessel; one would say, it is instinct with European traditions. Then one looks closer, where the paste has scaled, crushed shell glitters; and within the wall itself evidences of fillet-building are to be seen. The conclusion is inevitable: by the beginning of the nineteenth century the form of Pamunkey pottery had altered, at least in one case, to approximate European prototypes.

Of the forms traditional at Pamunkey, one in particular, which strongly resembles the Dalrymple pipkin, has an interesting history. Speck was the first to note it: "Among the few native words preserved to us at Pamunkey comes the name *pandja* for a vessel used in boiling fruit. Perhaps this word is not Indian, even though it appears like an Algonkian term. It may be a corruption of 'pitcher,' yet it does not refer to an object of pitcher form."⁷³ Further inquiry at Pamunkey, cross-checked with several informants (Mrs. C., N.M., Mrs. M.) revealed the antecedent in the English word, "porringer." Now, as usually applied, the term denoted a porridge bowl, never used for cooking: colonial examples from the period take the form of a shallow, open bowl with a single or paired horizontal handles—indeed, much like the shallow pottery bowl said to have been found on the reservation (see above).

It may be that local colonial usage may have developed a secondary meaning for the word or that its descriptive content has changed at Pamunkey. Whatever the mechanism, the *pandja* was markedly divergent in form from the colonial porringer. As described by informants, it possessed three distinctive characteristics: three legs; a wall sloping somewhat outward from a flat bottom to a wide mouth with undeveloped rim; and a lateral handle, either "teacup style" or "like a frying pan." Sometimes the *pandja* had a lid. Its average height, with or without the lid, was in the neighborhood or 15 cm. Its use in cooking seems to have been unrestricted. Significantly, it lacked a spout and "you sometimes ate right out of it" (Mrs. C.).

73—Speck, 1928, p. 411.

Examples of what may be *pandjas* are AMNH 50.1/6585, a, and USNM 165453 (specimen with legs). While the latter vessel is listed as a cup, its resemblance to the *pandja* or pipkin is too striking to be denied.

Other three-legged vessels, formerly used at Pamunkey, are today sometimes confused with the *pandja*. Detailed questioning has succeeded in isolating the following categories, as recognized by informants: spider, skillet, stew-pan, and iron cauldron or "wash pot." All of these utensils traditionally employed have at one time or another served as model for full-sized or reduced reproductions in clay. Other forms in earthenware mentioned were frying pans, cups, bean pots, bowls (sometimes with notched rim), and milk pans. Of the latter, two museum examples exist (AMNH 50.1/6562—3): both are broad, shallow, have fairly straight walls expanding from a flat bottom to a slightly wider mouth and have a rim notched, but not otherwise defined. One informant (Mrs. M.) described milk pans with a capacity of half a gallon, but added that they could be made "any size." Three pans in the National Museum (31852-4) are somewhat deeper, but their names suggest the same function. Indeed, with few exceptions, the museum specimens labelled "bowls" are not to be distinguished as a class from pans, at least on the basis of form (MAIHF 11/8125-7, 14/6949; VM: Breck, Dayrymple). Of two others labelled "bowl," one (MAIHF 10/5723) is ornate with impressed designs and was used, according to Mrs. Cook, its maker, to hold fruit in the center of the table; the other (MAIHF 12/5551) is utterly deviant from the whole class. Save for rim-notching all the other bowls save one (MAIHF 11/8126) are plain, and the decoration of the exception is restricted to simple impressions.

With the advent of the stove and its consequent general use (which informants place around 1880-90—perhaps too recent a date), the legs of vessels, hitherto useful in setting vessels upon the hearth coals, became impediments and were no longer made. Henceforth flat bottoms, which might be optional in a vessel set upon legs, became requisite. A "pandja" (the only specimen bearing the specific title) (AMNH 50.1/6561 a, b), a "pottery

cooking vessel with handle"⁷⁴ (MIAHF 11/8124), and a "skillet" (?) (USNM 165451) show the effects of the transition.

Among other vessels are two jars, one plain (MAIHF 10/5724), the other most ornately decorated with what may be comb impressions—unusual on a pot (MAIHF 1/8814); a cup (USNM 165453—specimen without legs): a conical cup with foot (USNM 167524): and an hourglass-shaped strainer, without any straining element (USNM 167525). A "Toy pottery canoe," collected by Harrington (MAIHF 1/8814) is given as evidence by Speck⁷⁵ for the former existence of the canoe-shaped dish at Pamunkey: but as such it is not entirely convincing.

An eccentric form, described by Pollard and illustrated by Holmes, is the "sora horse". Pollard says:

"They have what they strangely call a 'sora horse,' strongly resembling a peach basket in size and shape, and made of strips of iron, though they were formerly molded out of clay. The 'horse' is mounted on a pole which is stuck in the marsh or placed upright in a foot-boat. A fire is then kindled in the 'horse.' The light attracts the sora and they fly around it in large numbers, while the Indians knock them down with long paddles."⁷⁶

No attempt will be made to list extant examples of pipes, but the forms occurring are: clay-stemmed elbow, plain elbow, teated elbow, bird, boot, tomahawk, Indian head, and canoe.

Sufficient evidence has now been presented to indicate the pervasion of European forms within Pamunkey pottery, to such an extent that it has all but extinguished native shapes. To some extent trade served as an important impetus toward conformity with colonial utility wares; and as will be shown subsequently, trade continued in the 19th century. In addition to the direct transmission of European influences, however, we must reckon with the possibility that other peoples served as intermediaries between colonial sources and the Pamunkey.

The putative influence of the Negro upon the crafts of their

⁷⁴—Labelled by Speck (1928, fig. 112) a pottery cup." He is now convinced that it is a cooking vessel. The "reed" impress on the exterior seems another exception to the rule that cooking vessels were undecorated.

⁷⁵—Speck, 1928, p. 417.

⁷⁶—Pollard, 1894, p. 15. Holmes, 1903, pl. CXXXVI, rear row, right (USNM 165460).

Indian neighbors is difficult to assess today. Russell⁷⁷ cites evidence to indicate that at least by 1843 the Pamunkey were exposed to Negro contacts and suggests inferentially that such influences were not new. It seems implausible that the free Negro might have been a source of Africanisms in pottery making, which are furthermore not in evidence in traditional Pamunkey techniques. He might well have served as mediator for European techniques, if these were not more reasonably effected through direct, and early Indian-White contacts. Indeed, Negro pottery making for this area has not, to my knowledge, been demonstrated. Finally, the Indian, traditionally at least, has chosen to remain aloof from Negro contact⁷⁸ and denies the existence of pottery making among Negro neighbors, to say nothing of deriving elements from them. These statements carry weight, in the absence of evidence to the contrary.

The principal Indian tribes to have influenced the Pamunkey are those to the south, and in particular the Catawba. Speck⁷⁹ has indicated some of the elements in the culture of the Southeastern Algonkian that exemplify the northward diffusion of southern traits. One, the pottery drum, has already been mentioned. Since Smith, writing almost a century before Beverley, described another type of drum⁸⁰ in use among the Powhatan groups, the difference between the drums noted may perhaps be taken as evidence that the pottery drum had come into use in the intervening century. Another element, though of doubtful antiquity is the multi-stemmed "pipe for joy," first described by Pollard.⁸¹ Its distribution, according to West, "is principally south of the Ohio River. There does not appear to be any historic record of its use, and their age is an open question."⁸² Swanton⁸³ mentions its occurrence among the Chitimacha. Archaeologically

77—Russell, 1913, p. 129 and fn. 22. In answer to a petition on the part of White neighbors, asking that the Pamunkey lands be divided, on the grounds that the Indian lines had all but died out and alleging of the reservation that "It is the general resort of free negroes from all parts of the country," the chief men of the tribe entered a counter-petition. "They admit that some persons not of their tribe are within their boundaries, but claim that the inhabitants generally are of at least half Indian extraction."

78—In the Virginia bands today intermarriage with a Negro forms grounds for expulsion from the tribe.

79—Speck, 1924, pp. 190-3.

80—Smith (Map of Virginia) 1884, p. 73.

81—Pollard, 1894, p. 18. It is the "peace" pipe of Fewkes' description (1944, p. 82). The Pamunkey claim that participants in a council would smoke together from the common bowl to seal a decision.

82—West, 1934, p. 225.

83—Swanton, 1911, p. 349.

it occurs within the area of the historic Cherokee⁸⁴ and traditionally among themselves.⁸⁵ It is found among historic Catawba.⁸⁶ The case for a clear-cut southern distribution is, however, altered somewhat by a specimen reported by Abbott⁸⁷ from West Philadelphia, Pennsylvania. Were it not for this it might be held with some degree of certainty that the "pipe for joy" is recent at Pamunkey. It will be remembered that Beverley pictures and describes only the calumet-type peace pipe; but at best this is negative evidence. Against the view that the "pipe for joy" is a recent introduction at Pamunkey stand two facts: the name is unique to the Pamunkey, and the form, legless and flat bottomed, comes closer to archaeological forms than it does to the modern ware of the Catawba, who, together with the Cherokee continue to make it. A striking similarity of decoration, sometimes seen (e.g. MAIHF 11/8128, Pamunkey; and MAIHF 1/8767, Catawba) may perhaps be explained in terms of parallelism arising from decorative limitations. In themselves these facts are inconclusive. The "pipe for joy" has not yet been encountered archaeologically at Pamunkey. The positive evidence for Catawba derivation will be considered shortly.

Finally, note may be made of the bird pipe, represented by only one specimen from Pamunkey (MAIHF 1/8818), which suggests in its treatment southern affinities.

The main influence from other tribes upon Pamunkey pottery making was exerted by the Catawba. Although they had been in Virginia in 1727, their mission was retaliation against Iroquois raiders. It was not till Revolutionary days that they seem to have encountered the Pamunkey.

"Toward the close of the war, the entire tribe [of Catawba], except those actually serving with the army, removed as far north as Virginia, where they remained until the Battle of Guilford Court House, in which some of them took part. It was probably during this sojourn that they encountered another tribe, like them the remnant of a once proud and powerful people, the Pamunkey Nation on the James [sic] River. At least this is a reasonable inference, since Catawba families were reported living among the Pamunkey in 1839."⁸⁸

84—West, 1934, pls. 166-8.

85—Mooney, 1900, p. 397, p. 503.

86—E.g. Holmes, 1903, pl. CXXVIII, lower row, center.

87—Abbott, 1881, p. 333f.; he refers also to *American Antiquarian*, vol. I, p. 113.

88—Milling, 1940 p. 253, based on Scaife, H. L. (History and condition of the Catawba Indians of South Carolina. Philadelphia, Indian Rights Association 1896.) who cites (p. 9) the report of the commissioners to the legislature of South Carolina, 1839.

About the same time, or shortly afterwards, a group of Pamunkey went down to Catawba to live, for the report of the Commissioners, apparently for the same year (1839), is quoted as reading "from a once populous tribe they (the Catawba) dwindled down to 12 men, 36 women and 40 young ones—boys, girls and children—in all 88, nine of whom are counted with a family of Purmunkey Indians, and it is believed will not remove." ⁸⁹

These statements provide a historical frame within which tribal traditions may be fitted. Speck has summarized the genealogical evidence thus:

"Historically, it would seem from tradition that the manufacture of quantities of pottery and pipes ware carried on at Pamunkey before contact between them and the Catawba had been opened by the emigration of old John Mush and several of his family from Pamunkey to Catawba. This old man has been dead some sixty-five years and was over seventy at the time. This would make his birth about 1800. He went to Catawba and married, then later brought his wife to Pamunkey. This could not have been earlier than 1820." and again: "On the Catawba reservation in South Carolina, almost a third of the tribe traces its descent *with pride* from John Mush and other Pamunkey who formed this movement." ⁹⁰ [The italics are mine.]

In the light of their proud consciousness of Pamunkey origin, the Mushes are of particular interest. Present statements do not synchronize well with those of Speck: perhaps they refer to a later visit by members of this family, but more probably the name has erroneously been applied by my informants to members of the Harris family, noted below. Thus Mrs. Miles volunteered the information that: "Mr. and Mrs. Mush, well along in years, together with their daughter, came to the reservation 30 years ago. They were old members of the tribe, although I don't know where they came from. They made pipes only. They used a wash pot [i.e., cauldron]. They would take pine bark and make a smother with the pipes in it and would then invert the pot over them. The pipes came out almost as slick as a ribbon, and black. They had been marked with a comb, a rag held tightly over the teeth and the teeth pressed around the bowl. The Mushes only stayed a year or so, and then moved on, where I don't know."

⁸⁹—Milling, 1940, p. 256 quoting Howe, C., (*The Catawba Indians*). Washington, 1907 who (p. 15) in turn quotes from the Report of the Commissioners.

⁹⁰—Speck, 1928, p. 417f.: note p. 414.

Mrs. Cook added that "They lived at Swett's Landing. They were Pamunkey, though where they came from or went I don't know."

Another family name appears about 1880-90, with the visit of the Catawba family comprising Ep Harris, his wife, Margaret, and their daughter, Maggie, who sojourned for two years or so on the reservation. "Margaret Harris occupied herself mostly in making pipes, as Mrs. Cook remembers. She did not impart any instruction in her art to the Pamunkey women nor did she acquire any ideas in clay work from them, a point upon which Mrs. Cook was positive. Mrs. Cook did not know of any other Catawba people having resided at Pamunkey before."⁹¹

Zeke Langston added that Ep also made pipes, which were decorated with a stick and with the twisted wire from a railroad seal, and "burned" with walnut bark. "The folks here, he affirmed, "took no stock in what he did." Paul Miles, who recalls having seen Harris about 1895, recalled pipes of "slipper" [i.e. boot], Indian head, rooster-comb, and straight, teated forms. Harris used a "squeeze mold" in making his pipes and "smoked them black" in the firing. According to Mr. Miles, John Dennis, the brother of Mrs. Cook, learned to make pipes from this man.

The foregoing suggests that the main Catawba influence upon the Pamunkey potters emanated from the Catawba families settled among them by 1839 and by the Mushes and other Pamunkey returning from Catawba for a visit. Certainly the statements of informants do not indicate a receptive attitude toward the Catawba techniques recognized as such.

The evaluation of the change wrought by Catawba contacts was first essayed by Speck. While admitting the existence of many parallels, he queries, "Would it not seem plausible, then, to ascribe an early manufacture of the smooth-ware to both surviving groups?"⁹² Fewkes is impressed with the evidence for Catawba influences, and tends to interpret them more sweepingly than does Speck. He concludes that Speck's discussion, cited above, "conclusively proved Catawba derivations."⁹³

While at first glance there are numerous and striking resemblances between the two wares, when they are viewed in historical perspective they are seen to be explicable in terms of sev-

91—From a statement by Dr. F. G. Speck.

92—Speck, 1928, p. 418.

93—Fewkes, 1944, p. 103, cf. p. 104.

eral factors: of participation in a common aboriginal pottery-making tradition widespread along the Eastern seaboard; of parallel influence upon both groups by European ware; and finally of a latter-day interchange between Catawba and Pamunkey. The latter process, while emanating primarily from the Catawba, was by no means entirely one-sided.

In these terms, we can better discuss the features held in common by the two groups. Both of them now make flat-based ware, and there are similarities in the manner in which the bottoms of these vessels are formed. Yet it is unlikely that this feature owes its presence at Pamunkey to recent Catawba influences. Archaeological sherds from the reservation show that ware of this form was known locally, either as trade vessels or as indigenous products. Regardless of the *floruit* of the archaeological ware—some of it may be of considerable antiquity—the sherds remain in the earth to stimulate the curious and enterprising potter. There are moreover some indications that flat-based vessels may have been made in the Powhatan area in early historic times. Finally, and most tellingly, the Dalrymple specimen shows a flat (actually slightly concave) base in a European form, made by Pamunkey potters in 1801, and exhibiting complete mastery of form and technique. There is no reason to believe that Catawba influences were being felt this early. At least, then, the example of the latter may have induced in the Pamunkey potter certain secondary refinements in a technique already shared by both.

Similar considerations hold for the method of wall-building. Differences between the fillet technique as practiced by the two peoples, insofar as it is of the circuit type, are small and non-essential. Once again, however, this technique is archaeologically demonstrable at Pamunkey, where it seems to have a continuous history from aboriginal times. Here, once more, the Pamunkey have made minor modifications to bring their constructional processes into conformity with those of the Catawba. That the Pamunkey actually did even this cannot be demonstrated today. The ubiquitous processes of modelling and morsel-building, present in both tribes but in many others as well, can scarcely be conceived of as the result of recent contact.

The use of black polishing stones, with the attendant tradi-

tional value set upon them, is somewhat more difficult to assess. To be sure, there is archaeological evidence elsewhere upon the Atlantic seaboard for the occurrence of such stones⁹⁴, and some of the archaeological sherds from the reservation itself bear marks that seem to have been made by such a stone; the Bradby vessel itself seems to exhibit some polishing facets. Finally, some of the oldest informants on the reservation treasured polishing stones belonging originally to grandparents or great-grandparents in the early days of the nineteenth century. While the facts are not conclusive, it would seem that once more Catawba influences reinforced smooth-ware techniques already present at Pamunkey.

With regard to vessel form, several considerations must lead us to minimize direct Catawba influence. General resemblances may arise through limitations imposed by similar function. This sort of resemblance can be shown to exist between the wares of the two peoples. The major factor making for similarities in form, however, is undoubtedly the result of direct stimulation upon the potters of both groups by European wares. The sources quoted indicate that Virginia pottery was subjected to modification long before initial recorded contact of the Pamunkey with the Catawba, and probably their ware had already made the transition to European form by that time. Indeed, characteristically Catawba forms are not represented in extant Pamunkey specimens.

Catawba derivation may be claimed for only a few decorative features relating to pottery vessels. A rim decoration, often consisting of "reed" impressions on the flat top of the rim, is infrequently found at Pamunkey (e.g. MAIHF 1/8813) and might be said to be a Catawba trait. Scalloping of the rim, while it appears in colonial wares from the early "pie crust" decoration of early times, may likewise have been influenced by the Catawba. On the other hand, the shared use of a charred corn cob in applying designs seems to indicate a specific trait of common origin; but since it seems to be somewhat foreign to Catawba practice, it may be a Pamunkey introduction to the Catawba.

94—E.g. Long Island. Harrington, 1924, p. 268f. See also the highly-polished elbow and tubular pipes illustrated by Carpenter, 1950, fig. 97, d-f, from a Point Peninsula mound in the Virginia Tidewater.

The majority of demonstrable introductions at Pamunkey center about pipemaking. The smothered fire, utilizing the inverted cauldron, appears to have been introduced in this context, and to have been adapted subsequently to the firing of large vessels. In so doing, it encroached upon the self-kiln, which is probably old at Pamunkey. It is possible that post-firing treatment with grease may have come in about this time, for I have seen it used only in conjunction with the inverted cauldron. The molding of pipes is admittedly recent among Pamunkey techniques: Mrs. Allmond, the oldest person on the reservation, stated that the Pamunkey began using molds within the last fifty years, a figure which coincides neatly with the visit of the Harrises. Besides the fact of the mold, we have the striking identity in forms molded, those in common being boot, tomahawk, and Indian head. Among molded pipe forms one in particular, somewhat bulbous at the elbow and with a slightly flaring rim, resembles certain Catawba examples. And since in recent times at least Mrs. Cook has used a Catawba multi-stemmed pipe, given her by Dr. Speck, as a model for her "pipes for joy," it may really be that, despite some evidence, already noted, to the contrary, the "pipe for joy" was introduced at Pamunkey by the Catawba.⁹⁵

Influences from other tribes have not been discovered. The closest linkage by far has been with the Mattaponi. (Mrs. C., P.M., Mrs. P.) Their consanguinity with the Pamunkey was first noted by Mooney, then more closely investigated by Speck.⁹⁶ Visitors from Chickahominy are remembered (Mrs. M.). Some fifteen years ago, Molly Adams, who had been making pottery under Mrs. Cook, went to Adamstown, where she continues her work today. Not all the lack of knowledge of how outsiders made pottery can be laid to the ethnocentrism of the Pamunkey. It seems fairly certain from preliminary investigations carried out at Mattaponi, the Eastern Chickahominy, Adamstown, the Rappahannock, and the Nansemond that pottery there dropped out of the picture earlier than at Pamunkey.

That trade continued to provide an important stimulus to

⁹⁵—For description of these traits in Catawba pottery making see Holmes, 1903 pp. 53-5 (also pls. CXXXVII, CXXXVIII), Harrington, 1908; Pennypacker, 1937; Fewkes, M.S.

⁹⁶—Mooney, 1907, p. 148; Speck, 1928, p. 249, 254, 262.

Pamunkey pottery making is indicated by traditional data. Miss Julia Kyle, long a schoolteacher on the reservation, stated that as a child she had often heard that the Pamunkey in the old days bartered their wares—especially cooking utensils, for which they were famous—throughout the countryside in Cumberland County and even in Buchanan County. Mrs. Allmond stated that about 130 years ago (by computation) her father's first wife made cooking utensils of the types previously described. Some of these she and her friends would take to Richmond by cart, where they sold them piecemeal. Sometimes white friends in Richmond would handle the pottery for them. Pipes of the teated variety were sold in the same way. Corroborative statements came from Ada Bush, Mrs. Cook, Paul Miles, Mrs. Hattie Stewart, and others. Their information added that the groups of women making and selling pottery together were small—usually two or three would so combine—and that the ware was often taken by canoe or cart to country stores to be exchanged for groceries or other goods. All this is an elaboration on the statement of Speck.⁹⁷ Shortly before the Civil War, they added, the railroad came through, bringing tin plates and crockery to compete with their product. They began to buy those wares for their own use, but the replacement was gradual, and the sale of pottery continued, although in diminished volume. Indeed, the effect of the White competition does not seem to have been felt to any great extent until some time after the war. Then it was that pottery making at Pamunkey began to go into a long, slow decline. *Pandjas*, stew-pans, milk pans, bowls, and other utensils are shown by their individual histories to have lasted long among conservative families, enduring at least till some time after the adoption of stoves. It must be emphasized that pottery making at Pamunkey has had a continuous history.⁹⁸

In 1877 Mason⁹⁹ was able to describe the shell admixture in the native pottery, deriving his information from the Rev. Dr. Dalrymple, who, as has been shown, also collected several vessels still extant in museum collections. Local tradition has it that one vessel collected by him was made at the time.

97—Speck, 1928, p. 409.

98—In 1941, the late Frank G. Speck made a corroborative statement (personal communication).

99—Mason, 1877, p. 627.

After a visit to Pamunkey in 1891, Pollard wrote:

"Of their aboriginal arts none are now retained by them except that of making earthenware and 'dugout' canoes.

"Until recent years they engaged quite extensively in the making of pottery, which they sold to their white neighbors, but since earthenware has become so cheap they have abandoned its manufacture, so that now only the oldest of the tribe retain the art, and even these cannot be said to be skillful."¹⁰⁰

Among examples collected he mentions "dishes, bowls, jars, etc.," "various articles for table and kitchen use," a "'sora horse,'" and a "'pipe for joy.'" Mr. Thomas Killion, through his son, W. T. Killion, has provided additional information for the period around 1880. At that time he was engaged in operating a barge in the vicinity of the Pamunkey reservation and often had occasion to go ashore. He recalls clearly that the Indians sold their pottery to the bargemen who frequented the Pamunkey River, as well as to others. On the reservation he remembers having seen milk-pots over a foot (30 cm.) in height and perhaps somewhat less in diameter both in use and drying in the sun. Other vessels, he stated, were also being made at the time.¹⁰¹

In 1908, Harrington, after a short visit, wrote:

"The Pamunkey Indians of Virginia . . . still make a few earthen pipes, some of which are old form, and all of which, I understand, are made by old-time methods to a great degree. The few vessels manufactured now by the Pamunkey for curio hunters are plainly crude attempts to resuscitate the art practiced by the grand mothers of the present generation, who made and sold large quantities of ware for domestic use to their white and negro neighbors. This older pottery, judging from the single specimen I collected for Mr. Heye, and others which I have seen, was tempered and shaped by native methods, but the forms are evidently of mixed or European origin."¹⁰²

The next observer, in 1920 and on, is Dr. Speck.¹⁰³ From the personal information he has placed at my disposal (discussed previously), relative to published statements it is evident that during the period at which the art was at its nadir, fillet-building was not practiced, since modeling and morsel-building sufficed for the small or shallow vessels made. That it was not

100—Pollard, 1894, p. 18, 19.

101—Communication, 1941. I wish to thank Mr. Killion for his kindness in permitting me to include his statement in this paper. Mr. T. Killion, retired, now resides in Philadelphia; his son William was (1941) engaged in the ceramic laboratory at the University Museum.

102—Harrington, 1908, p. 406.

103—Speck, 1928 pp. 394-432.

forgotten is evidenced by its revival. A plaque made by Molly Adams under the tutelage of Mrs. Cook, more than fifteen years ago, shows the use of a fillet to increase the diameter. This must have been within less than five years from the time of Dr. Speck's observation.

Pipes exhibited greater tenacity of survival than did other pottery forms. Information now at hand from Mattaponi, Rappahannock, and Nansemond offers corroboration. Reasons for the survival are suggested by the statements of informants: made according to individual inclination, often for personal use, easily manufactured, they possessed qualities that trade pipes did not. It will be recalled that more care was lavished on their decoration than on that of other pottery forms.

During the period of slow revival, only small objects were made, such as pipes, canoes, and little pots. They were primarily for the tourist trade and often were unfired. Usually they were painted in bright colors to attract attention. The wares that were heat-treated were merely "baked," being placed in the oven before the stove was lit and remaining there all day. The leaders in the renaissance were Paul Miles and Mrs. Cook, both of whom had practiced in the days of Terrill Bradby. Mrs. Julia Kyle, the schoolteacher, taught the children to make little figures; but she acknowledges that this was but a part in the revival started by the Indians themselves. An exhibition of the clay work of the school children, held in Richmond, stimulated the potters. Dr. Speck's visit stirred up interest still further; and by 1928 pottery making was on its way back.

RECENT DEVELOPMENTS

By 1932, the financial situation of the Pamunkey, as a result of the general depression, was quite serious. Dr. B. N. VanOot, supervisor of Trade and Industrial Education on the State Board of Education, decided that remedial steps must be taken. In that year, therefore, on the occasion of the spring exercises at the reservation school, he spoke of the possibility of developing Indian arts and crafts. At the conclusion of his speech, one of the men present suggested that pottery making be given attention. Another of the men showed him examples of the ancestral ware. Dr. VanOot was favorably impressed, and sent Mr. W. E. Ross down to secure a sample of the local clay. Tested by Mr. Ross in the laboratory at Alfred University, it showed itself of good quality.

In the meantime, a tribal meeting was called by the Chief, then Paul Miles, to consider the proposal of Dr. VanOot. It is noteworthy that, since only men over 18 years of age can vote, the women do not usually attend; hence the body considering the matter consisted entirely of men. This is significant when it is remembered that few men made pottery. Nevertheless, the favorable vote, although the assent of only two-thirds of the men was needed, was almost unanimous. Thereupon a joint meeting with Dr. VanOot was held, at which the details of the pottery school were arranged. A separate schoolhouse was to be built, the State furnishing the materials and the Indians the labor. A teacher, selected by Dr. VanOot, was to be provided at the State's expense. The clay was, of course, to be locally provided, other necessary materials to be in part advanced by the State; the rest being supplied by the potters. The tribe as a unit was not to be responsible for buying material (Chief W. B., P. M., Mrs. P.).

It was soon found necessary, in order to standardize prices, to organize the potters. A Guild was therefore instituted, a step for which tribal consent was not required. Membership in the Guild was not a prerequisite for making pottery, but, significantly enough, there has been no one who, on beginning at the school, has not joined. The president of the Guild is elected by a majority vote of the members. She is chosen, not on her ability

as a potter, but because she is able to write well for the notices posted, and because she has the time at her disposal to do so. Her other function is to preside at meetings, which she has the power to call. Other officials, similarly chosen, consist of a secretary and a treasurer.

The prices established run from 10c for a small ash tray to \$5.00 for a large vase forty centimeters high, or for a tea set. Sometimes, for unusual pieces, the potter can set her own price. Firing charges, based on the weight of the pot, are 1c per pound. Each pot, according to size and shape, has a set price; and the potter pays one-tenth thereof to the Guild. Usually the potter makes a vessel the set price of which meets the charge and turns it over to the Guild, which in turn sells it against the cost of new supplies. There has never been a refusal to follow the price scale. Mrs. Lucy Page, the current president, states that she does not know what would happen to the backslider—"probably nothing very serious."

Almost all the women make their pottery at the school, where both technical facilities and "company" are to be found. A few of the older women regret that their distance from the school makes it impossible for them to attend. At least one independent potter, Ada Bush, has used this reason for remaining at home, where she makes her own characteristic ware. The school is largely made up of middle-aged women, with a complement of young girls. The majority of the younger women, it is stated, are not much attracted to the school, since "they have something else to do." Quite a few of them were at first attracted by its novelty, but soon tired of it; and many have since married and left the reservation.

The teachers sent down by the State have, in general, been outstanding in technical proficiency. There have been four—W. E. Ross (1932-4), Sheldon Garey (1934-5), Frank Lutz (1935-9), and Mr. Adams (1939-). Some of them have had casual anthropological training, although it cannot be said to have influenced them. The usual sources for Indian pottery used by them have been Holmes (1903), several Boy Scout publications, and sundry miscellaneous circulars of firms dealing especially in Southwestern wares.

The technique originally instituted at the pottery school was one employing the circuit variant of fillet-building, hence bearing strong similarity, approaching identity, with the traditional technique. Indeed, no diagnostic differences, either motor or procedural, could be distinguished between the demonstrations of the potters employing traditional methods and those who have been wholly trained by the school. It is, of course, possible that the older method has by degrees approximated that of the school-taught in the hands of present-day operators; but there is no positive evidence for this. There is, in turn, no doubt that one of the initial reasons for the enthusiastic approval of the school, especially on the part of the more conservative members of the community, is the close similarity between the traditional and the school-taught techniques. It must be remembered, furthermore, that in the days when the school was introduced, the chief values embodied in the traditional technique were (1) retrospectively sentimental; (2) actually economic; (3) distinctive, in the sense that it set the Pamunkey apart from non-Indian communities. The craft was practiced by few, although general interest was growing. Such conflict as has arisen is a more recent development.

Soon techniques largely foreign to the Pamunkey were introduced. Pot-molds came in, the use of sand as admixture or the clay alone, the potter's wheel, templates, paints, and glazes. The kiln, brought in at the outset, met with approval only because of its superiority in results obtained and its facility in use. Since the ware was intended for tourist consumption, the forms created followed the lines approved by tourists. At the same time, it must be added, both teachers and pupils strove to improve the quality of their ware.

Incidental to the introduction of the new techniques certain changes may be noted in the body of traditional data. Note has already been made of the disparity between earlier records of the shell-clay mixture, varying between one to three and one to five, and recent information, which establishes the ratio at around one to sixteen. There is a close correlation between the final date of earlier testimony, namely 1928, and that of the founding of the pottery school in 1932. Furthermore, it will be remembered, informants indicated that formerly only shell was

believed suitable for admixture, whereas at the school successful experiments have been carried out with sand and with clay alone. It may be added that the informants familiar with both old and new techniques still insist that shell is the only suitable substance for admixture, yet in the next breath add, "but they make good pottery over at the school with sand." The correlation, both temporal and functional, between the change in testimony and the introduction of pottery school technique is at least striking and suggestive. Incidentally, it is of interest to add that at Mattaponi, Mr. Otee Custalo stated that the shell-clay ratio used there was roughly one to sixteen.

The use of the wheel has met with considerable response on the part of the potters. Indeed, on the strength of a large pot found under her house, and showing every sign of itself having been thrown on a wheel, Mrs. Hattie Stewart is convinced that the use of the wheel is old at Pamunkey. The vessel is certainly anomalous, bearing, as it does, some shell admixture; but there is no other evidence for anything but the recency—since the school—of the potter's wheel on the reservation.

The employment of molds and templates is detrimental to the aesthetic development of the potter, since they place a limit on the individuality of the piece so manufactured. Nonetheless, because they facilitate the work, molds and templates are viewed by the potters with approval. On the other hand, the introduction of painting as a decorative technique has led to a new skill. Because glazes so effectually conceal a poorly-finished surface, their application has brought about the decline of other methods of surface finishing. Stick-polishing brought in by the school, has been substituted there for stone-polishing, but because it involves just as much labor in its application it also is being rapidly discarded in favor of glazing.

Besides imitating modern commercial products, an attempt has been made to copy Pueblo wares. The reasoning runs thus: it is Indian, hence suitable for Pamunkey; it is attractive, and so should sell well; and it is the ware identified by the tourist himself with the Indian. Its relative crudeness, as made on the reservation, is considered no drawback, but indeed serves to stamp it, in the mind of the average purchaser at least, as un-

mistakably Indian. The whole situation is antagonistic to the improvement of the ware.

Among other features, Mr. Ross, the first instructor, introduced the use of pictographs, culled from some standard work on Indian sign language. Hence the tourist can now buy pots bearing upon them records of such incidents in tribal history as the story of John Smith and Pocahontas, derived largely from school text-books. The stories are standardized; and with each pot so decorated goes a typed slip bearing a translation in English. The Pamunkey will inform the tourist that the pictographs are Indian, as undoubtedly they are; and the unwary further infers that they are Pamunkey Indian, which they are not. In justice to the Indians, who after all are merely increasing the attractiveness of their ware, it must be added that an ethnologist is freely informed that they are a recent development.

Other painted designs follow either White or Pueblo patterns.

There is some attempt at a development of individual work. That unrecognized influences from the regular forms are at play is revealed by a small pot made by Hattie Stewart, from the rim of which two duck heads rise up, facing outward on opposite sides; the heads dominate the vessel. Insofar as the birds are ducks the interpretation was Pamunkey; but Mrs. Stewart was fresh from painting double-headed thunderbirds on other vessels, and the total similarity was too marked to have been accidental. Her denial that this was so seems only to emphasize the subconscious nature of the process.

Openly so-called "old" forms are copied; but their antiquity is open to question. They do not appear to have aboriginal antecedents and there is little uniformity in shape. Vessels with angular shoulder may indicate Catawba influences, but that is by no means certain. A squat, shallow bowl, of diminutive proportions and with two opposed horizontal lugs, often bearing "corn-cob" marking, is said by Paul Miles to have been used to hold the mole's foot teething charm and as a general catch-all; but its antiquity, let alone aboriginality is open to question, since no other informant could corroborate his statement. When asked whether she could make pottery in the old style, Mrs. Lou Bradby said she could, and, opening Holmes (1903), solemnly

set about copying one of the illustrations (Pl. CXXXVII). More generally, the "old" form copied is definitely of Euro-American derivation, a popular model being the ubiquitous "wash-pot," or iron cauldron, many of which are of considerable age on the reservation. In this connection, Hattie Stewart averred that the method of applying handles and legs to vessels, described above, was taken from the method of rivetting those appurtenances to the cauldron. This is a good example of folk rationalization and can have very little basis in fact, arising as it does from the association of the technique with a special form, both being classed as "old." At present, even these slender attempts to conserve what are regarded as traditional elements are being actively discouraged by the instructor. He contends that they are artistically inferior to the school-inspired ware and thereby bring down the standards of their product, and adds that they are not well received by the tourist.

Although little pottery is in use now, a few pieces are to be seen in the houses. Alberta Bradby, a young and skillful potter, uses a glazed bowl of her own make for cooking beans or corn pudding. She prefers it to similar metal forms "because it holds the heat better, and does not scorch the contents." Other women, she says, also use bowls they have made. A few casseroles, a gravy boat, and some table ware represent the rest of the locally made earthenware in use. In a way, pride of manufacture is involved, since in all cases investigated the user of the ware had made it herself. The attitude of the potters toward their work is instructive. Most of them have been trained at the school, never having practiced the craft before the school's inception. The financial returns resulting from the work seem to be a paramount consideration, and are coming to importance in the domestic economy. Certainly there is an additional motive in the stimulation derived from the exercises of skill and the freedom of expression. Moreover, there are social values, and these are important; for houses are scattered over the reservation, and the women, bound by housework, have less occasion for visiting than do the men-folk. At the school, they relax at their work and talk, for rarely does an operation require such concentration that the potter cannot converse at the same time. Indeed, for not a few the school serves as a pretext to leave

onerous duties and pass an enjoyable afternoon in friendly chats.

What, finally, have been the reactions of those to whom the traditional technique was not dead, whose hands were learning again the old skills? It will be of value to review briefly the attitudes of the three individuals now most closely identified with the traditional technique, namely, Mrs. Cook, Paul Miles, and Ada Bush.

Mrs. Cook, the failure of whose vision put an end to her work before the school had been established, continued her activities vicariously: her two daughters, who had learned the craft under her tutelage, were enthusiastic participants in the school; and the transition was not difficult. She is proud of their achievements, uses their ware in an incidental way on the table, and admires what they teach in the new school. "The old stuff? O, that was nice and shiny, and the shell was nice the way it glittered—but the new stuff is good too." The other women share her views. Some feel a sentimental loss in the passing of the old ware; but others think of the work: "I wouldn't want to make the old kind; it'd be too much work without tools."

Paul Miles has for a long time been interested in the past culture of his tribe. After the visits of Dr. Speck, which served as a powerful stimulus in the recollection of elements fast passing into oblivion, Mr. Miles increased his efforts, especially in pottery-making. He was one of the leaders in the movement to obtain the school; but after it had been running for a time he found the restrictions oppressive. He still works at the school, but not very often; and he is troubled with the lack of sympathy shown toward the old ware. A question he asked was illuminating; the old style ware was good, but it didn't sell very well—did I think he should let it pass out and turn his hand to the new? He still continues the old, but in a desultory manner.

Ada Bush, once termed the most skillful potter on the reservation, had dropped away from the school, saying that she lived too far away. She had been inactive for nearly a year at the time of my second visit. Even so, the ware she made before me in the traditional way—learned from her grandmother, Ellen Frances Page, a famous potter of her day—far surpassed anything made at Pamunkey, either previously or since. Graceful

in shape, simply but tellingly decorated, with a surface so highly polished that it resembled glass, and fired to a "patent-leather" black, it was in every sense a work of art. Stimulated by the high praise she received, Mrs. Bush took up again the craft she had dropped; but she did her work at home. She has continued her activity, and her ware, although not equal in polish to that she had first made, is superior to it in thinness of wall. She does not follow old forms but creates her own, of a most pleasing character. Perhaps it marks a true revival of a folk-pottery at Pamunkey. Its development should be interesting to observe.

CONCLUSIONS

In its major outlines, the history of pottery making at Pamunkey presents analogies to the course of culture change in Virginia.¹⁰⁴ Two major shifts in phase, together with a third, minor change, bear witness to the impact of alien practices. Behind this eventful "history of pots and pans" there has been active an interplay of role and personality that we can recover only from the more recent developments, but which was undoubtedly at work in earlier times as well. In the following lines, I shall attempt to trace backward through time the major shifts and the intervening periods of comparative stability that provide continuity.

The most recent major innovation has taken place, as it were, beneath our eyes, with the introduction, in the 1930's of the State-sponsored pottery school. It arose in answer to economic need and was selected as a solution because of a desire, on the part of both the State officials and the tribe, to exploit existing skills and local materials as well as to conform to Indian interests. The traditionalist, Paul Miles, himself a potter and at that time chief of the tribe, seems to have been one of the organizers of local opinion, although undoubtedly some of the men were already "instructed delegates" for their wives. The making of vessels for trade was not a new thing at Pamunkey. At the same time, the traditional ware had fallen into disuse, even for domestic purposes, and only a few potters were active in maintaining their craft.

The school came in with great initial vigor, with a White teacher who was a trained ceramicist, and introduced a battery of new techniques and new pottery shapes designed to attract the tourist; and with the use of paints and glazes. To maintain the Indian character of the ware, the teacher initiated forms and designs drawn from other Indian groups. The school was immediately popular among the younger women, most of whom had never made pottery before. It was a place to gather, to exercise creative skills, to chat for pleasant hours while earning pin money. For a few years, it was the fad to work there.

104—A study of those developments is encompassed in a paper entitled, "Chickahominy, the Changing Culture of a Virginia Indian Community," to be published by the American Philosophical Society.

The ware they produced—and produce today—is colorful and relatively easy to make, for the new techniques make far less demand on the skill of the individual potter than did the old. The kiln reduces breakage to a minimum. At the same time, some practices have been rejected. Stick-polishing of ware has passed almost entirely, because it is deemed superfluous for vessels that are to be glazed. Today, even biscuit-ware is usually unpolished. The potter's wheel, after a period of initial approval, has lost ground to simpler techniques, so that today it is no longer in play.

The traditionalists undoubtedly never contemplated the complete replacement of the local techniques. They found initial resemblances in such school-taught features as the fillet-building. Most of them were won over almost at once by the new methods and by the prestige and knowledge of the teacher. Indeed, some inferior techniques tended to be accepted simply because they were introduced along with other methods that earned approval. Even their practice outside the school altered: at this time, faced with the demonstration that pottery did not require shell aplastic, they reduced the ratio of shell to clay, continuing a trend that had apparently set in somewhat earlier. At the same time, the traditionalists found themselves at school somewhat set apart from the other potters by virtue of their greater age; while Paul Miles was distinct because of his sex. The prestige which they had formerly won, a sense of satisfaction in preserving the old ways, was greatly diminished in the days when anyone might enter the school and in a short time turn out pottery that was equal and even superior to that of his elder. Under these conditions, some of the traditionalists elected to give up pottery making entirely.

It is not surprising, then, that the traditional methods have given way almost entirely to those introduced by the school. At the same time, by 1948 the school itself was no longer as fashionable as it once had been. Other interests were tending to supersede it, although it then still filled a role of importance on the reservation.

The second and earlier major change in trend led to the production of the traditional ware now being replaced. It was initiated in the 17th century, in the application of aboriginal

techniques of manufacture to vessels of European form, to be traded to colonial neighbors. It may be estimated that change here proceeded at a slower rate than in the introduction of the pottery school, and that it may have required perhaps a century to complete its course. An explanation may be found in the probability that native forms were still made for domestic use along with the trade-ware and that only when domestic furnishings underwent a change to approximate the colonial standard did the associated Indian ware also change. Our information indicates that the change was completed at least by the 19th century, but in all probability it had terminated at least half a century earlier.

Since the traditional wares were made initially for trade, the desires of the colonial consumer apparently dictated the direction of change. Those wishes, however, extended chiefly to matters of form, and since aboriginal methods were adequate for the manufacture of all save a few of the requisite features, a relative degree of conservatism in technique is understandable. A comparison of traditional ware with the vessels from Jamestown of colonial manufacture indicates the general source from which the Indians in all probability learned the techniques associated with the affixing of handles and legs to trade and domestic vessels.

Although the major changes took place in the early stages of the traditional period, the remainder of the period was far from static. Vessel forms, for example, seem to have reflected changes in the domestic ware of the Whites. When stoves were introduced, legs were no longer necessary to support pots over the coals of the fireplace, and they were subsequently omitted. The railroads that brought the stoves also brought in a flood of commercial wares, with which the local product was unable to compete. The latter became increasingly restricted to domestic use, and even there was almost completely abandoned. Fortunately for continuity, it still continued, and the stimulation that formed a side-effect of the researches of Mooney, and later Speck, brought about a revival. Over the latter part of the period, perhaps only within the phase of renaissance, there seem to have been trends toward measurement and the more careful standardization of ingredients through the application of methods already familiar in the practice of bread-making.

An interesting phase of the traditional period is marked by the third, and minor, change, introduced by Catawba potters visiting the Pamunkey, or by Pamunkey families who had taken up residence on the Catawba reservation early in the 19th century and returned to Virginia for occasional visits. It is possible that these visits had a prehistoric counterpart, and that some of the smooth-ware, of which two archaeological vessels have been mentioned, point to Southeastern contacts. However, the presence of shell in those vessels would seem to reduce somewhat the possibility of Catawba origin. Smooth-ware may, of course, be more easily explicable in terms of a European prototype; and many other considerations already cited support the belief that most of the major changes took place long before the time of historic Catawba contact.

The specifically Catawba introductions are of interest, indicating as they do a selectivity by local potters from an array of introduced elements. The chief complex adopted comprised the pipe mold and the associated pipe forms, the Indian-head, tomahawk, and slipper pipes. These forms, after their acceptance, tended to be decorated in a style characteristically Pamunkey. The "pipe for joy" is questionable as an introduction at this time. Along with the use of pipe-molds went a technique of firing, utilized at Catawba especially for small pieces, involving the placing of corn-cobs within an inverted wash-pot to secure a reducing atmosphere. It was noted only in the procedure of Ada Bush, who coupled with it the Catawba practice of applying grease to the fired vessel. Mrs Bush, who learned this procedure from her grandmother, a noted potter at Pamunkey, alone today on the reservation produces the glossy black ware, with restricted decoration, similar to that of the Catawba. She makes it, however, in forms which are neither Catawba nor Pamunkey, but derive ultimately from commercial wares. In her firing practice she has transferred the firing technique originally associated with the fabrication of small pieces to the firing of larger vessels.

If, finally, we turn to the archaeological sherds that form, as it were, the base-line for cultural change, it becomes evident that even here conditions have been far from static. The sherds at hand are all surface finds and undoubtedly represent a considerable range of time, as well as importations from other areas.

Undoubtedly, the bulk of them are local, resemble closely the ware from other sites in Virginia from protohistoric or historic contexts, and judging from John Smith's Map, which locates the Pamunkey here, are to be ascribed to their aboriginal or early historic forebears. Even within this relatively homogeneous sample, however, there are marked differences. Only a minority of them, for example, exhibit shell admixture. Evidently, then, if these sherds are Pamunkey, the use of this distinctive aplastic, which came in later accounts to be viewed as one of the distinctive features of the traditional wares, formed only one of several competing alternants in aboriginal times. Indeed, comparisons of other features within the same selected sample reveals a like degree of variability suggestive of a rather wide range of individual freedom, and ability, within aboriginal practice. Hand in hand with this goes the unspecialized character of the aboriginal wares. The evidence on the basis of this cursory examination, suggests that factors generically similar to those demonstrable for the post-contact era were likewise at work in prehistoric times.

POSTSCRIPT

A visit to the reservation in 1948 has given me opportunity to assess developments since the above was written. The pottery-school is still open, though since the teacher was withdrawn a few years ago, its attendance has fallen off. Today, some five women, varying from young to elderly, continue to make pottery, along with these girls and two younger boys, aged 7 and 8. Usually the potters work during the first half of the week. About once every three weeks—it formerly took place each week—the accumulated pottery is fired, with the help of Paul Miles or his brother, Dick, to manage the kiln.

The potter's wheel has declined in favor—it is little used today. Fillet-building and pot-molds are preferred. Small objects such as pipes and bowls may be built upon a finished specimen as base. Forms continue to follow those of commercial products, such vessels as pitchers being more in evidence than formerly; while floral designs, both painted and in flat applique,

reflect the same sources. Modeled animal figures—cat and dog—serving as handles appear to be a recent development and are said to be of Pamunkey devising. Glazes have almost entirely disappeared.

All pottery-making now appears to focus in the school. Ada Bush has moved away, and the remaining workers have since its inception been linked with the school. The period of transition, conflict, and doubt is past.

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APPENDIX 1

MISCELLANEOUS TECHNICAL DATA

Construction Time.—An attempt was made to record the length of time for each operation in making a small vase. The operator was Ada Bush, who at the time the record was taken, had been inactive for nearly a year. She was working for excellence, not for speed. Allowance was made for the distraction caused by questioning.

<i>Operation</i>	<i>Time</i>	<i>Cumulative Time</i> (hours)
Drawing shape	0:03	0:03
Working paste	0:04	0:07
First fillet		
Rolling 0:04		
Applying, morselling 0:07	0:11	0:18
Second fillet (as above)	0:08	0:26
Scraping exterior	0:03	0:29
Third fillet	0:09	0:38
Scraping	0:04	0:42
Fourth fillet	0:10	0:52
Scraping	0:03	0:55
Fifth fillet	0:14	1:09
Scraping	0:02	1:11
Shaping		
Body 0:05		
Lip 0:05	0:10	1:21
Neck: rolling, applying, making straw groove at juncture.....	0:10	1:31
Handles: forming, applying drilling	0:40	2:11
Decorating: neck, handles.....	0:09	2:20

The vessel which served as subject stands 12.2 cm high, with a maximum diameter of 11.0 cm. The rest of its history has been described in the section on the technical aspect of Pamunkey pottery making.

Hardness of wares.—Although no very extensive research was undertaken relative to hardness, some measurements were taken

with Moh's Standards upon specimens collected by Dr. Speck and by myself. The procedure followed was to take several measurements on each vessel and average the readings. It was found that stove-fired ware had a hardness of 2. A pot, inadequately fired outdoors, gave a similar reading. Pieces fired out of doors by Ada Bush, using hickory as the principal fuel, ranged between 3 and 4, with a good average hardness of 3.5. Vessels fired in the school kiln grouped about a value of 4, with a few going as high as 4.5.

Thickness.—Because of lack of uniformity it is difficult to strike any average for thickness of wall and base. An approximate value of 6.4 mm. may be cited for the former, although there is considerable variation. Thickness varies with the height and function of the vessel, ranging from 9.5 mm. for a vessel over about 20 cm. high and of culinary nature to less than 3.2 mm. for small ash trays. Pipes are of course even thinner in wall, some going down to 1.6 mm. Bottoms of vessels are usually somewhat thicker than their walls.

Present pottery-making population.—In answer to a request to furnish the names of those now making pottery on the reservation, Paul Miles, with the aid of his wife, Nanny, presented the following material in a letter dated July 9, 1940. In it the potters are listed according to age. The list has been somewhat revised and contains additions (starred), made by Mr. Miles during subsequent visits. Unfortunately no attempt was made at the time to secure the relationship of the individuals, but because of the consanguinity of the community this would have presented difficulties. Usually the mother taught the craft to her children; and if she could not, the grandmother usually would be the instructor. Instruction in former days was provided to a girl by her mother, or failing this, her grandmother on either side. It thus followed the traditional lines of learning at Pamunkey. Matters were somewhat disorganized by the turn of the century, during which knowledge of pottery-making became restricted to only a few persons, so that consanguinity could no longer serve as sole guide in the imparting of techniques. Consequently, it was necessary for the novice to seek guidance wherever it was to be found. One man, Paul Miles, asserted that he learned pottery making from his father.

All but five of the following potters learned the craft in the school.

"First Group—70-63: Mrs. Lou Dennis, Mrs. Lucy Page, Mrs. Lou Bradby;

"Second Group—54-40: Mrs. Hattie Stewart, Sarah Bradby, Ada Bush, Mrs. Ida Miles (*), Rhodessa Dennis, Paul Miles (*);

"Third Group—40-23: Dora Cook (Bradby), Alberta Bradby, Pocahontas Cook, Daisy Bradby, Katie Bradby Martha Bradby, Catherine Page, Doris Page;

"Fourth Group—19-16: Douglas Miles, Louise Miles, Willis Allmond;

"Children—15-7: Margaret Bradby, Alma Miles, Janette Bush, Jenette Stewart, Elinor Cook, Betty Cook, Audrey Miles, Irene Bradby.

"Most of the mothers of these children make pottery now, and their grandmothers made pottery."

APPENDIX II

ABBREVIATIONS

Museums

In giving the accession numbers of museum specimens the following abbreviations have been employed:

AMNH	American Museum of Natural History, New York
MAIHF	Museum of the American Indian, Heye Foundation, New York
USNM	United States National Museum, Washington
VM	Valentine Museum, Richmond, Va.

Informants

Wherever indicated, statements are followed by the initials of the informants responsible for them. The list given here includes all informants, *i.e.*, those who were merely observed at

work in the pottery school, as well as those who gave verbal testimony and demonstrations.

Mrs. A.—Mrs. Allmond *	Mrs. D.—Mrs. Lou Dennis
A. Br.—Alberta Bradby	R. D.—Rhodessa Dennis
D. B.—Daisy Bradby	Z. L.—Zeke Langston*
Do. B.—Dora Bradby	I. M.—Mrs. Ida Miles
Mrs. B.—Mrs. Lou Bradby	N. M.—Nanny Miles
S. B.—Mrs. Sarah Bradby	P. M.—Paul Miles
Chief W. B.—Chief Walter Bradby*	Mrs. M.—Mrs. R. Miles* (now deceased)
A. B.—Ada Bush	Mrs. P.—Mrs. Lucy Page
Mrs. C.—Mrs. Dora Cook	H. S.—Mrs. Hattie Stewart
P. C.—Pocahontas Cook	

Not all of these informants made pottery: The names of those who did not are starred. For the names of present-day potters see the Appendix I.