

1907-4

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The Use of Shells
by the Ontario Indians

By W. J. WINTEMBERG



(Reprinted from the Ontario Archaeological Report for 1907)

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BUREAU OF ARCHIVES
RECEIVED
MAY 17 1909
ONTARIO

THE USE OF SHELLS BY THE ONTARIO INDIANS.

W. J. WINTEMBERG.

NATURE makes many contributions to the wants of man, and of these shells figure quite prominently; indeed, scarcely any of the natural productions of North America have commanded more general acceptance than the many species of shells abounding on the sea-shore and in the fresh-water lakes, rivers and streams. In our own Province, of course, very few large shells were available, although the *Unios* (some with beautiful pearly interiors) were, as will be seen from what follows, utilized to some considerable extent, not only in the domestic economy of the Indians, but also in the ornamentation of their persons. The same remark will apply to the univalves as well.

Besides our native shells there are many oceanic species which have found their way hither through the channels of trade, or perhaps as reprisals in warfare. These consist principally of several varieties of conchs, the large *Busycon perversum* (figure *b*, plate xvii) especially, and other smaller species, which will be described more fully under the head of ornaments.

Although they were in common use to the south of us, there is no record of any pearls having been used by the Indians anywhere in Ontario.

I. SHELL-FISH AS FOOD.

As food is the first requirement of man, we shall also first consider the subject of shell-fish as food. In man's most primitive state his animal food was derived mainly from such species as could most easily be obtained, and we may be sure that among these the mulluska were brought into use first. As Mr. Holmes says, "Weapons or other appliances were not necessary in the capture of mollusks; a stone to break the shell, or one of the massive valves of the shells themselves, sufficed for all purposes."¹

We would naturally expect to come across allusions to the use of shell-fish for food by the interior tribes in the *Jesuit Relations* or in other early narratives, but in not one of these do we find a single reference. Such references as we do have, relate to species found on the Atlantic coast only. This is all the more surprising when we consider how minutely these early writers went into details of savage life. The use of the land and fresh-water snails also seems to have escaped notice; but when we find that some of these same writers state that the Indians ate snakes, "Grubs, the *Nymphæ* of Wasps, some kinds of *Scarabæi*, *Cicadæ*,"² locusts, spiders and unmentionable filth and vermin, we must come to the conclusion that snails, being less objectionable than some of the things mentioned, would likewise be eaten.³

¹"Art in Shell of the Ancient Americans." (Report Bureau of American Ethnology 1880), p. 188.

²Robert Beverly: *The History and Present State of Virginia* (London, 1705), Book III., p. 60.

³Since the above was written the following information was received from Dr. A. L. Kroeber, Secretary of the Department of Anthropology, University of California: "The most prominent and conspicuous animal of the snail kind that occurs in the moister parts of California," he says, "is the large yellow, horned slug [*Ariolimax californicus*, evidently], growing to a length of five or six inches. This I know to have been eaten by the Indians of Northwestern California, and I presume by other tribes also. It is said to have been broiled alive on hot stones. A smaller, dark reddish snail, also with horns, and an almost perfectly round flat shell, about an inch and a half in diameter and less than half an inch in height, was also eaten, being prepared in the same way."

Notwithstanding this silence on the part of our early explorers, archaeological researches have revealed numerous evidences that most of our shell-fish and even land snails were used as food.

Shell heaps composed of fluviatile species of clams have been found in the interior parts of the country; notably a very large one on the shore of the Concord River, Massachusetts. It was made up almost entirely of shells of *Unio complanatus*, a species which still exists in the river. Ernest Ingersoll,¹ the well-known naturalist, discovered one in Tioga county, New York, but he does not state what species were represented. Dr. Beauchamp informs the writer that he has seen *U. complanatus*, which he says "was the favorite mollusk for food mostly used by the Iroquois," in large beds and small heaps on the Susquehanna. Other *Unio* shells very rarely occur on early Iroquois sites in New York. In Ontario we have a record of only one shell heap, and this is near the Indian mounds at Cameron's Point, in the Rice Lake district. Of this shell heap Mr. Boyle writes: "A little east of the mounds, and now close to the edge of the cliff, there is a quantity of mussel shells, forming a bed from one to ten inches in thickness and seventy-five feet in length. That these were brought here in connection with food purposes there cannot be a doubt, and the Indians of the Alnwick Reserve across the lake explain the presence of so many shells by stating that on one occasion their people would have died of famine but for the plentiful supply of mussels. However this may have been, there are the shells, pointing to an unusually large or long-continued consumption of this kind of food."²

We may be sure that most species of mussels native to Ontario figured quite prominently at the aboriginal repast. Of the species represented in the Museum's collection there are: *Unio gibbosus*, *complanatus*, *luteolus*, *rectus*, *ventricosus*, *alatus*, *ligamentinus* and *plicatus*, and *Margaritana costata* and *marginata*. *Anodonta footana*, *Margaritana rugosa*, and *Unio pressus* were found on village sites in York county.³ *M. rugosa* is not a native of York.

Of the above species *U. gibbosus* (in Waterloo and Oxford) and *U. complanatus* (somewhat generally distributed) are most abundant. *U. ligamentinus*, also fairly well represented in the collection, seems to be confined to the Thames drainage, and *U. rectus* is peculiar to the Brant district.

And now as to snails, their shells are frequently collected on the sites of our Indian villages, and also have been found in shell-heaps in the United States. In one of these shell-heaps in Maine, explored by Professor Wyman and others, the following species of land snails were discovered: *Helix albolabris*,⁴ *Sayii*, *alternata*, *lineata*, *striatella*, *indentata*, *multidentata*, *Zua lubricoides* and *Succinea Totteniana*.⁵ The mussel shells having been used as food, and the land snails being present in the same heap, would indicate that they were used for the same purpose. In the shell-heap referred to as discovered by Mr. Ingersoll, "a few land shells

¹Apud Dr. C. C. Abbott: *Primitive Industry* (Salem, Mass., 1881), p. 442.

²*Annual Archaeological Report of Ontario for 1896-7*, p. 31.

³"Animal Remains found on Indian Village Sites," *Annual Archaeological Report for 1901*, page 45.

⁴There is considerable confusion in our scientific nomenclature. The Helicidae in America being divided into different genera, the shell mentioned is now *Polygyra albolabris*.

⁵*American Naturalist* (Salem, Mass., 1868), Vol. I., p. 566.

(*Helix*) were also seen, but they may have crawled there and died; that is," he says, "I would not care to assume they were eaten by the Indians."¹

During the course of his exploration of Indian village sites in Oxford and Waterloo, the writer has noted the following species: *Polygyra albolabris*, *dentifaria*, *thyroides*, and *tridentata*, *Pyramidula alternata*, *Omphalina* (*Zonites*) *fuliginosus* and *inornatus*. Of water snails there were *Goniobasis livescens*, *Pleurocera subulare*, and *Melantho decisa*, but only the latter may have been used for food purposes. On one village site in Wilmot township were found, between the fragments of a pot, a quantity of carbonized pieces of grass stems and quite a number of shells of *Omphalina fuliginosus*, which seems to indicate that this species was esteemed a choice delicacy. An article in a former report mentions the following shells as occurring in kitchen-middens and debris heaps in York county: *P. albolabris* and *P. palliata*, *Stenotrema monodon*, a species of *Succinea*, *Planorbis trivolvis* and *P. bicarinatus*, *Limnea stagnalis*, *modicellus*, and *palustris*, *Physa heterostropha*, *Melantho decisa*, and *Goniobasis livescens*.

The presence of the shells of the land snails may also be quite accidental, as they occur principally in the subsoil, and therefore may have been brought from the surface by the plow.

All of the above-mentioned species perhaps made welcome variations in the dietary of the Indians. In any event, failing other kinds of food, it is reasonable to suppose that they would finally have recourse to snails; although the Neutrals and Hurons, from what is said of the abundance of all kinds of game in their country, probably were never reduced to want.

We also know almost nothing as to the method of preparing shell-fish for food. Brickell, who is about the only early writer that makes any reference of the kind, says of the mussels: "They are only made use of by the Indians, who eat them after five or six Hours' boiling to make them tender."² He also states that some species were dried.³ The natives of the Atlantic coast, according to Rau, "Used to string these mollusks [*Venus mercenaria*] and to dry them for consumption during winter."⁴ These methods may also have been followed by the tribes of the interior.

II. SHELLS IN THE DOMESTIC ARTS AND MANUFACTURES.

Cups.

Apart from their use as food, perhaps one of the earliest uses to which mollusks were applied was that of domestic utensils. Vessels for holding liquids and also for conveying liquid foods to the mouth are one of the primary requirements of man. Being very conveniently shaped, many of the larger shells formed natural cups. "Haywood, Hakluyt, Tonti, Bartram, Adair and others," writes Holmes, "mention the use of shells for drinking vessels, and," he adds, "in much more recent times Indians are known to have put them to a similar use."⁵ According to the old

¹ *Primitive Industry*, opp. cit.

² John Brickell: *The Natural History of North Carolina* (Dublin, 1737), p. 249.

³ *Ibid.*, pp. 288 and 367.

⁴ Charles Rau: "Ancient Aboriginal Trade in North America," *Annual Report of Smithsonian Institution for 1872*, p. 379.

⁵ P. 193.

Spanish chronicles, Montezuma used cups of "natural shells richly set with jewels." The Indians of Arizona also used large sea shells as drinking vessels.¹

Father Allouez, in the *Relation* of 1669-70, writing of some of our northern Indians, says: "The savages of this region are more than usually barbarous; they are without ingenuity and do not know how to make even a bark dish or a ladle; they commonly use shells."²

There are several large shells of the *Busycon perversum* in the Museum, from which the interior columns have been skilfully removed, and these, we have no reason to doubt, were used as vessels for culinary purposes. There is also a smaller specimen which may have served as a cup, and this we present in figure *a*, plate vi. It has a small perforation through the lip.

These shell cups even formed the prototypes of some vessels of clay, found in the South, of which Thurston gives two illustrations in his *Antiquities of Tennessee*.³

Spoons.

Some species of shells were also commonly used as spoons. Benjamin Thompson refers to this use in the prologue to his *New England's Crisis*, (1676):

"The times wherein Old Pompion was a saint,
When men fared hardly, yet without complaint,
On vilest eates, the dainty Indian maize,
Was eat with clamp shells out of wooden trays."

Beverly, too, informs us that the Indians of Virginia used large cockle-shell spoons. He observes, in language more quaint than elegant perhaps, that "The Spoons which they eat with, do generally hold half a pint: and they laugh at the *English* for using small ones, which they must be forc'd to carry so often to their Mouths, that their Arms are in danger of being tir'd before their Belly."⁴ According to Hoffman, the Menomini Indians formerly used mussel-shells as spoons, and they were in use even up to recent years, when necessity demanded.⁵ Schoolcraft also mentions their use for this purpose.⁶

Many of our own fresh-water bivalves are admirably adapted for the purpose, the half-shells being used in the unaltered state. Of these there are in the Provincial Museum *Unio luteolus*, *U. complanatus*, *Margaritana marginata*, *U. ligamentinus*, *U. ventricosus*, and *U. alatus*. Among them there is a right valve of *U. luteolus*, which is very much discolored, and looks as if it had contained some oily substance. It and a left valve of *U. complanatus* (also showing oily discoloration) were taken from a grave near Old Fort Ste. Marie, in Simcoe County.

In Tennessee and Kentucky *Unio* shells were cut so as to form a handle on one side. Special attention must be called to the interesting fact that these shells were nearly all made from left valves, which, as Holmes says, "Gives such a position to the handle that they are most conveniently used by the right hand, thus indicating right-handedness on the part of these

¹ *Antiquities of Tennessee*, p. 309.

² Burrows' Edition of the *Jesuit Relations* (Cleveland, Ohio), Vol. 54, p. 207.

³ P. 311.

⁴ *History of Virginia*, Book III., p. 17.

⁵ The Menomini Indians, *Fourteenth Annual Report Bureau of Ethnology*, p. 257.

⁶ *History, Condition and Prospects of the Indians of the United States* (Philadelphia, 1857), Vol. 6, p. 109.

people."¹ He states that there are only two left-handed specimens in the U. S. National Museum. Professor Putnam finds that over thirty examples in the Peabody Museum are so shaped as to be used by the right hand.² We cannot be certain as to how many of the *Unios* in the Museum were, if at all, used as spoons, and, consequently, also, whether they had been intended for use with the right or left hand. This is all the more difficult to determine, owing to the fact that none of them has been altered in any way. Both valves of some species could be held equally well, and perhaps used just as conveniently too, with either hand.

Knives.

Among the many economic uses of shells is that of cutting instruments. The sharp-edged *Unios* and *Anodontas* no doubt were often made to perform this office, for it is reasonable to suppose that if cutting was done with flint or chert knives (often with dull edges) shells could be made to cut just as readily. Indeed, in some of the accounts of the Indians given by early writers, we find allusions to shell knives. Kalm, writing of the Indians of New Jersey, says: "Instead of *knives* they were satisfied with little sharp pieces of flint or quartz, or else some other hard kind of stone, or with a sharp shell, or with a piece of bone which they had sharpened."³ Henry Hudson, speaking of some Indians he met during his first voyage, and the preparations they made to entertain him, says: "They likewise killed a fat dog and skinned it in great haste with shells which they had got out of the water."⁴ The last part of this reads as if the knives had been hastily improvised—in fact, had just been taken from the water for the purpose. Beverly states that before the Virginia Indians were supplied with metallic tools "Their Knives were either Sharpened Reeds or Shells, and their Axes sharp Stones bound to the end of a Stick, and glued in with Turpentine. By the help of these they made their Bows of the Locust tree."⁵ The Menomimi Indians used clam-shell knives.⁶

"A number of authors mention the use of shells as scalping knives."⁷ And in Bressani's *Relation* (1653), we read of shells being used in torturing a prisoner. "To cut off Guillaume's right forefinger," he says, "a barbarian used, not a knife, but a shell, like a saw; which could not cut the tough and slippery sinews; and therefore he tore it off by sheer force."⁸ Strachey asserts that when Powhatan "would punish any notorious enemy or trespasser, he caused him to be tyed to a tree, and with muscle-shells or reedes the executioner cutteth off his joints one after another, ever casting what is cut of into the fier; then doth he proceede with shells and reedes to case the skyn from his head and face."⁹

Another interesting reference to the use of shell knives, which occurs in Brickell's *The Natural History of North Carolina*, may be mentioned.

¹ "Art in Shell," p. 199.

² *Eleventh Annual Report Peabody Museum*, p. 295; footnote.

³ *Travels into North America* (London, 1771), Vol. II., p. 39.

⁴ De Laet's "Discovery of the New Netherlands," quoting Hudson's narrative; *Collections of the New York Historical Society* (Second Series, 1841), Vol. I., p. 300.

⁵ *History of Virginia*, Book III., p. 60.

⁶ Hoffman, *opp. cit.*, p. 257.

⁷ Holmes: "Art in Shell."

⁸ Burrows' Edition, Vol. 37, p. 195. Father Isaac Joques in the *Relation* of 1647, also says: "They, [the Iroquois] used a scallop or an oyster-shell for cutting off the right thumb of the other Frenchman, to cause him more pain." (Vol. 31, p. 45.)

⁹ *The Historie of Travaile into Virginia Britannia*, etc. (Hakluyt Society, London 1849). P. 52.

It is as follows: "They cut the Arms of the young Girls with sharp *Shells* of *Fishes*, 'till the Blood follows, which they cast into the Air, with loud Shreeks and Cries."¹ This was done at one of their ceremonial feasts.

It is said that the Indians of Vancouver's Island still carve their wooden sepulchral images with knives made of shell.

Professor Holmes figures a perforated valve of *Unio gibbosus*,² probably used as a knife or scraper, from Tennessee. Specimens of *U. complanatus*, similarly perforated, are to be seen in the Laidlaw collection from Victoria county. There are no less than nine of these with holes through the sides, and all still retaining their sharp edges. These may have been utilized as cutting tools, the holes perhaps serving for the attachment of handles, although these were really not necessary.

Razors and Tweezers.

Another and a more novel use to which these clam shells may have been put, although we have no direct evidence that the Ontario Indians used them in this way, is that of razors for cutting off or of tweezers for pulling out the hair. We know that among some savages, *e.g.*, the Fiji Islanders, sharp clam shells were used as razors, and some of the early explorers of the Atlantic coast of America make mention of a similar employment of shells. Thus, Strachey, writing of the Virginia Indians, says: "The men shave their hair on the right side very close, keeping a ridge comonly on the toppe or crowne, like a coxcomb; for their women, with two shells, will grate away the haire into any fashion they please."³ A more painful process was to pluck the hair out by the roots, using two valves of a clam as tweezers. Adair says that among the Choctaws "both sexes pluck all the hair off their bodies, with a kind of tweezers, made formerly of clam-shells."⁴ The Virginia Indians, according to Beverly, "puil their Beards up by the roots with a Muscle-shell; and both Men and Women do the same by the other parts of their Body for Cleanliness sake."⁵ And, coming nearer home, Heckewelder says of the Pennsylvania Indians: "Before the Europeans came into the country, their apparatus for performing this work, consisted of a pair of muscle shells, sharpened on a gritty stone, which answered very well, being somewhat like pincers."⁶ With these they not only pulled out the hair of their beards but of their foreheads also.

In Pottery Making.

Most of our *Unios* seem to have been employed in the manufacture of pottery both as smoothers and scrapers; at least there is no other aboriginal industrial art to which we could assign implements like figures *a*, *b*, *c*, *d* and *e*, plate VII.

The first two of these figures represent shells used as "slicks" for smoothing the inside of clay vessels while in a plastic state, much in the same way as certain smooth stones were employed by the Indians of southern California. Figure *a* is a right valve of *Unio alatus*, which was used until

¹ P. 334.

² Figure I., Pl. XXVII., "Art in Shell."

³ Strachey, *opp. cit.*, p. 66.

⁴ *History of the American Indians*, etc. (London, 1775), p. 6.

⁵ *History of Virginia*, Book III., p. 2. (See also Captain Smith's, "The General History of Virginia, New England and the Summer Isles."; *Pinkerton's Voyages*, Vol. 13, p. 34.)

⁶ "History, Manners and Customs of the Indian Nations, who once inhabited Pennsylvania," etc., *Pennsylvania Historical Society Memoirs* (Philadelphia, 1881), Vol. 12, p. 205.

a large hole appeared in the side. It appears to have been held in the right hand while in use. This specimen is fully $4\frac{1}{2}$ inches long. It was obtained near Brantford, in Brant county. In figure *b* we have a left valve of the same species, found on a village site in Eldon township, Victoria county. It was employed in the same way, a large part of the surface of the shell having been brought into play, and it shows evidence of being used with the left hand. The posterior portion is cut away; but this may also be the result of long service as a scraper.

Besides these, the Museum collection includes specimens of *U. ventricosus*, *U. complanatus*, *U. gibbosus*, *U. plicatus* and *U. ligamentinus*, all of which were similarly employed. Some of them offer evidence of left-handedness. There are eleven left valves of which only five were used with the right hand; and thirteen right valves, six of them being used with the left hand; two could have been held in either hand, and the remaining five were most conveniently held with the right. It is among the scrapers, however, that we find the most evidence of right-handedness.

Figures *c*, *d* and *e*, plate VII., represent shells probably used as scrapers in smoothing and otherwise shaping the interior and exterior portions of clay pots. The sharp points may have been serviceable in forming the sharp angles of the overhanging rims. These sharpened portions are always on the posterior ends of the shell, and were not made so designedly, but are the result of continual use—the gritty nature of the tempering material, commonly used in pottery, accounting for the wearing away of the shell. There are also some that are not pointed; the posterior and anterior ends and lower edges having been brought into play; these portions being rounded and worn from long use. A fragment (apparently of *U. luteolus* or *Margaritana costata*), in the writer's collection, is worn down almost to the pallial impression. Pieces of *M. rugosa* were found in Whitchurch township, York county, which may have been used as scraping tools.

Many of these specimens show that their users were right-handed. In figure *c*, plate VII., we have one which was held in the left hand. It is a right valve of *U. rectus*, $3\frac{1}{2}$ inches long, and comes from Fairchild's creek, near Brantford. Figure *d* represents a smaller one of the same species, but this is a left valve, used with the right hand. A right valve of *U. ligamentinus* is shown in figure *e*. It is not so sharply pointed as are some others made of this species; in fact, only the lower edge was utilized, and it was held in the left hand. This specimen was found near Clearville, in Ortord township, Kent County. Including these, there are in the collection eight right valves used with the left, and thirteen left valves used with the right hand. There is only one left valve intended for use with the left hand, and this is a fragment of *U. gibbosus*, in the writer's collection. Two other shells, a right and left valve, could have been held in either hand. The fact that when a left valve was utilized it was held in the right hand, and *vice versa*, might be taken as an indication of ambidexterity on the part of the users.

The utilization of finely pulverized shell as a tempering material for pottery must also be mentioned here. Dumont in his *Historical Memoirs of Louisiana*, says "that, having amassed the proper kind of clay and carefully cleaned it, the Indian women (of Louisiana) take shells, which they pound and reduce to a fine powder; they mix this powder with the clay, and, having poured some water on the mass, they knead it with their hands and feet, and make it into a paste."¹

¹ Dumont's *Memoirs* (1753) Vol. II., p. 271; *apud* Thurston.

There are several pottery fragments in the Museum in which this tempering material was used ; but, as Mr. Boyle says, " Our Indians used burnt gneiss and granite even more frequently than shells " ¹ for this purpose. The clay of which pipes are made undoubtedly contains a good deal of this shell tempering material.

In Tanning.

The *Unio* shells were also very well adapted for use in tanning. We know that other shells were often employed for the purpose ; Brickel, for instance, mentions oyster shells. With these they worked the skins until they were dry, " by which means," he says, " they became soft and pliable. " ² Hoffman states that mussel-shells are " sometimes used for scraping deerskin in tanning. " ³

As Scrapers in Woodworking.

Another probable use is that of scrapers for smoothing bows and the shafts of arrows, and for hollowing out the wooden canoes. Strachey tells us that the bows of the Virginia Indians " are of some young plant, eyther of the locust-tree or of weech, which they bring to the forme of ours by the scraping of a shell. " ⁴

There is in the Museum a piece of *Unio* shell (figure *a*, plate VIII.), from Brant county, provided with a rounded notch which is quite sharp edged and slightly bevelled. If this is not an accidental fracture, and we are inclined to think that it is not (the specimen is a little weathered, thus obliterating traces of use), it may have been put to some practical use—perhaps for scraping arrow-shafts, for which purpose it is well adapted.

The author just quoted, ⁵ Saavedra, ⁶ Kalm, ⁷ Smith, ⁸ Hariot ⁹ and Wood mention the use of shell-scrapers in the manufacture of wooden boats. The latter gives an interesting account, which is as follows: " Their *Cannows* were made either of Pine-trees, which, before they were acquainted with *English* tooles, they burned hollow, scraping them smooth with Clam-shells and Oyster-shells, cutting their out-sides with stone-hatchets. " ¹⁰ Hariot says that the Virginia Indians first took off " the barke with certayne shells. "

Fish Hooks.

" The use of shell in the manufacture of fishing implements, " says Professor Holmes, " seems to have been almost unknown among the tribes of the Atlantic Coast, and with the exception of a few pendant-like objects, resembling plummets or sinkers of stone, nothing has been obtained from the ancient burial mounds of the Mississippi valley. "

¹ David Boyle: *Notes on Primitive Man in Ontario*, p. 28.

² *The Natural History of Carolina*, p. 365.

³ " The Menomimi Indians, " p. 257.

⁴ P. 105. See also Capt. John Smith's account, *Pinkerton's Voyages*, Vol. 13, p. 35.

⁵ P. 75.

⁶ *Apud* Prof. Fritz Schultz: " Origin of the Culinary Art, " in *Kosmos* (1878.)

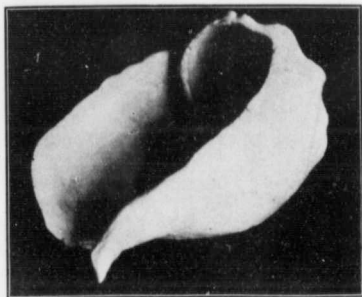
⁷ *Travels into North America*, Vol. II., p. 38.

⁸ *Opp. cit.*, p. 35.

⁹ *The True Pictures and Fashions of the People in that Parte of America Now called Virginia*, " etc. (Quaritch reprint, London, 1893.)

¹⁰ *New England's Prospect* (published by the Prince Society, Boston, 1865), p. 102.



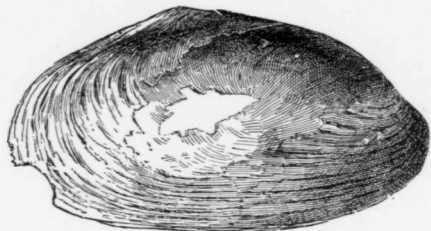


a. Shell Cup.

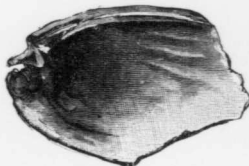


b. Shell Trumpet.

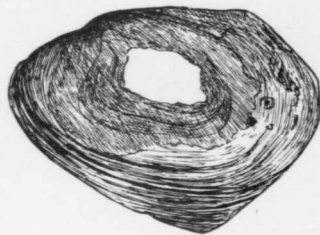




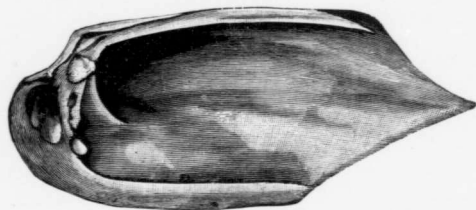
a.



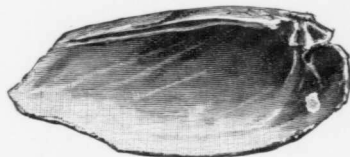
c.



b.



c.

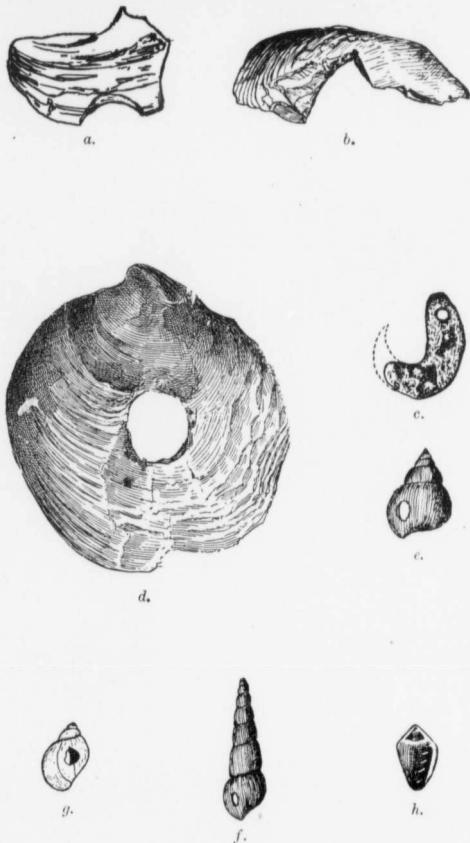


d.

UNIO SHELL POLISHERS AND SCRAPERS.

[47]





SHELL IMPLEMENTS AND BRADS.

- a. Shell scraper.
- b. Shell implement (*U. gibbosus*).
- c. Fish hook (?).
- d. Unio shell hoe from Ohio.
- e. Bead (*Melanthis decisa*).
- f. Bead (*Pleurocera subulare*).
- g. Bead (*Limnaea catascopium*).
- h. Bead (*Marginella conoidalis*).





a.



b.



c.



d.



e.



f.



j.



i.



k.



g.



h.



n.



l.



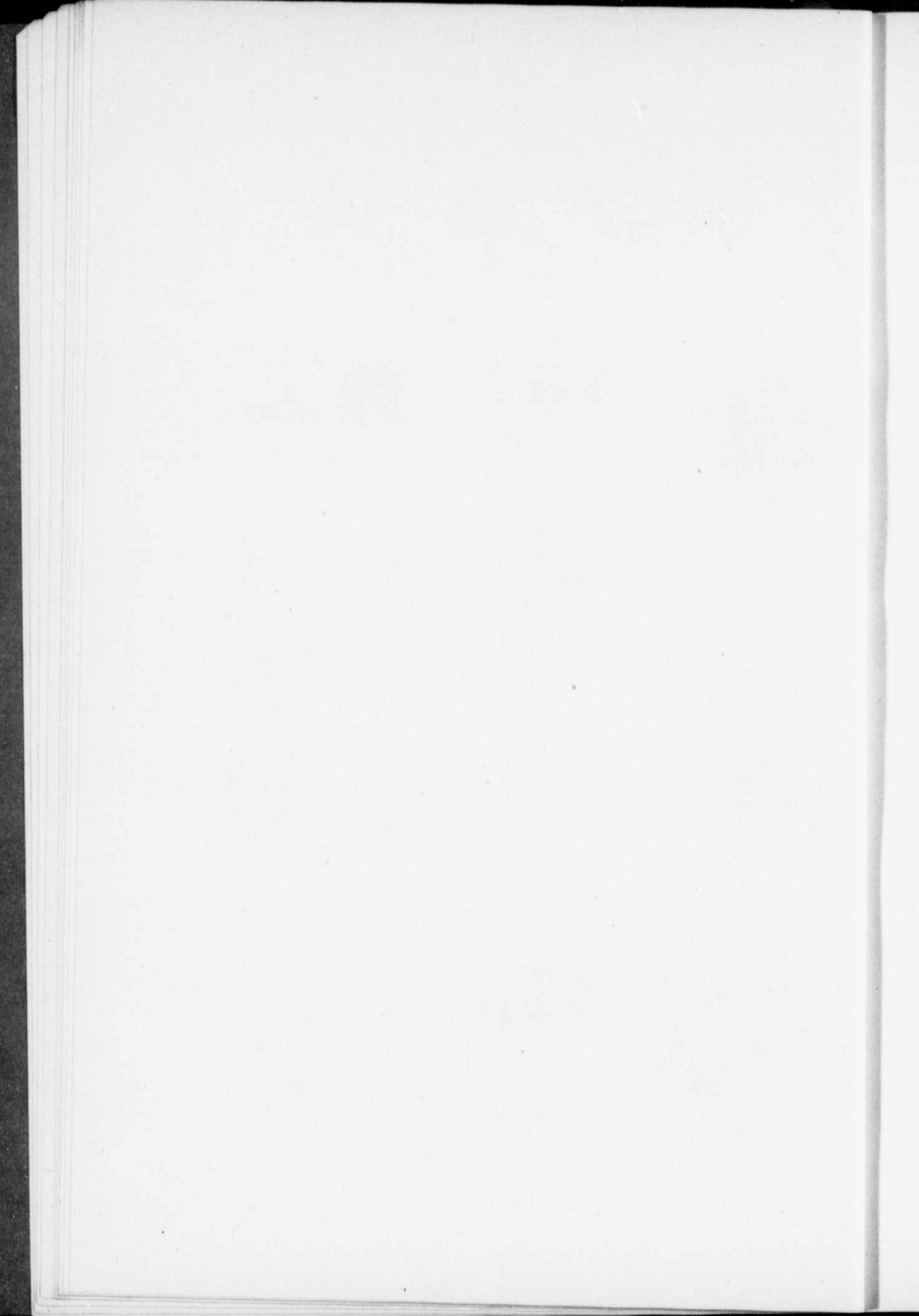
m.



o.



SHELL BEADS.





PENDANTS.

a, b, g, h, from unio shell.
c, d, f, i, j, k, from conch shell.

e. Large form of "runtee" bead.





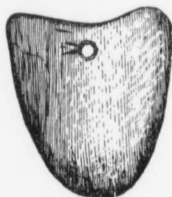
a.



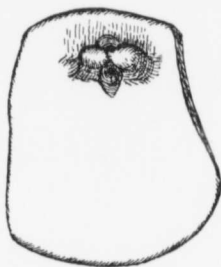
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b.



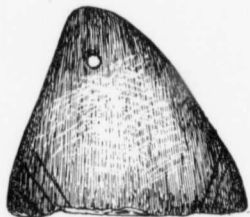
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e.

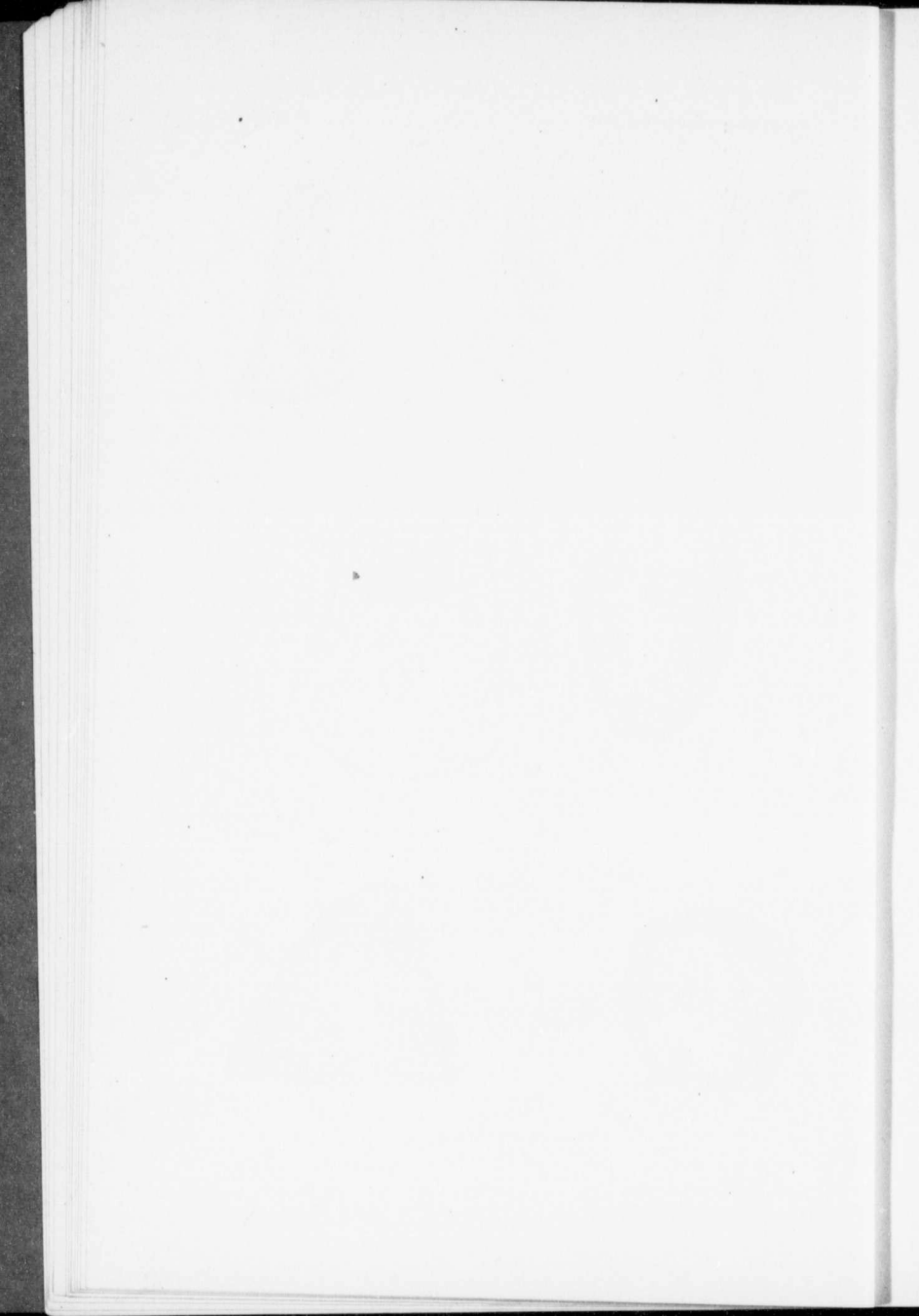


g.



f.

PENDANTS AND GORGETS.





a.



b.



c.



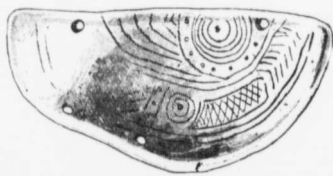
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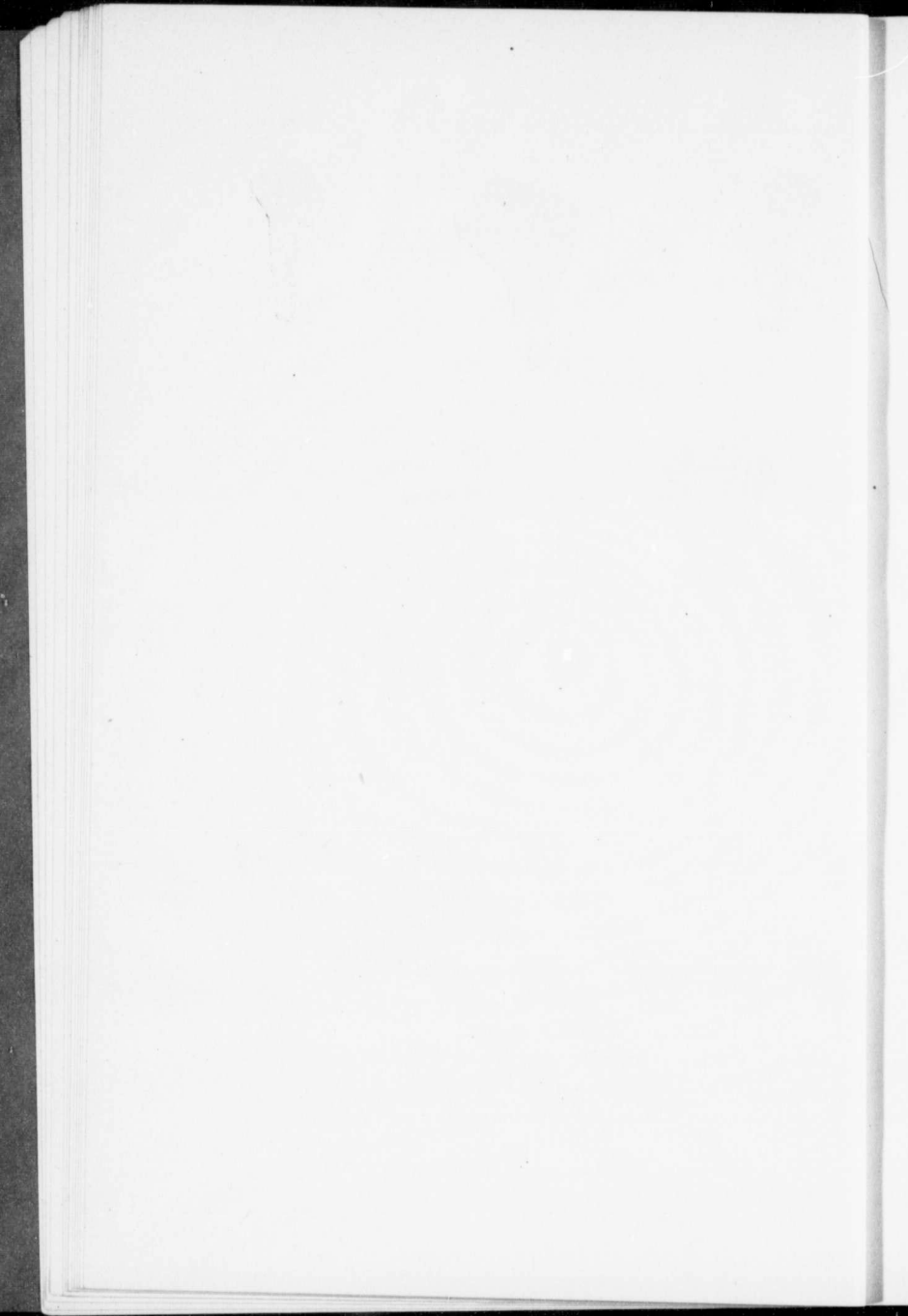
g.



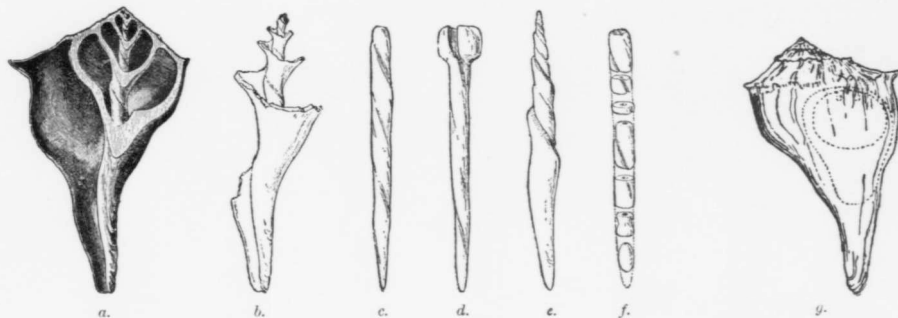
f.

SHELL ORNAMENTS.

- a, b. Perforated shells of *Fulgur peregrinum*.
 c. Perforated shell of *Fulgur pyrum* (?).
 d. Perforated shell of *Strombus* (sp.?).
 e. "Rattlesnake" shell from Tennessee.
 f. "Rattlesnake" shell gorget from Ontario.
 g. Shell "pin."



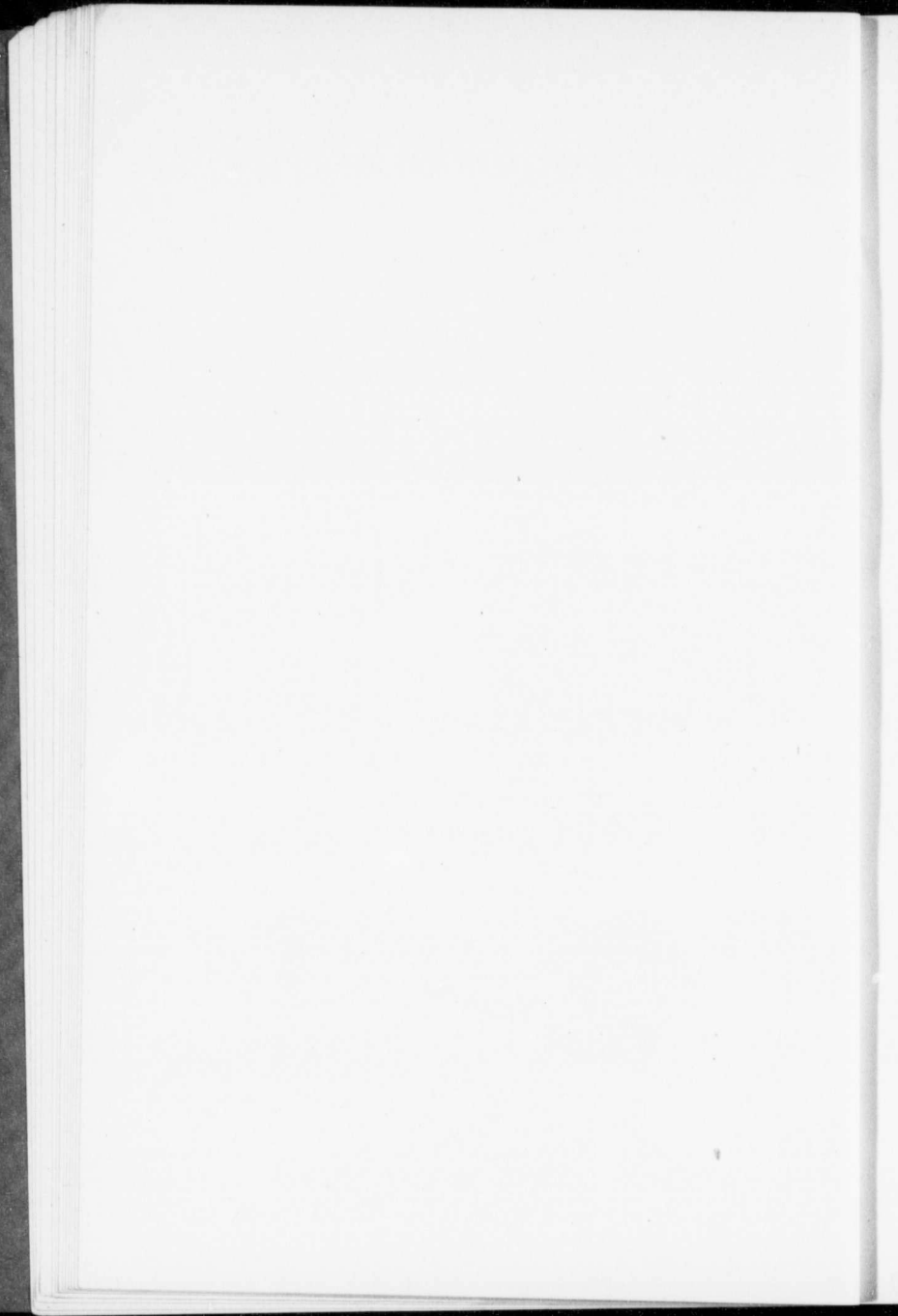
[53]



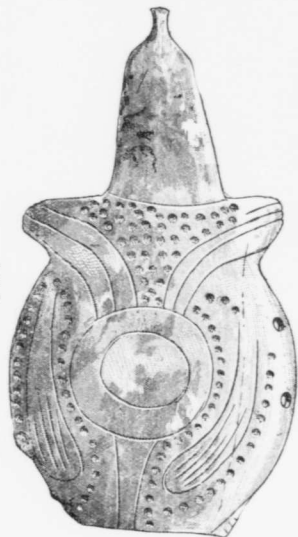
SHOWING THE DERIVATION OF SHELL OBJECTS FROM BUSYCON SHELL.
(After Holmes' Plate XXIX).

- a.* Showing the interior of shell.
b. The columella.
c. Roughly dressed pin derived from columella.
d. Completed pin.

- e.* Pin pointed at both ends.
f. Illustrates the manner of dividing the cylinders into sections for beads.
g. Shows derivation of shell breast-plates or gorgets.



[54]



a.



b.



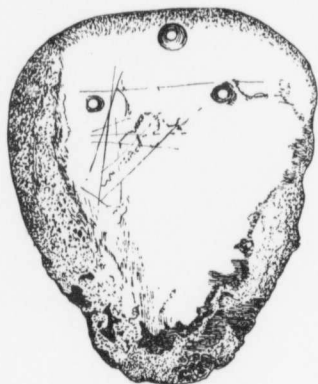
c.



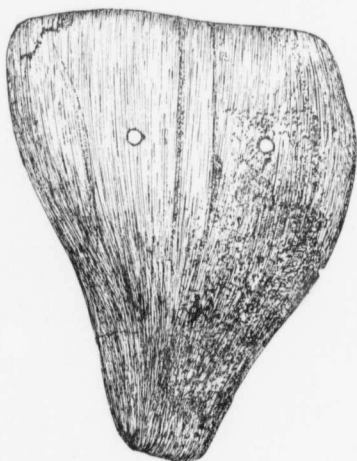
d.

SHELL GORGETS.





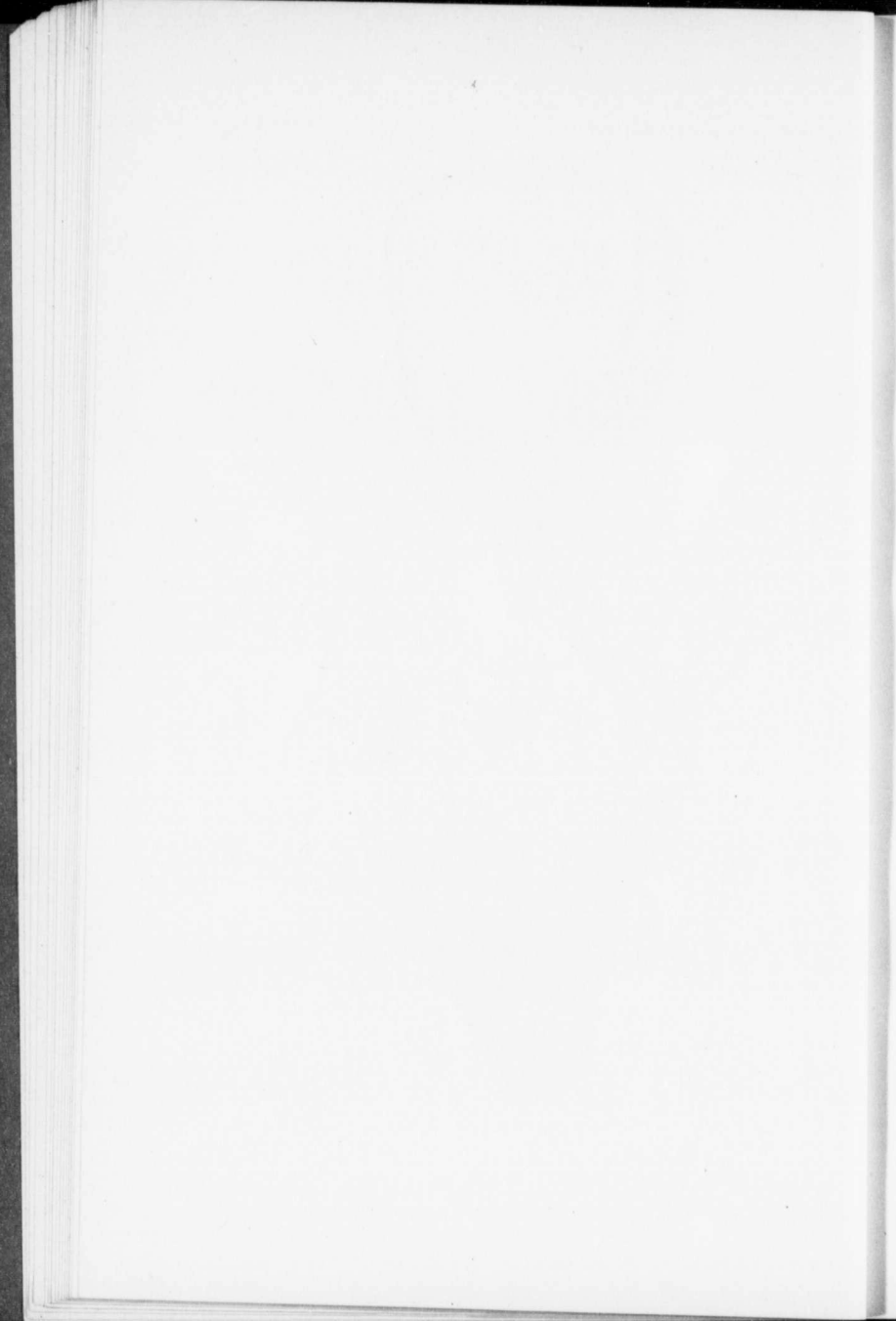
a.

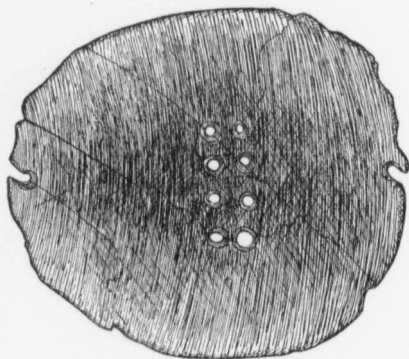


b.

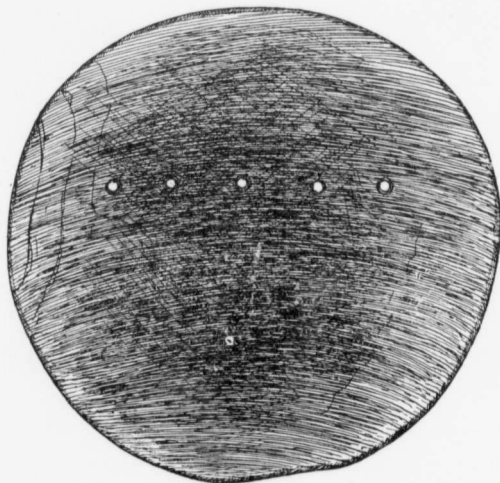
SHELL GORGETS.

[55]





a.



b.

SHELL GORGETS OR BREAST-PLATES.



35.

[57]

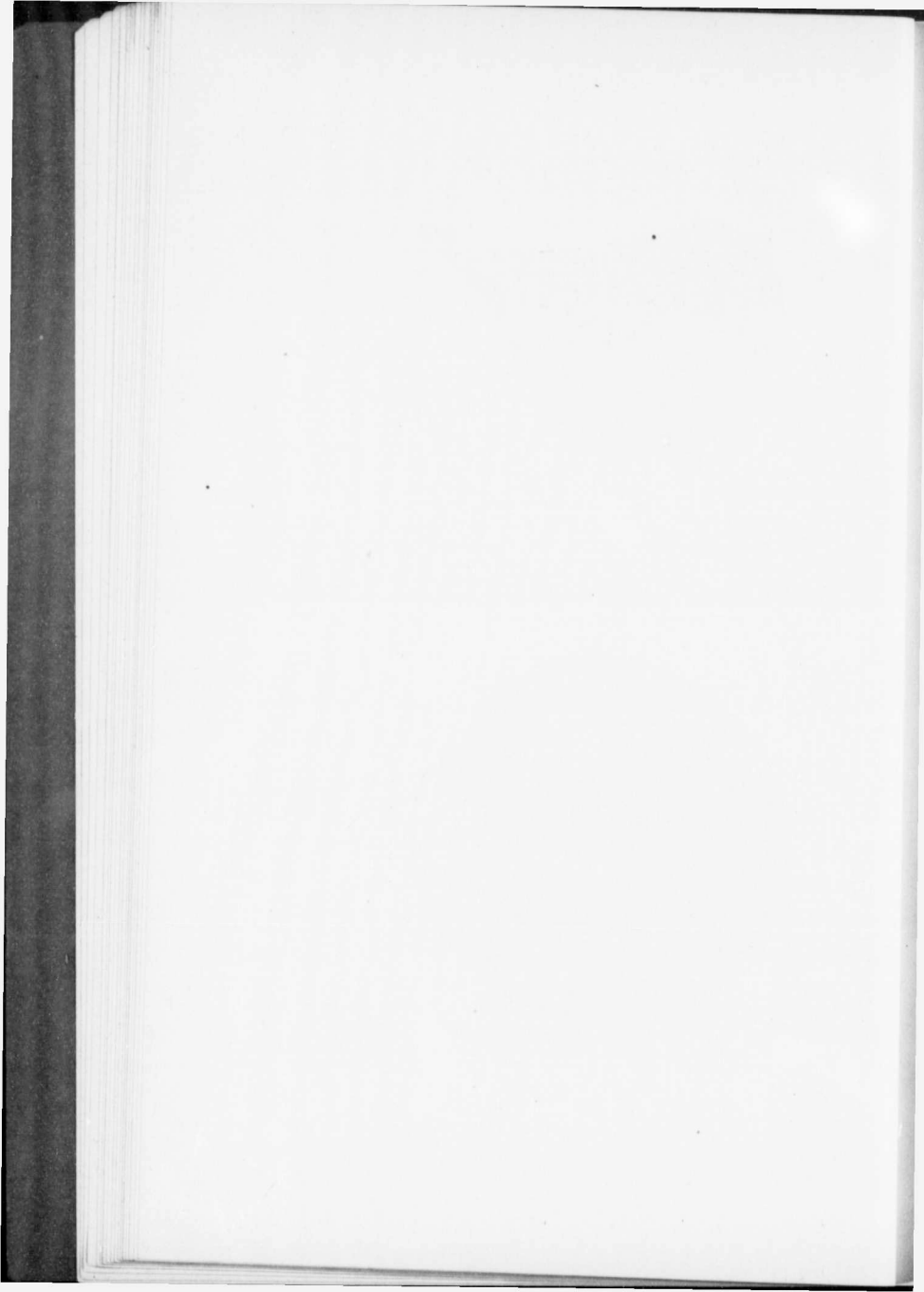


a. Shell Gorget.



1. Shell of *Busycon percrinum*.

SHELL OBJECTS.







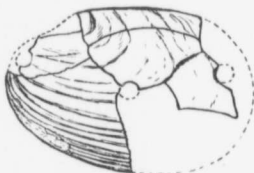
a.



b.



c.



e.



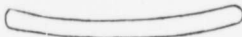
d.



f.



g.



h.

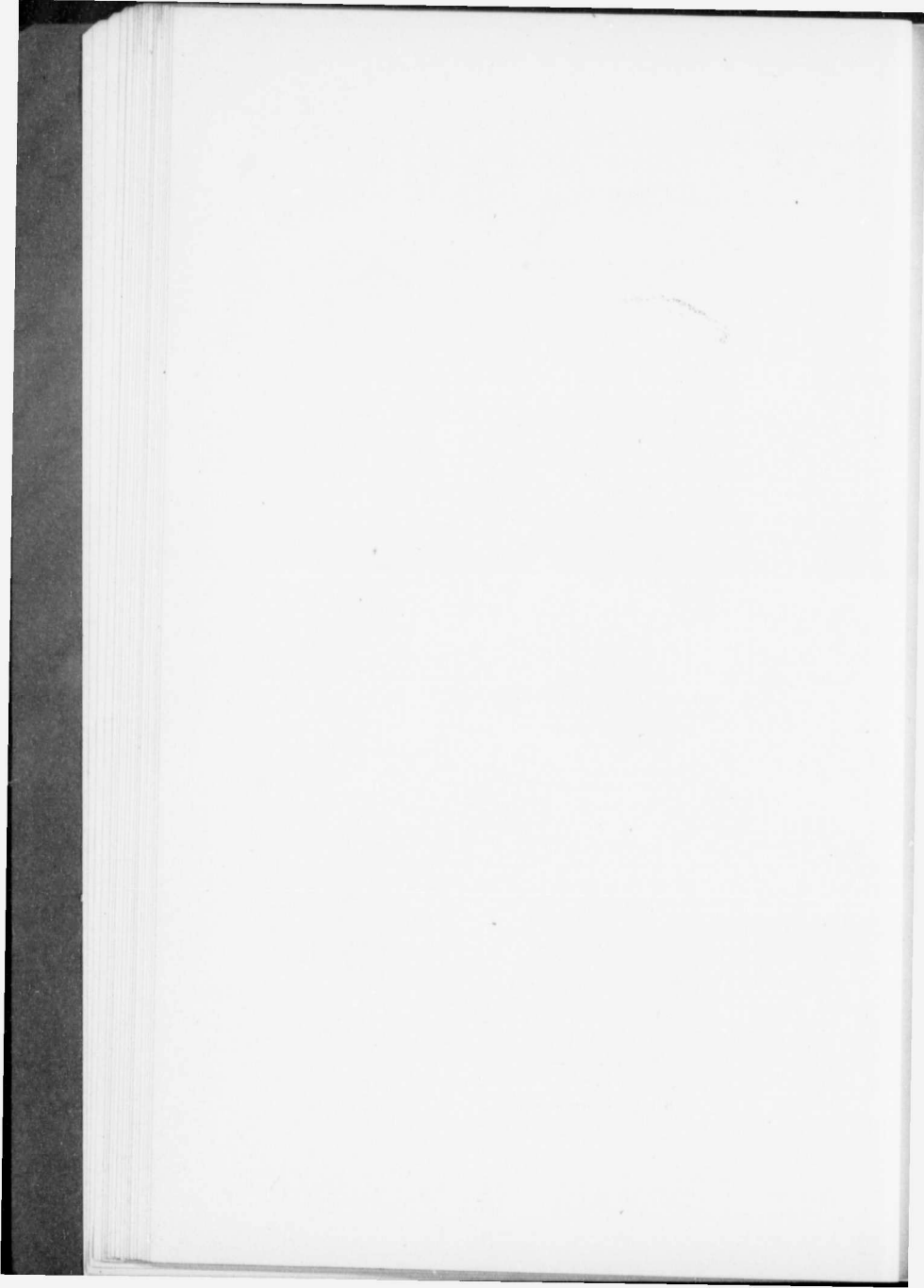


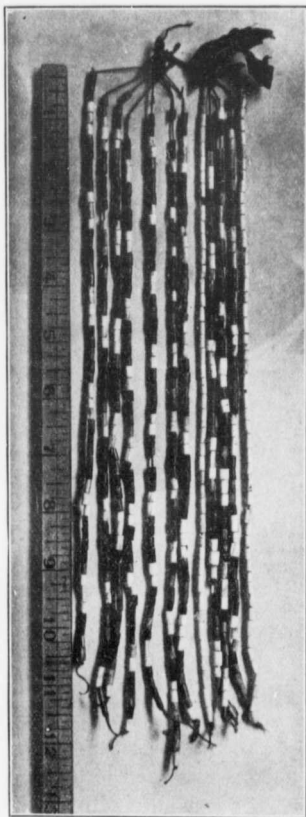
i.



j.

ORNAMENTS MADE OF SHELL.





WAMPUM STRINGS



Bone fish hooks have been found in Ontario, so there is no reason why they should not also be made of shell. In figure *c*, plate VIII., we have a specimen which, if we may judge from its shape, was used as a fish hook; although it may also be only a mere whimsical form of pendant ornament. Similar hooks are said to be used by some tribes to secure the ends of strings of beads.⁷ This specimen is made of a piece of tropical shell in which exfoliation has commenced, and it is now very fragile. Its proportions are: length, $\frac{1}{8}$ of an inch; width, $\frac{9}{16}$, and it is about $\frac{1}{16}$ thick. The point seems to have been much longer; we have supplied a conjectural restoration. This interesting object comes from lot 10, concession 3, Onondaga township, Brant county.

Shell Trumpets.

The classic story of Triton, the trumpeter of Old Neptune, blowing through a shell to produce the roaring of the waves, mythic fancy though it was, nevertheless seems to show that the ancients knew that certain shells (especially the genus named after the above-named fabled demigod), by removing the tip of the whorl, made excellent trumpets. It is well known that among the savage cannibals of the far-distant Pacific Islands, shells were used to call the warriors to battle. And even not so very long ago many a New England laborer was summoned to dinner from the distant hay-field by the deep, metallic note emitted by one of these primitive instruments. The Indians, likewise, made use of shell trumpets. Bartram says: "On one and the same day, early in the morning, the whole town is summoned by the sound of a conch-shell, from the mouth of the overseer, to meet in the public square."⁸ Professor Wyman, from whose article this interesting quotation was obtained, adds that this was "for the purpose of entering upon the work of cultivating the soil."⁴

The latter writer figures a conch-shell with a large hole in the side, which he thinks may have been a trumpet similar to the one referred to by Bartram.⁵

Another allusion to the use of a conch-shell trumpet by the Indians, occurs in the *Pennsylvania Archives*. Dr. Beauchamp, in a letter to the writer, mentions this reference. He says: "Shell trumpets were not used by the N. Y. Indians in early days—at least not in the interior, but there is a record of their use in 1791. Col. Proctor was at the Upper Cornplanter, then called New Arrow's town by some—on the Alleghany River—and said: 'April 19th—O'Beel and chiefs arrived here from the lower town, and ordered their conch-shell to be sounded through the village, to summon the head men into council.'⁶

"This was unusual, however, and at Buffalo Creek, May 15th, 1791, he said, 'the alarm gun was fired, which was the signal to call their head men into council.' At that time the Onondagas here were called together by the horn of *Kakiktoto*. At an earlier day, after the flight of the French colony, the bell was taken to Onondaga, and used to call meetings for state and church. The earlier mode, when their towns were compact, was to call meetings or make proclamations by the town crier."

¹"Art in Shell," p. 208.

²*Ibid.*, p. 209.

³*Travels in Florida* (Philadelphia, 1791), p. 512.

⁴"Fresh-water Shell-Heaps of St. John's River, East Florida," *American Naturalist*, Vol. II. (1869), p. 453.

⁵*Ibid.*, plate X.

⁶*Pennsylvania Archives*, 2nd Series, Vol. 4, p. 577.

In figure *b*, plate VI., we have a shell of the Giant Conch (*Strombus gigas*), which was, up to the time when it was acquired by the Provincial Museum, used by the Senecas of the Six Nations Indian reserve, in Brant county, to call the people to the Long House. The tip of the shell has been removed to form the mouth-piece. It is said that the notes produced could be heard at a distance of nearly two miles; but, however this may be, we have not yet seen any one who could produce a sound approaching this in volume. Other than forming the mouthpiece the shell has not been altered—the breaks shown on the lip being the result of accident.

Other Utilities.

We have no record of any shell hoes being used by the Ontario aborigines, although Wood¹ and other writers² mention their use in the New England States. Neither have we any shell specimens that could have been utilized for the purpose. In Ohio perforated shells of *U. plicatus* (figure *d* on plate VIII. shows one of these in our cases) were used, and of this species several were found in Ontario; but not one of them is provided with a hole for the attachment of a handle; in fact, the specimens we have, are, with one exception, mere fragments.

The writer found several tools made of *U. gibbosus*, like figure *b*, plate VIII., on two prehistoric village sites in Waterloo county. At first sight they appear to be the mere result of an adventitious fracture, but we are quite positive that they were made in the course of some mechanical operation, whatever it may have been. The example illustrated is a right valve, and was first used as a pottery smoother. The notch appears to have been made so by design, but what utility there could have been in this we can only conjecture; that it had a purpose, however, can not be denied. We have a smaller specimen (No. 24,168 in the writer's collection) in which the notch is more rounded and the edges also are slightly polished, as if it had been used for smoothing purposes.

In the *Jesuit Relations*³ mention is made of arrowheads of shell, but no objects of the kind, fashioned from this material, have been found in Ontario.

We will now pass on to the consideration of

III. SHELLS USED AS ORNAMENTS.

The love of ornament manifests itself in the lowest stages of human development, and in the gratification of this taste shells were extensively used the world over. Our own aborigines, influenced by the same natural appreciation of the beautiful, were also not slow to recognize the utility of shells in personal adornment.

Shell was also probably a favorite material on account of being a product of the sea. Primitive man everywhere regarded the sea as a magnificent display of the power of their chief deity, and so it was also quite natural for them to regard the shells rolled up from its depths as bearing a part of the mysterious power of this deity. The peculiar roaring sound made by sea-shells when held to the ear was likewise a great mystery to them, and increased the reverence with which shells were

¹ *New England's Prospect*, p. 106.

² *Mass. Historical Society Collections*, Vol. VII., p. 193.

³ Vol. 15, p. 245.

regarded by most inland tribes. In fact, "we find no Indian tribe," as Kohl says, "however deep it might dwell in the interior, of which the first Europeans did not mention their high respect for sea-shells."¹ He attempts to account for this reverence in this wise: "There is no doubt, I think, that historic reminiscences are connected with this shell worship—recollections of that great water from which the ancestors of the Indians and the founders of their religion probably stepped on shore."² According to Long, the Omaha Indians had in their possession, about three-quarters of a century ago, a large shell which had already been transmitted from generation to generation, and to which they paid a great deal of veneration. It was considered so sacred that a skin lodge or temple was appropriated for its preservation. In this lodge a person charged with the care of it resided constantly. It was never allowed to touch the earth, and any one who impiously set eyes on it became blind. This shell was always taken along on their national hunting expeditions, and it was also consulted as an oracle.³ The shells of *Busycon perversum*, on account of being sinistral, *i.e.*, having the mouth aperture turned to the left, no doubt were also regarded as sacred. Indeed, Dr. Wilson thinks they "closely corresponded to the *Conopas*, or rude Penates of the Peruvians, as described by Rivero and Von Tschudi,"⁴ which were, as were the *Busycons*, buried with their owners.

It is quite natural to suppose that any ornament made of sea-shell would likewise be invested with mystic and protective powers, and would be worn primarily as an ornament or charm, and finally, perhaps, losing this significance, the wearing of it for purely decorative purposes became more general; just as much of the jewellery of the civilized races of to-day was once supposed to exert a talismanic influence.

Having a supposed remedial efficacy would also result in some species being used for amulets or charms, ornamental in character. "The most peculiar Commodity belonging to this Country," says an old writer, "is a Kind of Shell-Fish, call'd *Esurgnuuy*, extraordinary white, and of singular Virtue for stenching of Blood; for which end they make Bracelets of them; not only for their own Use, but to vend of others."⁵ Cartier, also, who first makes mention of this *esurgnuuy*, and whose words we present in the quaint phraseology of the translator Hakluyt, says:—"Of them they make beads, and use them even as we doe gold and silver, accounting it the precioussest thing in the world. They have this vertue in them, they will stop or stanch bleeding at the nose for we proved it."⁶

The Indians were very fond of loading themselves with all sorts of ornaments. Wood, speaking of the Indians of New England, says: "Although they be thus poore, yet is there in them the sparkes of naturall pride, which appears in their longing desire after many kinds of ornaments, wearing pendants in their eares, as formes of birds, beasts, and fishes carved out of bone, shels, and stone, with long bracelets of their curious Wampompeag and Mowhackees, which they put about their necks and loynes."⁷ William Penn, in a letter written to his friends in England,

¹ *Kitchi Gami* (London, 1860), p. 136.

² *Ibid.*

³ Long, *Expedition from Pittsburg to the Rocky Mountains*, etc. (London, 1823), Vol. II., p. 47; *and* Rau.

⁴ "Some Ethnological Aspects of Conchology," *The Canadian Journal* (Second series, 1858), Vol. III., p. 406.

⁵ *The Four Kings of Canada* (London, 1710), reprinted, London, 1891.

⁶ Quoted by Dawson, *Fossil Men* (Montreal, 1880), p. 32.

⁷ *New England's Prospect*, p. 74.

says: "They wore ear-rings and nose-jewels; bracelets on their arms and legs, rings on their fingers, necklaces made of highly polished shells found in their rivers and on their coasts. The females tied up their hair behind, worked bands round their heads, and ornamented them with shells and feathers, and wore strings of beads round several parts of their bodies. Round their mocasins they had shells and turkey spurs, to tinkle like little bells as they walked."¹

Describing the decorations of the Hurons, Father François du Peron states: "Around their necks and arms bead necklaces and bracelets of porcelain; they also suspend these from their ears, and around their locks of hair."² Several other writers mention the latter custom, *i. e.* of decorating the hair.³

The custom of suspending ornaments from the lobe of the ear was a common one; but in the *Relation* of 1657-58 (Vol. 44, p. 289), it is stated that "Not only the lobe of the ear is pierced, but also the cartilage or rim, which the women are wont to hang with bits of shell called porcelain." The Abnaki Indians, according to the *Relation* of 1652-53, "wore sticks of wampum in their ears, which are pierced with such very large holes as easily to receive a great stick of Spanish wax."⁴ Loskiel tells us that "Some Indians bore a hole through the cartilage of the nose, and wear a large pearl, or a piece of silver, gold, or wampum in it,"⁵ and this practice is also referred to in the quotation from Penn, given above.

Besides gratifying their personal vanity by the use of bracelets, necklaces, etc., some Indians wore a sort of crown, composed of shell-beads. "The People of Condition of both Sexes," says Beverly, "wear a sort of Coronet on their Heads, from 4 to 6 inches broad, open at the top, and composed of Peak or Beads, or else of both interwoven together, and workt into figures, made by a nice mixture of the Colours."⁶ Evidence is not wanting of the use of similar head-dresses among the Iroquois and our Canadian Indians. Brébeuf, in a letter to Le Jeune, speaks of an Iroquois prisoner among the Hurons who "was dressed in a beautiful beaver robe and wore a string of porcelain beads around his neck, and another in the form of a crown around his head."⁷ Le Jeune,⁸ himself, speaks of a Canadian Indian who "went to France and was very well received by his Majesty, at whose feet he laid his crown of Porcelain beads, as a sign that he recognized that great Prince, in the name of all these nations as their true and lawful monarch."

Beads.

These were the most common kind of ornaments among some tribes. Father Rasles, writing of the Abnaki Indians (in 1723), says: "If you wish to see him in all his finery, you will find he has no other ornaments

¹ Quoted by Israel Worsley, *A View of the American Indians*, etc. (London, 1828), pp. 65-66.

² *Relation* of 1638-39, Vol. 15, p. 155.

³ Loskiel, *History of the Mission of the United Brethren among the Indians of North America* (London, 1794), p. 48; *Relation* of 1657-58, Vol. 44, p. 287; Father Nau's *Relation*, Vol. 68, p. 265, and Vol. 70, p. 95; and Beverly, Book III., p. 2.

⁴ Vol. 40, p. 207 (Burrows Ed.)

⁵ Loskiel, p. 49.

⁶ *History and Present State of Virginia*, B. III., p. 2. In plate 3 Beverly shows an Indian wearing one of these "Coronets," and on plate 5 is a young woman with the same head-gear.

⁷ Le Jeune's *Relation*, Vol. 13, p. 39.

⁸ *Ibid.*, Vol. 15, p. 223.

but beads."¹ The Indians were sometimes most lavish in the use of these objects. In the *Relation* of 1644-45 we read of Kiotseaton, an Iroquois Indian who had come to negotiate peace with the French, as being "almost completely covered with Porcelain beads."² According to Dawson, Champlain says "the Huron girls accumulated strings of wampum for their dowry, and lavishly adorned themselves with it on occasions of festivity."³

Enormous quantities of beads have been found in graves and mounds. In the Grave Creek mound of Virginia, for instance, between three and four thousand were discovered. Professor Holmes, commenting on this find, says: "This number will, however, appear very insignificant when compared with a collection such as the costume of the great King Philip could have furnished. Drake," he says, "relates that Philip had a coat 'made all of wampameag,' which, when in need of money, he 'cuts to pieces, and distributes it plentifully among the Nipmoog sachems and others as well to the eastward as southward, and all round about."⁴ By adding to this store of beads the contents of two belts, one of which was nine inches in breadth, and so long that when placed upon the shoulders it reached to the ankles, we conclude that the greatest collection ever taken from a prehistoric mound could not compare for a moment with the treasure of this one historic chieftain."⁵

Mr. Matson, on page 129 of the *Ohio Centennial Report*, "describes four skeletons, on each of which shell beads were found. In three cases they had been placed about the neck only; in the fourth, nearly thirty yards of beads had been used. There were four strands about the neck, crossing over on the breast and back and passing down between the legs. Strings passed down the legs to the feet, and were also found along the arms and around the wrists."⁶ It is not evident whether these beads were worn, arranged in the way described, during life; they may only have been placed so before burial. It was a common custom to bury all valuable possessions with their dead owner, and Le Jeune mentions the practice of even putting bracelets of beads on the bones of the dead before the communal burial in ossuaries.⁷

On the neck of a skeleton in the Princess mound, Rice Lake, Mr. Boyle found 865 discoidal beads, which appeared to have been in several strings. In the same mound there were also 300 beads made of *Marginella conoidalis*, arranged in two strings.

The wearing of bead necklaces, as was observed by one of the Jesuit Fathers, was "more common among men than among women."⁸

The simplest ornaments consisted of entire shells, not altered in any way, except that they were pierced for stringing. For this purpose both land and fresh-water species were freely utilized; beads fashioned of whole shells being perhaps the most common objects of the kind found in Ontario.

¹ Kip: *Jesuit Missions*, p. 25; *apud* Holmes, p. 231.

² Vol. 27, p. 247.

³ *Fossil Men*, p. 140.

⁴ Drake: *Book of the Indians*, p. 27.

⁵ "Art in Shell," p. 234.

Ibid., p. 231.

⁷ Le Jeune's *Relation*, Vol. 10, p. 293.

Journal of the Jesuit Fathers in 1658, Vol. 44, p. 291.

Perforated shells of *Melantho decisa*,¹ (figure *e*, plate VIII.), one of the largest and heaviest of our fluviatile univalves, abound. These shell-heads are known to occur on village sites in the Counties of Waterloo, Oxford, Brant, York, Victoria and Simcoe; and they are also met with in the kitchen-middens of Central and Western New York. They may have been worn as among the Virginia Indians, described by Strachey, who says they wore "sometymes divers kinds of shells, hanging loose by small purplets or threeds, that, being shaken as they move, they might make a certaine murmuring or whisteling noise by gathering wynd, in which they seeme to take great jollity, and hold yt a kind of bravery."²

Another species frequently found is *Pleurocera subulare* (figure *f*, plate VIII.), a native of the Great Lakes. This is likewise pierced through the lip. Waterworn specimens of this shell, perforated in precisely the same way, but quite adventitiously and by wholly natural means, were collected by the writer on the shore of Lake Erie; and we have seen some from Indian camps which have every appearance of having been such shells appropriated by the Indians merely because they were already provided with a suspension hole. Such accidentally perforated ones, one would think, suggested the idea of piercing those that were *not* perforated, just as Holmes says, "Perforations which occur naturally in some species of shell would be produced artificially."³ The New York Indians used these shells for a similar purpose; several specimens in the museum of the Buffalo Academy of Sciences being obtained from kitchen-middens in the western part of the State. The Provincial Museum contains examples from the following localities: Waterloo, Oxford, Brant, and Victoria counties. Many of these specimens (especially those from Oxford and Waterloo) come from prehistoric sites.

Goniobasis livescens (the *Melania livescens* of the older conchologists) is another fresh-water shell, resembling the species just described, although it is not quite so large. It is also frequently perforated for use as a shell-head, or, perhaps, as an ear ornament; for the Canadian Indians, according to the *Jesuit Relations*,⁴ used shells for this purpose. This species is not so commonly met with as the *Melantho* and *Pleurocera*. Ash beds and débris heaps in the following counties in Ontario have yielded specimens: Brant, Oxford, York and Waterloo. Dr. Beauchamp has collected this species and *G. depygis* in Central New York.

Shells of *Planorbis trivolvis* have been found, "rubbed smooth and polished by long use as ornaments," in refuse heaps in York County. *P. bicarinatus*, a smaller species with, as its specific name implies, two sharp ridges revolving on the whorls of the shell, "in the same condition as is the last," were likewise collected. In addition to these are mentioned several land snails, such as *Polygyra palliata*, "polished by long use as an ornament;" *Stenotrema monodon* (a species about half the size of *palliata*) "from Old Fort, Whitchurch, in which a hole has been made

¹The writer has a specimen with two holes—one in the usual place and the other higher up in the spire; but the remarkable feature about this example is that there are apparent evidences of reparative growth subsequent to the piercing of the lower hole, showing that the animal lived for some time after the operation; for it is well known that most mollusks have the power of repairing their shells when they are injured. No explanation can be offered as to the probable reason for this double perforation, except, possibly, to kill the animal, or to facilitate its removal from the shell.

²*The Historie of Travaile into Virginia Britannia*, etc., p. 67.

³"Art in Shell," p. 188.

⁴Vol. 1, p. 281.

through the centre of the spire."¹ The writer himself has occasionally picked up the prettily mottled shells of *Pyramidula alternata*, while searching for relics, and on one occasion found several with a hole passing through from the apex to the umbilicus. This hole may also have been made by accident recently, for the shells are very fragile.

In Mr. Laidlaw's collection there are three pierced shells of *Limnaea catascopium* from Victoria county, one of which we illustrate (figure *g*, plate VIII.) The walls of this particular specimen are much heavier than those of recent shells of this species, especially those found inland. Several shells of *L. palustris*, worn and polished, with holes within the lip, were collected in York county.

On a village site in Waterloo county the writer picked up a broken valve of the small species of bivalve known as *Sphaerium striatum*, which had been pierced with a hole. This specimen, unfortunately, was lost. It is the first record of this species being used for ornamental purposes.

Dawson, in his *Fossil Men*, mentions a necklace "composed in part of shells of *Purpura lapillus* from the distant coast of New England, and in part of rude beads of native copper from Lake Superior," which were found in a grave at Brockville, Ontario. The Indians of Newfoundland also strung these shells for beads and ornaments.

There is a little shell quite commonly used as a bead, and this is *Marginella conoidalis* (figure *h*, plate VIII.) It is a marine species, and has the apex ground down until a hole appeared. This shell has been discovered in different localities in Ontario, and is frequently met with in some parts of the United States.

A perforated shell of *Natica duplicata*, in the Museum, was discovered in a gravel pit near the town of Simcoe, in Norfolk county. When found it and a bone needle were still united by a strand of hair. This species is oceanic.

There is also a string of *Olivella oryza* shells, from York county, in the Provincial collection.

Beads made from pieces of the larger tropical shells are more numerous than those just described. The flat discoidal forms are derived from the solid columellæ (see figures *f*, plate XIII.), and there are also some from the parietal portions. There are in the Museum several almost spherical specimens from Onondaga township, Brant county. Others are cylindrical and from one to two and three or more inches in length, and varying from about $\frac{3}{16}$ to $\frac{3}{4}$ of an inch in diameter. One bead of this kind, from Brant county, is made of the columella of a large conch and is over $6\frac{1}{2}$ inches long. This is evidently the kind of bead referred to by Adair, when he says: "Formerly four deer-skins was the price of a large conch-shell bead, about the length and thickness of a man's fore-finger; which they fixed to the crown of their head as an high ornament—so greatly they valued them."²

Figure *a*, plate IX., shows the only known example of a discoidal bead made of *Unio* shell obtained from a prehistoric site in Ontario. It seems to be derived from *U. luteolus*, the thickest *Unio* found in the part of the country where this specimen was found, namely, in North Dumfries township, Waterloo county. This specimen is a little more than $\frac{1}{4}$ of an inch in diameter and $\frac{3}{16}$ thick. It retains the pearly nacre of the fresh shell. If the prehistoric Neutrals knew anything about wampum this one no doubt would be regarded as such.

¹ Ontario Archaeological Report for 1901, pp. 46-47.

²The History of the American Indians, p. 170.

The small shell-bead shaped like a truncated pyramid represented in figure *b*, plate IX., comes from York township. It is made of a piece of one of the large conchs. Its proportions are $\frac{7}{16}$ by $\frac{5}{16}$ of an inch, and is about $\frac{7}{16}$ of an inch high. The hole at the bottom is round, while at the top it is oval or almost quadrangular.

In figure *c*, plate IX., we have one of the most remarkable shell-beads in the Provincial collection. It was found on lot 19, concession 3, London township, Middlesex county. It is only about $\frac{1}{2}$ inch long and nearly as wide.

We have another unique form of bead represented in figure *f*, plate IX. The end view shows the curious shape of this specimen. Its length is $\frac{3}{4}$ of an inch. The hole was drilled from both ends, the perforations meeting near the middle. It comes from Nottawasaga township, Simcoe county.

A curious bead, made from the rostrum or beak of a conch shell, is shown in figure *d*, plate IX. The hole was bored through the rounded columella, and the natural canal and a portion of the lip was retained. It is a little more than $1\frac{1}{8}$ inches long, and 1 inch wide. This is the only specimen of the kind that we have ever seen. It comes from Onondaga township, Brant county.

Figure *e*, plate IX., shows a rude bead made from an unsymmetrical piece of shell, which comes from Nottawasaga township. It appears to have been a fragment of another piece which likewise was provided with a hole, a portion of which is retained. It was afterwards re-bored. The lamellar structure is shown on one side. It is $\frac{3}{4}$ of an inch long, and about $\frac{3}{8}$ square.

The cylindrical bead from Beverly township, Wentworth county, shown in figure *g*, plate IX., is another peculiar specimen. The holes are bored somewhat like those in bird amulets. First a hole was drilled in at the end to the depth of about $\frac{3}{8}$ of an inch, and a lateral hole was bored to meet this. Both holes are now broken. At the end where the hole is most badly broken an attempt was made to pierce it from the opposite side. It is about $1\frac{3}{8}$ inches long, and $\frac{1}{2}$ of an inch in diameter.

A similar bead, except that the holes go entirely through, and which also comes from Beverly township, is shown in figure *h*, on the same plate. It is made from the internal column of a tropical shell, the spiral groove of which is still retained. The holes are a little more than $\frac{1}{2}$ of an inch in diameter, and were drilled from both sides, the perforations meeting in the middle. It is $2\frac{1}{4}$ inches long, and nearly $\frac{1}{2}$ of an inch thick.

Our collection also includes numerous examples of what are called runtees, which are thus described by Beverly: "These are either like an Oval Bead, and drill'd the length of the Oval, or else they are circular and flat, almost an inch over, and one-third of an inch thick, and drill'd edgewise."¹ He gives an illustration of an Indian boy who is described as wearing a necklace of runtees. Figure *c*, plate XVIII., is Holmes' copy (figure 5, plate XXXVI.) of a portion of Beverly's engraving.

Figure *i*, plate IX., shows a common form of runtee bead from a mound near Port Colborne. It is $1\frac{1}{4}$ inch long, $\frac{7}{16}$ wide and $\frac{3}{16}$ thick.

A rude, heavy bead, triangular in cross-section, which comes from lot 34, concession 7, Beverly township, is shown in figure *j*, on plate IX. It is $\frac{1}{2}$ of an inch long and $\frac{3}{4}$ wide. There are several of a similar shape in the Museum; also some flattened, rectangular pieces of approximately the same size.

¹ *History of Virginia*, Book III., p. 59.

The bead shown in figure *k*, plate ix., comes from a prehistoric site in Waterloo county, and is the only bead of this type ever found on a village site in that part of the Province, although it is only a short distance from sites (in Brant county) yielding numerous objects made from tropical shells. The hole was bored from end to end and is of uniform diameter throughout. The proportions of this bead are:—length, $\frac{1}{4}$ of an inch; width, $\frac{5}{16}$; thickness, $\frac{3}{16}$ of an inch. It is still quite smooth and polished, and in appearance is almost like porcelain. One side is slightly concave and the other is convex.

A unique form of runtee bead is illustrated in figure *l*, plate ix., which was obtained from a mound at Port Colborne. The hole is not bored through from end to end, but was made in the same way as the holes in bird amulets, the lateral hole being bored to meet the one drilled lengthwise from the middle of the end. Mr Boyle says of this specimen: "Shell-beads bored in this way are by no means common, if we may judge from the fact that the specimen figured here is the only one that has come into our possession since the Ontario archaeological collection was begun, twenty-one years ago."¹ This specimen is much decayed, exposing the lamellar structure of the shell. The darker portions shown in the figure are a dull red in the specimen. It is roughly circular or orbicular in outline, and is $1\frac{3}{8}$ inches in diameter and nearly $\frac{3}{8}$ thick.

In figure *m*, plate ix., we have a somewhat different style of runtee, also made of sea-shell. A portion of this specimen is missing, but it evidently was provided with two perforations, a portion of one of which still remains, as is indicated in the figure. The only attempt at decoration is a row of circular depressions along the edge and across the middle. This specimen must have been worn a considerable length of time as some of these depressions are almost, in fact some of them are, entirely effaced. Professor Holmes figures (fig. 3, plate xxxvi.) a specimen somewhat similarly decorated, which comes from New Mexico and is now in the U.S. National Museum. As in Holmes' figure, our specimen may also have had a line crossing the other, forming a cross. The width of this specimen is a little more than $\frac{7}{8}$ of an inch, so this must have been its general diameter when whole. It is $\frac{3}{16}$ of an inch thick. This specimen comes from Nottawasaga township, Simcoe county.

The specimen shown in figure *e*, plate x., which may also have been a gorget, is a flat piece of tropical shell, over 2 inches in diameter. It is thus described by Mr. Boyle in the *Archæological Report* for 1897: "The three concentric circles in the middle and the arcs on the margin have been described from central points by means of something answering the purpose of compasses, as have also the smaller circles surrounding the dots. The pattern has been carefully laid out, and quite as accurately worked out. Although not more than $\frac{1}{8}$ of an inch in thickness on the edge, and about $\frac{3}{16}$ in the middle, two holes having a diameter of two millimeters are bored from edge to edge, as shown by the dotted lines, which are not on the specimen itself. The extremities of the holes bear evidence of much wear." This fine specimen comes from near Penetanguishene, Simcoe county. Some years ago a somewhat similar one was found in a grave near the Humber river, in York county.

¹ *Annual Archaeological Report* for 1906, p. 32.

Pendants.

Some of these were no doubt attached as auxiliary ornaments to the larger gorgets of shell.

Figures *a* and *b* on plate x., represent two "ear drops" or pendants of *Unio* shell, from Nottawasaga township, Simcoe county. They still retain the pearly coloring of the natural shell, and in figure *a*, the pallial impression remains. The holes in both specimens are only about $\frac{1}{3}$ of an inch in diameter. The larger specimen is $1\frac{1}{8}$ inches long and $\frac{1}{8}$ wide; while the other is $\frac{1}{2}$ of an inch long and $\frac{3}{4}$ of an inch wide, and they are not more than $\frac{1}{8}$ of an inch thick.

A small pear-shaped pendant or "ear-drop" made of conch shell, obtained from a grave on lot 10, concession 3, Onondaga township, is shown in figure *c*, plate x. Its proportions are: length, $\frac{7}{8}$ of an inch; width, $\frac{5}{8}$, and it is a little more than $\frac{1}{8}$ of an inch thick.

Figures *g* and *h*, plate x., are from Brant county, and are both made of *Unio* shell. Figure *h* is a little more than $\frac{7}{8}$ of an inch long, $\frac{1}{2}$ inch wide, and $\frac{1}{16}$ thick. The other is a little smaller and has a square perforation. It measures $\frac{9}{16}$ of an inch in length and is $\frac{7}{16}$ wide.

The concavo-convex, irregularly shaped pendant represented in figure *d*, plate x., comes from Onondaga township. It is in poor condition owing to decay. The proportions of this specimen are: length, $1\frac{5}{8}$ inches; width, $\frac{5}{8}$ of an inch.

A pendant ornament with two holes is shown in figure *k*, plate x. It seems to have been made from a small conch. The upper portion is triangular in cross-section. The length of this specimen is $1\frac{1}{4}$ inches and its width is about $\frac{3}{4}$ of an inch. This object is also considerably decayed. It comes from Onondaga township.

Figure *l*, plate x., represents another form of pendant from a grave in Onondaga township. The greater part being like soft chalk, considerable portions have broken away. It is $1\frac{3}{4}$ inches long, and $\frac{1}{2}$ of an inch wide.

Figures *i* and *j*, plate x., are made from the parietal portions of a small conch. Figure *j*, has a deep groove cut across the side shown; and this, no doubt, was done to separate the perforated part from the lower portion. Below this groove there is another incised line. Both specimens come from Beverly township and their respective proportions are: figure —*l* by $1\frac{7}{8}$ inches; figure *i*— $1\frac{1}{2}$ by $1\frac{1}{4}$ inches.

In figure *a*, plate xi., is shown a roughly made pendant consisting of a narrow strip of conch shell, with a hole through one end. The other end has been left in the rough state. This specimen is $2\frac{3}{8}$ inches long, $\frac{9}{16}$ wide, and $\frac{1}{4}$ thick. It comes from Beverly township.

We have another crude pendant made of a rough, angular fragment of a massive species of *Unio* (perhaps *U. plicatus*) represented in figure *b*, plate xi. The whole specimen has not been smoothed and polished in any way. The hole is a little larger than $\frac{1}{8}$ of an inch and was drilled straight through, and not from both sides as is so usually done. The natural nacreous surface of the original shell still remains. It is $2\frac{1}{4}$ inches long, $1\frac{3}{16}$ wide and $\frac{5}{16}$ thick. This object was found on lot 19, concession 3, London township.

In figure *c*, plate xi., we have what is, in all probability, one of the most unique forms of pendants yet discovered; at least we have never seen anything similar illustrated. It was made of a small tropical shell, probably a *Strombus*, the apex of which was ground flat, and the solid columella reduced to the upright cylindrical projection seen in the figure. The marks

of the whorls are still to be seen on the lower surface. The flanged portion, or base, is $\frac{7}{8}$ of an inch wide and is less than $\frac{1}{16}$ of an inch thick at the edge; the entire height is $\frac{1}{8}$ of an inch. An oblong lateral hole has been made through the side to meet the vertical one which is about $\frac{3}{4}$ of an inch in diameter. This very interesting specimen comes from Beverly township.

The ornament shown in figure *d*, plate xi., seems to be a fragment of one of the sandal-shaped gorgets, but it may also have been given its present form originally. Its length is 2 inches, and its width $1\frac{7}{8}$. It was found near London, Ont.

Figure *f*, plate xi., represents a large pendant made of a piece of tropical shell. It seems to have been much longer. The fractured edge has been smoothed a little. There are three incised lines across each corner. The proportions of this ornament are: Length, $2\frac{3}{8}$ inches; width, $2\frac{5}{8}$ inches. It comes from Brantford township, Brant county.

The pendant of tropical shell shown in figure *e*, plate xi., has an eye drilled through a raised projection. The other "side is perfectly smooth but for a few slight, half aimless looking scratches that were meant for a design."¹ The ends are polished but the condition of the edge at the sides show that portions had been broken off each side. Both of these edges are not polished or even smoothed.

Entire shells of small oceanic species were also used as pendants. Figure *d*, plate xii., shows a small *Strombus*, of what species it would be difficult to say with accuracy. Part of the rostrum or beak has been broken off. A hole $\frac{3}{16}$ of an inch in diameter has been pierced through the lip. The length of this shell is 2 inches. It was found in Nottawasaga township, Simcoe county.

Figure *b*, plate xii., represents a small specimen of *Fulgur* or *Busycon perversum* from the Atlantic, which has been worn as a pendant. It has a perforation through the lip, and shallow grooves have been cut on each side of the rostrum, from which end it was, no doubt, suspended; the hole in the lip perhaps serving for the attachment of other ornaments, such as strings of beads, etc. Through long burial it is now quite chalky in appearance. Its length is $2\frac{1}{4}$ inches. It comes from Tiny township (lot 11, concession 10), Simcoe county.

In figure *a*, on the same plate, we have a shell of the same species. In this specimen the suspension was effected by a small hole through the rostrum. Another hole was drilled through the upper part of the lip. This shell still retains some of the natural coloring on the surface, the radiating bars of reddish brown being particularly fresh. The length of this specimen is $1\frac{7}{8}$ inches. It was found in Nottawasaga township, Simcoe county.

Another almost entire shell, perforated for suspension, is shown in figure *c*, plate xii. This is made of another species of shell, *Fulgur pyriform* (?), and differs from figures *a* and *b*, in being dextral whorled. As may be seen from the illustration it is not so perfect as the other examples, portions of the spire having been broken in, exposing the columella. Its length is $1\frac{7}{8}$ inches. It was found in Onondaga township, Brant county.

Dr. Wilson describes a shell pendant from Nottawasaga which, he says, "has the upper whorls removed, so as to expose the internal canal. Five lines, or notches, are cut on the inner face of the canal, and it is perforated on the opposite edge, showing in all probability where the wampum,

¹ *Archæological Report*, 1904, p. 45.

sculp-lock, or other special decoration of its owner was attached. It also exhibits abundant traces of its long and frequent use . . . and all the natural prominences are worn nearly flat by frequent attrition."¹

Gorgetts.

These are thin, mostly nearly circular, concavo-convex plates derived from the most dilated portion of large tropical shells. (See figure *g*, plate XIII., copied from Holmes' plate.)

We find that the early explorers of the Atlantic Coast make frequent mention of gorgets and other ornaments; and as these allusions are always interesting, we will quote a few of them here. Perhaps one of the earliest we have is that of Beverly, who was an accurate observer of the habits and customs of the Indians he encountered. He gives a picture of a Virginia Indian in summer dress, of whom he says: "At his Ear is hung a fine Shell with Pearl Drops. At his Breast is a Tablet or fine Shell, smooth as polish'd Marble, which sometimes also has etched on it a Star, Half Moon, or other Figure, according to the maker's fancy."² On another page he writes, "Of this Shell they also make round Tablets of about four inches diameter. . . . These they wear instead of Medals before or Behind their Neck."³ Brickell⁴ says of the Indians of North Carolina: "They frequently make of these Shells, several sorts of Figures, in imitation of *Gorges*, *Crosses*, *Stars*, or any other odd kind of Figure that their imagination suggests, these they wear about their Necks and Arms tied with a String; there are some of these *Gorges*, that will sell for three or four *Buck Skins* ready drest, whilst others are only valued and sold for one *Doe Skin*."⁵ Adair gives the following account: "The American *Archi-magus*, wears a breast-plate, made of a white conch-shell, with two holes bored in the middle of it, through which he puts the ends of an otter-skin strap, and fastens a buck-horn white button to the outside of each."⁶ "The northern savages," says Lafitau, "wear on the breast a plate of hollow shell, as long as the hand, which has the same effect as that which was called *Bulla* among the Romans."⁷ And Kalm, describing the ornaments of some Indians he saw at Lorette, in Quebec, writes: "Round their neck, they have a string of violet wampums, with little white wampums between them. These wampums are small, of the figure of oblong pearls, and made of the shells which the *English* call clams. . . . At the end of the wampum strings many of the *Indians* wear a large French silver coin, with the King's effigy, on their breasts. Others have a large shell on the breast, of a fine white colour, which they value very high and is very dear."⁸

Judging from the large numbers of these found almost over the entire eastern seaboard of North America, from Florida to our own Province, gorgets were a very popular kind of ornament. The stone graves and caves of Tennessee have produced most of these objects, many of them

¹ *Canadian Journal*, (1854-55), Vol. III., p. 158.

² *History and Present State of Virginia*, Book III., p. 4. (See figure *d*, plate XIII.)

³ *Ibid.*, p. 59.

⁴ *Natural History of North Carolina*, p. 337.

⁵ Lawson, whose account is substantially the same as Brickell's, says: "There be others, that eight of them go readily for a doe skin."—*History of Carolina*, etc., (Raleigh reprint, 1860), p. 315; *apud* Jones.

⁶ *History of the American Indians*, p. 84.

⁷ *Mœurs des Sauvages Amérigains*, Vol. 2, p. 61; *apud* Holmes. (See figures *a* and *b*, plate XVIII.)

⁸ *Travels into North America*, Vol. III., p. 180.

being engraved with symbolic devices. They are common here in Ontario, but are invariably found associated with articles of European origin, thus showing that their manufacture, or, what is more likely perhaps, their introduction from the south, was comparatively recent. A few, however, may perhaps be prehistoric.

Having lost every vestige of their natural color, these objects are now far from being "things of beauty;" in fact, to see them in their present condition, and not knowing of what material they were made, some would be inclined to ask "What beauty did the Indian see in these things?" However, one need only look at a Giant Conch or *Busycon*, from which most of these ornaments are derived, to see how beautiful they really were. Mr. Boyle thinks that the beauty of these objects was, perhaps, further enhanced by the application of various colors. A bone bead in the Museum (described in the *Annual Report* for 1900) was decorated in this way, and he argues from this that this species of decoration might have been used on other ornaments as well; especially those that lacked colors of any kind. This sounds reasonable enough, although there is no proof that this was so; the specimens themselves offer no evidence of such treatment.

We have mentioned that in Tennessee' more shell ornaments have been found than anywhere else; in fact, Mr. Holmes calls it, a "great storehouse" of shell relics. Here have been discovered shell breast-plates on which are engraved highly conventionalized representations of the rattlesnake—a species of snake both feared and venerated by many tribes of the American Indians. We present an illustration of one of these gorgets in figure *e*, plate XII. The reader will not fail to see the close resemblance it bears to figure *f*, on the same plate, representing a gorget found in a large bed of ashes, fully two feet below the surface, in Brantford township, Brant county. Mr. Boyle gives a very good description of this gorget in the *Archæological Report* for 1899, which is as follows: "The straight edge . . . still shows marks of the sawing that was required to separate this from the other portion, but it is, of course, impossible to say whether the cutting was performed after an accidental break had spoiled the whole gorget, or whether an entire object had been cut in two for any reason. In addition to the original suspension holes, other two have been bored near the straight edge, no doubt that the gorget might hang more evenly, in keeping with its change of shape, yet without any regard to the position of the figure which would now be upside down. It is observable too, that the more recently formed holes bear even deeper signs of wear than the original ones do. Still further comparing this specimen with perfect gorgets, it will be seen that only the tail and the adjoining section remain while most of two other sections on a convex part of the shell are nearly worn out by contact with the human body—presumably. Of the second section from the tail, a little cross-hatching remains, and to the right are the three dots in line belonging to a bar that has disappeared; while further on still, is a single dot which was, no doubt, within two circular lines like those that remain, and near the dot are portions of the parallel lines separating the design from the border. The chevron, or diagonally opposed lines to indicate the tail are not so well made as those on most of the specimens figured in archæological books, but they show clearly enough the intention of the design.

"The fact that, so far as known, this is the only specimen of its kind found in Ontario is of itself almost sufficient to warrant the belief that it

is accidental, intrusive, imported; and we may go so far as to say that the secondary wearing of the gorget upside down would tend to show that the owner of this portion either did not know, or did not care how it was suspended, in which case it is plain that the symbolic nature of the work possessed no interest for him, and that he wore the gorget simply as a gawgaw, or because the lines may have suggested some 'big medicine' on account of their being quite unlike anything he had ever seen before." (p. 25).

The proportions of this very interesting specimen are: length, $4\frac{3}{4}$ inches; width, $2\frac{1}{4}$ inches.

Besides this we have only one other engraved shell gorget in the Museum, and this comes from a mound in Otonabee township, Peterboro' County. It is shown in figure *a*, plate xiv. We shall also quote Mr. Boyle's description of this specimen. He says "It is a part of a *busycon* or some other large shell, and measures nearly eight inches in length by four in breadth. In a rough way it seems to represent a turtle, the hinder portion of which is broken off. The incised lines are sharply cut, but the execution is so rough as to show us that no drawing had been made to guide the hand or the graver. Perhaps the most instructive lesson deducible from this specimen is to be found in the central part of the design, where we find that the workman has *not* employed any kind of dividers to mark what he intended to be circles. The work has been hurriedly performed—perhaps on purpose to place as an offering with the body buried in this mound, for not only are the lines unsymmetrical in their arrangement, but on the right side it will be noticed that one of the rows of shallow holes has been left incomplete. Several tons of earth were carefully sifted in vain, to find what appeared to be the missing hinder part of the specimen. The conclusion, however, was at last reached that the portion figured was all that had been buried; probably all that ever had been made; that it had been made simply to deposit in the mound, and this supposition receives support from the fact that the suspension holes on the right-hand edge of the body show no signs of the slightest wear."¹

The long sandal-shaped gorget represented in figure *d*, plate xiv., comes from near London, in Middlesex county. It is 8 inches long and 3 wide. This is the only one of the kind in the Museum. A similar specimen from Ohio, in the U. S. National Museum, is nearly nine inches long. A Mr. Whitney, who discovered one of these objects, in his letter transmitting it to the National Museum, says that "about ten pairs of the shell sandals of different sizes, and made to fit the right and left feet"² were found. While the outline of these gorgets approximates that of the sole of the foot, there is nothing in their appearance otherwise which would indicate such a use; and, besides, they would be almost too fragile for this purpose anyway. Some fifteen or twenty gorgets of a similar shape were once taken from a grave in Indiana.³ A comparison with Holmes' figure⁴ and the one in Moorehead's *Prehistoric Implements*, will show how remarkably similar these specimens are in every way. In each example there are three holes and all placed in nearly the same position. Our specimen is concavo-convex.

¹ *Archæological Report for 1896-97*, p. 56.

² "Art in Shell," p. 265.

³ *Prehistoric Implements*, p. 344, figure 503.

⁴ Plate I., figure 5.

Figure *b*, plate xv., represents a large gorget derived from the dilated parietal portion of a *Busycon* or *Strombus*. It is in very good condition; though, like all the rest of these shell objects, has been reduced to a substance like chalk. This specimen is nearly 5 inches long, and a little over $3\frac{3}{4}$ inches wide. It was found in North Cayuga township, Haldimand county.

There are several other specimens resembling this one in the Provincial collection. One of them, from near London, is $5\frac{1}{2}$ inches long and 4 inches wide. It has three perforations in a row, one of them being a little further away from the others which are close together. This and the outer one of the two show signs of wear from the suspension cord. The middle hole is not worn at all, and it evidently was made by mistake, the wearer afterwards discovering that the ornament would not hang straight. It is derived from the lip of a *Busycon* and is much weathered.

The largest shell gorget we have also is made from the lip of a *Busycon*. It is 7 inches long and 5 wide, and comes from the Teeple farm, Beverly township.

In figure *a*, plate xv., is represented the concave side of a gorget pierced with three holes. It was found in a grave in Onondaga township, Brant county. The edges are very much corroded. Its proportions are: length, $4\frac{1}{8}$ inches; width $3\frac{3}{8}$ inches.

The specimen shown in figure *g*, plate xl., comes from lot 10, concession 3, Onondaga township, Brant county, and is the smallest shell gorget in the Museum. It is $1\frac{7}{8}$ inches wide.

A gorget from Norfolk county is shown in figure *b*, plate xiv. The markings on the surface are the natural lines of growth, the object being derived from the lip of a *Busycon*. It is $3\frac{1}{4}$ inches in diameter.

These two-holed gorgets may have been strung in the manner shown in figure *d*, plate xviii., which we copy from one of Beverly's engravings.

In figure *c*, plate xiv., is represented a gorget with three holes, the one in the centre being much larger than the two others. This one is nearly four inches in diameter. It comes from Norfolk county. We have six specimens of this type, of which two are fragmentary. One of them is tinged a beautiful pale green color, possibly from contact with copper. It was found near London, and is $3\frac{1}{2}$ inches in diameter. Another one is only $2\frac{3}{8}$ inches wide. A large portion of it is missing. Similar specimens have been found in Ohio.

Figure *b*, plate xvi., represents the hollow side of a large oval gorget, apparently made from the body-whorl of the *Busycon*. It comes from the Sealey farm in Brant county. Almost the whole of the surface of the convex side is coated with what looks like iron rust. The diameters of this specimen are $5\frac{1}{8}$ and $5\frac{3}{8}$ inches. It is pierced with five holes.

In figure *a*, on the same plate, we have another shell gorget from the same place. It has eight holes through the middle portion, and there are also two holes on the margin. This specimen is $3\frac{7}{8}$ inches long.

Figure *a*, plate xvii., represents the concave side of a large gorget from an Indian mound near Port Colborne. It has seven perforations, the two larger being no doubt intended for the suspending cord. The deeply shaded portions show where the gorget came into contact with iron, two articles made of this metal, (a knife and pair of scissors) having been found in the same mound. It measures $4\frac{3}{8}$ inches across its longer diameter.

These specimens with supernumerary holes may have been worn in the manner shown by figures *a* and *b*, plate xviii. (which Mr. Holmes copies

from Lafitau), the extra holes serving for the attachment of auxiliary ornaments, such as pendants, beads, etc.

Professor Holmes figures and describes a gorget with four holes, which comes from Beverly township. The holes are arranged in the form of a rectangle. The gorget itself is described by Mr. Holmes as "key-stone" shaped. (See figure 1 on Holmes' plate L., "Art in Shell").

Pins

This is a class of objects frequently found in the mounds and stone-graves of the middle and south-eastern United States. Professor Holmes says of them: "The exact uses to which these pins were applied by the mound-building tribes are unknown; various uses have been suggested by archæologists. The favorite idea seems to be that they were hair-pins, used by the savages to dress and ornament the hair. It would seem that many of them are too clumsy for such use, although when new they must have been very pretty objects . . . Similar objects of bone or ivory, often tastefully carved, are used by the natives of Alaska for scratching the head, although it seems improbable that this should have been their most important function."

* * * * *

"It is possible that they may have served some purpose in the arts or games of the ancient peoples; yet when we come to consider the very great importance given to ornaments by all barbarians, we return naturally to the view that they were probably designed for personal decoration."¹

There are several forms, some being headless, while others have large, globular heads, and others, again, have broad, flattened heads. Figure g, plate XII., shows one of the latter type, from Nottawasaga township, Simcoe county. This is the only example in the Provincial Museum. It is $3\frac{3}{4}$ inches long and the head measures $\frac{3}{4}$ by $1\frac{1}{2}$ inches. The shaft is perforated near one end. Our engraving, unfortunately, does not bring out the beautiful marbling of the foliation. The head or flanged portion of this specimen appears to be derived from the peripheral ridge of the shell, the long shaft being cut from the body below or the shoulder above. Professor Wyman described and figured a somewhat similar specimen (except that his was shorter and much thicker in the shaft), from a burial mound at Black Hammock, Florida, in the *American Naturalist*.² He says that it was "cut from that portion of a *Pyruca*, namely, the suture, where one whorl joins the preceding." As it is perforated near the point he regards it as a pendant ornament. It is altogether likely that our specimen was also a pendant. General Thurston, in his *Antiquities of Tennessee*,³ illustrates a shell object resembling ours, except that it is not perforated. He calls it a "brackett," and says it "was ingeniously carved from the heavy point and the perpendicular column" of the shell. "The ingenuity of the mechanic, and the taste that suggested this useful little object," he says, "seem to indicate a somewhat advanced condition of society." It would seem from this that Mr. Thurston believes his specimen to have had a useful rather than an ornamental function. But, while the precise use of these objects is open to conjecture, we may safely assume that they were intended for personal ornaments.

¹ "Art in Shell," p. 217.

² Vol. 2, 1869, p. 455. Plate X.

³ Cincinnati, 1890, p. 315 fig. 223.

Other Ornaments.

In figure *b*, plate XIX., we have a very interesting specimen, the general outline of which approximates that of a fish, the mouth even being indicated. The tail portion is lacking. It is made of *Unio* shell of which the pearly nacre still remains. In its present condition it is difficult to determine what species of *Unio* furnished the material for this unique ornament. One of the spots for the attachment of the adductor muscles remains, as well as the pallial line. It is pierced with five holes, one of which serves to indicate the eye of the fish, and the others were no doubt intended for suspension and the attachment of subsidiary ornaments. A portion of the convex surface is considerably polished, showing that the ornament was worn with the hollow side outward. Its proportions are:—length, $2\frac{3}{8}$; width, $1\frac{1}{8}$ inches. It comes from Beverly township, Wentworth county.

Figure *e*, plate XIX., shows a decorticated valve of *Unio ventricosus* from a prehistoric village site in Wilmot township, Waterloo county. It was pierced with three holes.

A peculiar ornament, also made of *Unio* shell, is shown in figure *d*, plate XIX. Its contour suggests no particular resemblance to any animal form. The notches may have served for the attachment of the suspension cord. A portion of the smaller end is broken off. Its proportions are:—length, $1\frac{5}{8}$ inches; width, $\frac{1}{8}$ of an inch. It was found on the Sealey Farm, Brantford township.

We are tempted to regard the specimen shown in figure *g*, plate XIX., as a sort of lizard effigy. The lateral projections plainly represent limbs, and the head and tail are also quite evident. It is made of conch shell, is highly polished, and resembles ivory. Its length is $2\frac{5}{16}$ inches, and it is $\frac{3}{8}$ of an inch wide. It comes from Beverly township.

The paddle-shaped specimen represented in figure *j*, plate XIX., at present forms part of a string of shell and European glass beads which were found near Lambton Mills, York county. It may have been used for fastening strings of wampum to the clothing by passing it through a hole in the garment, just in the same way as the guard of a watch chain is passed through the button-hole. On one side there are several transverse markings. It is made of conch shell and is $1\frac{1}{4}$ inches long.

Figure *h*, plate XIX., shows an unfinished specimen. It is $1\frac{1}{16}$ inches long and $\frac{9}{16}$ wide.

Another shell ornament is shown in figure *a*, on plate XIX. It is nearly 1 inch long, $\frac{5}{16}$ wide, and a little more than $\frac{1}{16}$ thick. On one side there is an incised longitudinal line with four short lines crossing it at right angles.

In figure *c*, plate XIX., is shown a fragment of conch shell on which is incised a fairly-well executed human face. The lines descending from the mouth may indicate tattoo marks, or perhaps a beard—thus to typify a European. It is 1 inch long, and was found in Brant county.

In the specimen represented in figure *f*, plate XIX., we have an example showing the native appreciation of the beautiful iridescent nacre of shells. This specimen, the Hon. F. R. Latchford, K.C., says, "is a disc formed by breaking a large *Unio* shell (right valve) away from a centre formed by the posterior adductor muscle impression or attachment. The nacreous plates are so highly iridescent that the possessor of this ornament must have attracted great attention. The species from which the disc was cut is conjectural. The test is fresh and shows the greenish

tint common to *Unio ventricosus* or *U. subovatus*. It might also be made from *U. ligamentinus*, which is common in the Thames drainage." It is $1\frac{1}{2}$ inches in diameter and comes from Delaware township, Middlesex county.

There is in the Museum another disc from Eagle Place near Brantford. Mr. Latchford thinks it is derived from a sea-shell. The disc is almost perfectly circular, a little over 1 inch in diameter, and nearly $\frac{1}{4}$ inch thick. The nacreous portion is iridescent and almost like some species of *Haliotis* or Abalone shell.

Figure *i*, plate xix., may perhaps be a portion of a gorget. It is made of conch shell. At the upper right-hand corner there is a rectangular raised portion, which appears to have been produced artificially. The incised markings may have had some special significance to the maker. This fragment measures $1\frac{3}{4}$ by 2 inches and is $\frac{1}{4}$ of an inch thick. It comes from near Brantford, in Brant county.

From the use of shells as ornaments to that of their use as currency is but a step.

IV. WAMPUM.

It consisted of small cylindrical (see figure *n*, plate ix.) and also disc-shaped beads made from different kinds of shells.

Several early writers describe the method of manufacturing. "The process of manufacturing it," says Burnaby, "is very simple. It is first clipped to a proper size, which is that of a small oblong paralleliped, then drilled, and afterward ground to a round smooth surface, and polished."¹ Brickell says: "This Shell they grind smaller than the small End of a *Tobacco Pipe*, or a large *Wheat Straw*, four or five of them are about an inch in length, and every one drilled through, polished and made as smooth as Glass, yet they are as strong as *Beads*."² And on the following page he states that "They grind these Shells upon Stones and other things, 'till they make them current."³ We learn from Van Der Donck that "They strike off the thin parts of these shells and preserve the pillars or standards, which they grind smooth and even and reduce the same according to their thickness, and drill a hole through every piece, and string the same on strings, and afterwards sell their strings of wampum in that manner."⁴

The great labor in preparing it, however, was the boring; which, according to one writer, was effected with a sharp flint.⁵ Roger Williams says that the New England Indians "Before ever they had Awle blades from Europe they made shift to bore this their shell money with stones."⁶ Brickell asserts that "The Drilling is the most difficult to the *Europeans*, which the *Indians* do with a Nail stuck in a Cane or Reed, but whether they have any method in softening these Shells is uncertain. They rowl it continually on their Thighs with their right Hand, and hold the bit of Shell with their left; thus by degrees they drill a hole through it, which is a

¹*Travels Through the Middle Settlements in North America, in the years 1759 and 1760*, etc. by Rev. Andrew Burnaby. (Third edition, London, 1798), p. 80.

²*The Natural History of North Carolina*, p. 338.

³*Ibid.*, p. 239.

⁴"New Netherlands," *Collectio-n New York Historical Society*, Vol. I. (2nd series), p. 206.

⁵Brownell: *The Indian Races of North and South America* (Hartford, Connecticut, 1861), p. 39.

⁶"A Key into the Language of America, or an Help to the Language of the Natives in that part of America called New England." London, 1643. Reprinted as Vol. I. of the *Collections of the Rhode Island Historical Society* (Providence, 1827), p. 129.

tedious Work, but especially in making their *Ronoak*, four of which will scarce make one length of *Wampum*.¹¹ On a previous page the same writer observes that the conch shells are very "hard and difficult to be cut, yet some *European Smiths* have tried to drill these *Shells*, thinking to get an advantage by them, but it proved so hard and tedious in the working, that nothing could be gained thereby, that they have intirely laid it aside for the *Indians* to manage, who never value their Time, so that they can make them according to their Fancy."¹² The Southern Indians, according to Jones,³ pierced shell beads with heated copper drills. Schumacher states that the Santa Barbara Indians perforate shells with a flint drill.⁴

We have in the Museum an unfinished piece of wampum which is shown in figure *o*, plate IX. The edges have been rubbed but not enough so to make the bead perfectly round. The hole also has been only partly bored.

One of the principal shells used in the manufacture of wampum was the conch. The large *Busycon* was likewise used to a considerable extent. Wood says the Narraganset Indians formed their wampum "Out of the inmost wreaths of Periwinkle-shells."⁵ Williams states that they made the white sort "Of the stem or stocke of the Periwinkle, which they call, *Meteahock*, when all the shell is broken off." The blue sort was "made of the shell of a fish, which some English call *Hens*, *Poquaehock*."⁶ "Wampagne," says Mr. Gookin, another early writer, "is made artificially of a part of the wilk's shell."⁷ Beverly writes that the Virginia Indians, besides their wampum made of conch shells, "They have also another sort which is as current among them, but of far less value; and this is made of Cockel-shell, broke into small bits with rough edges, drill'd through in the same manner as Beads, and this they call *Roenoke*, and use it as the *Peak*."⁸ Cartier says the Hochelagans had a species of wampum known as *Esurguy*, which Sir J. W. Dawson thinks may have been "made of the shells of some of our species of *Melania* or *Paludina*, just as the Indians on the coast used for beads and ornaments the shells of *Purpura lapillus* and of *Dentalium*, etc."⁹ Lewis H. Morgan says that "the primitive wampum of the Iroquois consisted of strings of a small fresh-water spiral shell called in the Seneca dialect *Ote ko-a*, the name of which has been bestowed on the modern wampum."¹⁰ According to Dawson "The New England Indians used the hard shells of the 'Quahog' (*Venus mercenaria*), the purple spot at the posterior end of the shell forming the more precious blue wampum. The more northern coast tribes sometimes used the shells of the great clam (*Macra solidissima*). The inland nations purchased wampum from those of the coast, and, like the Coast Indians they used small shells perforated with holes. The wampum of the Iroquois,

¹¹P. 339.

¹²*Ibid.*, p. 338.

³*Antiquities of the Southern Indians*, etc., by C. C. Jones, Jr. (New York, 1873), p. 230.

⁴Hayden Survey, *Bulletin 3*, 1877, p. 43.

⁵*New England's Prospect*, p. 69.

⁶*Key*, p. 128. Mr. Trumbull (in the *Publications of the Narragansett Club*, Vol. I. (Providence, R. I., 1866)), "says that the *Poquaehock* was the *Venus mercenaria*, the round clam or quahog; the *Meteahock* was probably the *Pyrida carnea* and *P. canaliculata*, which have retained the name of 'periwinkle' on the coast of New England." (Burrows edition *Jesuit Revolutions*, Vol. 3, p. 312; note).

⁷*History of Plymouth*, p. 70; *apud* Jones' *History of the Ojibway Indians*.

⁸*History and Present State of Virginia*, Book III., p. 59.

⁹*Fossil Men*, p. 32; footnote.

¹⁰*Fifth Annual Report on the New York State Cabinet of Natural History*, p. 73; *apud* Holmes.

and also the Hochelagans, was made of freshwater univalves, probably the *Melania*. They also ground into perforated discs for beads the pearly shells of freshwater Unios."¹

"The utilization of shells for money," says Holmes "would naturally originate from the trade arising from their use as utensils and ornaments in districts remote from the source of supply. Yielding in the worked state a limited supply, and at the same time filling a constant demand, they formed a natural currency, their universal employment for purposes of ornament giving them a fixed and uniform value. They have undoubtedly been greatly prized by the ancient peoples, but on the part of the open-handed savage they were probably valued more as personal ornaments than as a means of gratifying avaricious propensities."²

But it is when we come to consider the amount of labor and time which was involved in the shaping and perforating of these beads that we can understand why they were regarded as the most precious possessions of the Indians. The time required to manufacture beads out of this intractable material was no doubt the chief consideration in determining their value. Among the Passamaquoddy, for instance, "a single bead required a full day's work to make and finish it,"³ and Lindström, writing of the Indians of New Sweden, says that one person "cannot make more in a day than the value of six or eight stivers."⁴

Wampum has been valued as follows: In North Carolina, according to Brickell, "Four Cubits of this purchase a dressed *Doe Skin*, and six or seven are the purchase of a dressed *Buck Skin*." A little further on the same author says, "A *Cubit* of the *Indian* measure contains as much in length as will reach from the Elbow to the end of the little Finger. They never regard or stand to question whether he is a tall or short Man that measures it; but if this *Wampum* or *Peak* be of a black or purple Colour, as some part of the Shell, then it is twice the Value."⁵ Beverly says of the wampum of the Virginia Indians: "The *Indians* had nothing which they reckoned Riches before the *English* went among them, except *Peak*, *Rocnoke*, and such like trifles made out of the *Cunk* shell. These past with them instead of Gold and Silver, and serv'd them both for Money and Ornament. It was the *English* alone that taught them first to put a value on their Skins and Furs, and to make a Trade of them. *Peak* is of two sorts, or rather of two colours, for both are made of one Shell, tho of different parts; one is a dark Purple Cylinder, and the other a white; they are both made in size and figure alike, and commonly much resembling the *English Buglas* but not so transparent nor so brittle. They are wrought as smooth as Glass, being one-third of an inch long, and about a quarter diameter, strung by a hole drill'd thro the Center. The dark colour is the dearest, and distinguish'd by the name of *Wampom Peak*. The *English* men that are call'd *Indian Traders*, value the *Wampom Peak*, at eighteen pence *per* Yard, and the White *Peak* at nine pence. The *Indians* also make Pipes of this, two or three inches long, and thicker than ordinary, which are much more valuable."⁶ We learn from Williams that of the white sort six were "current with the English for a Penny," and of the black or purple kind "three make an English penny."⁷ On page 129 he says,

¹ *Fossil Men*, p. 140.

² "Art in Shell," p. 235.

³ Leland's *Algonquian Legends of New England*, p. 305; footnote.

⁴ Pennsylvania Historical Society, Vol. III., p. 131.

⁵ Pp. 338-339.

⁶ History of Virginia, Book III, pp. 58-59.

⁷ *Key*, etc., p. 128.

"This one fathom of this their stringed money, now worth of the English but five shillings (sometimes more) some few yeeres since was worth nine and sometimes ten shillings per Fathome. . . . Their white they call *Wompam* (which signifies white): their black Suckaubuck (*Sácki* signifying blacke)." Schoolcraft tells us that "A single string of wampum of one fathom, rated at five shillings in New England, and is known, in New Netherlands, to have reached as high as four guilders, or one dollar and sixty-six cents."¹

Wampum was readily adopted as a medium of exchange by the early white traders, not only in their transactions with the native Indians but also among themselves. "In Massachusetts 'wampampeag' was legal tender (Act of 1648) for all debts less than forty shillings, 'except county rates to the treasurer,—the white, at eight for a penny, and the black at four for a penny.'"² Even in Canada, as late as the year 1792, "An Act to permit the importation of wampum from the neighboring States by the inland communication of Lake Champlain, and the River Richelieu or Sorel," was made legal at the First Session of the first Provincial Parliament of Lower Canada.³ The Rev. Peter Jones, in his *History of the Ojibway Indians*, but who does not give his authority for the statement, says that "Wampum was first introduced at Plymouth, New England, as an article of commerce, by Isaac De Razier, a Dutch merchant, in the year 1627." The Dutch with their usual enterprise also introduced the lathe in manufacturing this currency, thus polishing and perforating it with exactness; and, as Schoolcraft says, "soon had the monopoly of the supply of this article for the whole Indian trade."⁴ In Schoolcraft's time it was still manufactured at Hackensack, in New Jersey, and in several towns in New York; there being even yet a demand for it by the Western fur traders. The factories in Jersey City employed German workmen to fabricate the wampum.

This shell money seems to have had a fixed value among the different tribes. Beverly, for instance, states that "These sorts of Money have their rates set upon them as unalterable, and current as the values of our Money are."⁵ And Adair furnishes confirmatory testimony as to the truth of this statement. He says, "With these they bought and sold at a stated current rate, without the least variation for circumstances either of time or place; and now they will hear nothing patiently of loss or gain, or allow us to heighten the price of our goods, be our reasons ever so strong, or though the exigencies and changes of time may require it."⁶

The uses of wampum may be briefly summarized as follows: It was not only used as currency and ornaments, but was used for presents, or gifts; it was often paid as a ransom for a prisoner;⁷ with it the Indians made atonement for crimes.⁸ It was sent with messengers as their credentials, and represented the chief's authority. It has been used even among the Indians of the Six Nations Reserve, in recent years, as an important part of the "invitation stick." Among the Hurons, according to Le

¹ *Notes on the Iroquois*, etc. (Albany, N.Y., 1847), p. 357.

² Burrows' Edition *Jesuit Relations*, Vol. 3, p. 313. (See Ingersoll's "Wampum and its History," in *American Naturalist*, Vol. XVII (1883), pp. 467-479.

³ Quoted by Mr. Boyle in the *Fourth Annual Archæological Report* (1890-91), p. 52; footnote.

⁴ *Notes on the Iroquois*, p. 357.

⁵ Book III., p. 59.

⁶ *History of the American Indians*, p. 170.

⁷ Bressani's *Relation*, 1653, Vol. 39, p. 77.

⁸ See Brickell's *Natural History of Carolina*, p. 339.

Jeune's *Relation* (p. 209, Vol. 17), wampum was used as a thank offering to their *Ascwandic*, or familiar demon; and in the *Relation* of 1672-73 (Vol. 57, p. 277), we read of an Indian adorning a stone idol with wampum beads. The Jesuit *Relations* contain numerous references to the use of "porcelain" (which was the name given to wampum by the early French missionaries and explorers), not only among the Indians, but by the French themselves, in their dealings with the Indians. It was used as church offerings, and to obtain prayers for the repose of the soul, etc.¹

Another use of wampum may be mentioned. Cadwallader Colden, in speaking of the Mohawk Indians, says: "All the Nations round them have for many Years, intirely submitted to them, and pay a yearly Tribute to them in Wampum."² And we learn also from Druilletes' *New England Tour* (1650-51) that the Iroquois exacted annual tribute in the shape of "porcelain" from the Sokouchiois, a tribe closely allied to the Algonquins.³

In the early days coin was scarce and paper money unknown, so that church offerings were often made with *seawan* by the Dutch settlers. Indeed, we have a parallel to the story of a gentleman in India paying for the building of a beautiful bungalow entirely with cowries (it required 16,000,000), the shell money of the Orient. Schoolcraft tells of a church on the Jersey shore, opposite New York, which was "constructed out of funds contributed, from sabbath to sabbath, in grains of *seawan*, by the Dutch people."⁴

"The name *Wampum*," says Holmes, "is often applied to shell beads indiscriminately, but frequently has a more restricted significance, referring to small cylindrical varieties used in strings and belts. It was known first in New England as *wampumpeag*, *wampompeage*, *peag*, *wompam* and *wampum*; the Dutch of New Sweden knew it as *seawan*, *sewant*, and *seawant*, while on the Virginia coast, it was called *peak*, a roughly made variety being known as *ronoak* or *roenoke*, a heavy, flattish beads pierced edgewise were called *runtees*. It is probable that all these names are American in origin, although there is some difference of opinion as to their derivation. Loskiel says that wampum is an Iroquois word meaning muscle, but according to Morgan, who is probably the best modern authority on the subject, the word *wampum* is not Iroquois in origin but Algonquin, as it was first known in New England as *wampumpeage*."⁵

Unless some of the perforated spiral shells and the disc-shaped specimens, described in a previous section, were regarded as such, no wampum of any kind so far as we know, has been found on a prehistoric village site in Ontario. The discoidal beads from the Rice Lake mounds, however, are undoubtedly prehistoric, as nothing at all suggestive of European contact was found in these mounds. Beauchamp says, "I have mentioned the lack of wampum among the early New York Iroquois, as a proof that they had not reached the sea; but it was not abundant even on the coast in prehistoric times. On early Iroquois sites it is not found, nor anything resembling it . . . A few stray, prehistoric, small wampum beads might be expected low down in the Mohawk valley, but I know

¹ The reader who wishes to pursue the inquiry any further must be referred to the excellent edition of these *Relations* issued by the Burrows Co., of Cleveland; *sub voce* "Porcelain" in the Index Volumes.

² *The History of the Five Indian Nations of Canada*, etc. (Reprint, Toronto, 1902), pt. II., p. xviii.; *Intro.*

³ Burrows Ed., Vol. 36, p. 105.

⁴ *Notes on the Iroquois*, p. 358.

⁵ "Art in Shell," p. 239.

of none ; west of this they are absolutely unknown."¹ Hutchison, in his *History of Massachusetts* says "the Indian residents northeastward of the province of New York had originally no knowledge of this sort of medium or trade."² Lewis H. Morgan also doubts whether the earlier Indians used it as currency.³ But Holmes says, "The great body of our historical evidence goes to show, however, that a currency of shell was in use among the Atlantic coast tribes when first encountered by the Europeans ;" and in another passage he maintains that the wampum industry was not introduced by the Europeans as some think. There is no question, however, but that the arrival of Europeans gave an impetus to the trade, especially after the introduction of machinery, whereby wampum was made more quickly. Loskiel asserts that the old wampum even was entirely disused. His words are worth quoting in this connection. "Before the Europeans came to North America," he says, "the Indians used to make their strings of wampom chiefly of small pieces of wood of equal size, stained either black or white. Few were made of muscles, which were esteemed very valuable and difficult to make ; for, not having proper tools, they spent much time in finishing them, and yet their work had a clumsy appearance. But the Europeans soon contrived to make strings of wampom, both neat and elegant, and in great abundance. These they bartered with the Indians for other goods, and found this traffic very advantageous. The Indians immediately gave up the use of the old wooden substitutes for wampom, and procured those of muscles, which, though fallen in price, were always accounted valuable."⁴

This shell-money appears to have been in use from Canada to Florida, and even as far south as Central America.

It is in its mnemonic use, however, that shell wampum has come into special prominence.

Holmes treats the subject in an admirable manner in his "Art in Shell," and his remarks are worth quoting.

"The wampum records of the Iroquois were generally in the form of belts, the beads being strung or woven into patterns formed by the use of different colors. By association simply they were made to record history laws, treaties, and speeches—a fact, a law, a stipulation, or a declaration, being 'talked into' a particular part or pattern of the design with which it was ever afterwards associated, thus giving additional permanency to tradition and bringing it one step further forward in the direction of written records. Such records were, of course, quite useless without the agency of an interpreter. Among the Iroquois, according to Dr. Morgan, one of the Onondaga sachems was made hereditary 'Keeper of Wampum,' whose duty it was to be thoroughly versed in its interpretation. But knowledge of the contents of these records was not confined to the Keeper, or even to the sachems. At a certain season each year the belts were taken from the treasure-house and exposed to the whole tribe, while the history and import of each was publicly recited. This custom is kept up to the present day. It is recorded by Ruttenber that among the Mohicans a certain sachem had charge of the bag of peace which contained the wampum belts and strings used in establishing peace and friendship with the different nations."⁵

¹ Burrows Ed., *Relations*, Vol. 3., p. 314 ; *Intro.*

² Vol. I., p. 408 ; and Holmes.

³ *Opp. cit.*, p. 71.

⁴ Loskiel : *History of the Mission of the United Brethren among the Indians in North America*, translated by C. I. La Trobe, (London, 1794), Book I., p. 26.

⁵ Ruttenber : *Indian Tribes of the Hudson River*, p. 42.

"Aside from records wampum was used in the form of strings and belts for a variety of purposes; some of them were probably mnemonic, others only partially so, being based either upon its association with the name of some chief or clan, or upon a semi-sacred character resulting from its important uses. It was employed in summoning councils, and the messenger who journeyed from tribe to tribe found in it a well-recognized passport. When a council was called it was presented by the delegates from the various tribes as their credentials; it was used in the ceremony of opening and closing councils, as was also the calumet; it assisted in solemnizing oaths and in absolving from them; white, it was a messenger of peace; black, it threatened war, and covered with clay, it expressed grief. 'White wampum was the Iroquois emblem of purity and faith, it was hung around the neck of the white dog before it was burned; it was used before the periodical religious festivals for the confession of sins, no confession being regarded as sincere unless recorded with white wampum; further than this, it was the customary offering in condonation of murder, although the purple was sometimes employed. Six strings was the value of a life, or the quantity sent in condonation, for the wampum was rather sent as a regretful condonation of the crime, with a petition for forgiveness, than as the actual price of blood.'" We readily recognize the influence of the Christian missionary, in a number of these symbolic uses of wampum.

* * * * *

"The great profusion of wampum used in some of the later treaties is a matter of surprise. In a council held between four Indian ambassadors from New England and the French, thirty-six large belts were given by the ambassadors to thank them that their people had not been treated with hostility."²

* * * * *

"Laftau, whose statements are considered unusually trustworthy, as they were based chiefly on personal observation of the Indian tribes of Canada, gives the following very instructive account of the mnemonic use of wampum:

"All affairs are conducted by means of branches [strings] and necklaces [belts] of porcelain [wampum], which with them take the place of compacts, written agreements, and contracts. . . . The shell, which is used for affairs of state, is worked into little cylinders of a quarter of an inch in length and large in proportion. They are distributed in two ways: in strings and in belts. The strings are composed of cylinders threaded without order one after another, like the beads of a rosary; the beads are usually quite white, and are used for affairs of little consequence, or as a preparation for other more considerable presents.

"The belts are large bands, in which little white and purple cylinders are disposed in rows, and tied down with small thongs of leather, which makes a very neat fabric. The length and size and color are proportioned to the importance of the affair. The usual belts are of eleven rows of a hundred and eighty beads each.

"The 'fisk,' or public treasure, consists principally of these belts, which, as I have said, with them take the place of contracts, of public acts, and of annals or registers. For the savages, having no writing or letters, and therefore finding themselves soon forgetting the transactions

¹ Morgan, *op. cit.*, p. 73.

² *History and Description of New France*, Vol. II., p. 256.

that occur among them from time to time, supply this deficiency by making for themselves a local memory by means of words which they attach to these belts, of which each one refers to some particular affair or some circumstance, which it represents while it exists.

“ They are so much consecrated to this use that, besides the name *Gaiónni*, which is their name for the kind of belts most used, they bestow that of *Garihona*, which means a transaction; that of *Gaouenda*, voice or word, and of *Gaianderenfera*, which means grandeur or nobility; because all the affairs dignified by these belts are the endowment and province of the *agoianders* or nobles. It is they who furnish them; and it is among them that they are redivided when presents are made to the village and when replies to the belts of their ambassadors are sent.

“ The *agoianders* and the ancients have, besides this, the custom of looking over them often together, and of dividing among themselves the care of noting certain ones, which are particularly assigned to them; so that in this way they do not forget anything.”

“ Their wampum would soon be exhausted if it did not circulate; but in almost all affairs, either within or without, the law requires a reply, word for word, that is to say, for one belt one must give another, to be of about the same value, observing, however, a slight difference in the number of beads, which must be proportioned to the rank of the persons or nations with which they treat.

“ They do not believe that any transaction can be concluded without these belts. Whatever proposition is made to them, or reply given them, by word of mouth alone, the affair falls through they say, and they let it fall through very effectually as though there had been no question about it. Europeans, little informed or little concerned about their usages, have slightly inconvenienced them on this point in retaining their belts without giving them a similar response. To avoid the inconvenience which might arise from this they acquired the style of giving only a small quantity, excusing themselves on the plea that their wampum was exhausted; and they supplied the rest with packages of deer-skin, in return for which they were given trinkets of small value, so that transactions between Europeans and them have become a sort of trade.

“ Although all the savage nations of America make various kinds of ornaments of shells, I believe that it is only those of North America who employ them in transactions. I cannot even affirm that all of these do.”¹

Loskiel² also gives a good account, which is as follows: “ Four or six strings joined in one breadth, and fastened to each other with fine thread, make a *belt of wampum*, being about three or four inches wide, and three feet long, containing, perhaps, four, eight, or twelve fathom of wampum, in proportion to its required length and breadth. This is determined by the importance of the subject which these belts are intended either to explain or confirm, or by the dignity of the persons to whom they are to be delivered. Everything of moment transacted at solemn councils, either between the Indians themselves or with Europeans, is ratified and made valid by strings and belts of wampum. Formerly they used to give sanction to their treaties by delivering the wing of some large bird; and this custom still prevails among the more western nations, in transacting business with the Delawares. But the Delawares themselves, the Iroquois, and the nations in league with them, are now sufficiently provided with

¹ Lafitau: *Mœurs des Sauvages Américains*, 1724, Tome II., pp. 502-503 and 506-507; *apud* Holmes, p. 240, *et seq.*

² *Missions of the United Brethren*, Book I., p. 26.

handsome and well-wrought strings and belts of wampom. Upon the delivery of a string, a long speech may be made and much said upon the subject under consideration, *but when a belt is given few words are spoken*; but they must be words of great importance, frequently requiring an explanation. Whenever the speaker has pronounced some important sentence, he delivers a string of wampom, adding, 'I give this string of wampom as a confirmation of what I have spoken;' but the chief subject of his discourse he confirms with a belt. The answers given to a speech thus delivered must be confirmed by strings and belts of wampom, of the same size and number as those received. Neither the color nor the other qualities of wampom are a matter of indifference, but have an immediate reference to those things which they are meant to confirm. The brown or deep violet, called black by the Indians, always means something of severe or doubtful import; but the white is the color of peace. Thus, if a string or belt of wampom is intended to confirm a warning against evil, or an earnest reproof, it is delivered in black. When a nation is called upon to go to war, or war declared against it, the belt is black, or marked with red, called by them the *colour of blood*, having in the middle the figure of an hatchet in white wampom. . . . They refer to them as public records, carefully preserving them in a chest made for that purpose. At certain seasons they meet to study their meaning, and to renew the ideas of which they were an emblem or confirmation. On such occasions they sit down around the chest, take out one string or belt after the other, handing it about to every person present, and that they may all comprehend its meaning, repeat the words pronounced on its delivery in their whole convention. By these means they are enabled to remember the promises reciprocally made by the different parties; and it is their custom to admit even the young boys, who are related to the chiefs, to their assemblies; they become early acquainted with all the affairs of State; thus the contents of their documents are transmitted to posterity, and cannot be easily forgotten."

Holmes says further; "The beads chosen as most convenient for stringing or weaving into fabrics were small cylinders from one-eighth to one-quarter of an inch in diameter, and from one quarter to one-half an inch in length. White strings or belts were sufficient for the expression of simple ideas or the association of simple facts, but the combinations of colors in patterns rendered it possible to record much more complicated affairs. In belts used for mnemonic purposes the colors were generally arranged without reference to the character of the facts or thoughts to be intrusted to them, but in a few cases the figures are ideographic, and are significant of the event to be memorized. Strings cannot be utilized in this way.

"*Wampom in Strings*.—From Mr. Beauchamp's notes I have compiled the following brief account of the use of strings of wampom among the modern Iroquois. Six strings of purple beads united in a cluster represent the Six Nations. When the tribes meet the strands are arranged in a circle, which signifies that the council is opened. The Onondagas are represented by seven strings, which contain a few white beads; the Cayugas by six strands, all purple, and the Tuscaroras by seven strands, nearly all purple. The Mohawks have six strings, on which there are two purple beads to one white. . . . There are four strings in the Oneida cluster; these contain two purple to one white bead. The Senecas have four strings, with two purple beads to one white. The three nations which were brothers are represented by similar clusters.

"When a new chief is installed, the address delivered on the occasion is 'talked into' ten very long strings of white wampum. Three strings, mostly white, represent the name of the new chief. . . . When a chief dies he is mourned on ten strings of black wampum. If he has merely lost his office, six short strings are used.

"According to Mr. Beauchamp, possession of beads gives authority, and they are also used as credentials, or, as the Indians express it, 'Chief's wampum all same as your letter.' Such of these strings as remain in existence are still in use among the Iroquois, and are considered very precious by them, being made of antique hand-made beads.

"In the literature relating to our Indian tribes, we find occasional reference to the use of strings of wampum in ways that indicate that they were invested with certain protective and authoritative qualities, doubtless from their association with the name of some chief, clan, or tribe.

"It is recorded that on one occasion, Logan, the Mingo chief, saved a captive white from torture by rushing through the circle of Indians and throwing a string of wampum about the prisoner's neck. Through the virtue of this string he was enabled to lead him away and adopt him into his family."¹

Nothing further can be added to this interesting account except a note explanatory of "branches" of wampum, which is of interest in connection with the above.

"Opinions differ as to the meaning of the term 'branches of porcelain.' Holmes translates it 'strings,' as used by Lafitau; but he says that the latter's use of this and other terms is somewhat confusing. Slafter (*Prince Champlain*, Vol. III., p. 150, *note*) says that 'branches were strings of white shells,' as distinguished from the purple. E. E. Taché thinks that they were twigs or sticks strung with large beads to represent ropes. Crawford Lindsay has seen, among old specimens of wampum, small beads strung on a long thread which was closely wound round a pliable stick or twig. He also mentions information given him by an educated Indian from Lorette, 'who says that he has frequently seen these porcelain branches. They consist of large beads strung on the fiber of the *ortie* (*urtica*, the nettle),—which is very tough, and which the squaws treated like flax, making from it strong threads,—or on slender thongs of caribou hide. Several of these branches are united on one stem, like the twigs of a tree-branch. Each he says, represents a *parole*, or *word*, of a discourse.' Dionne thinks that beads were strung upon the branches of a twig, which, being pliable, would simulate the withes used in binding prisoners."²

In plate xx. is shown one of these strings of wampum, which is in the Provincial Museum. For a description the reader must be referred to the *Archæological Report* for 1904 (p. 48). We have only one Iroquois wampum belt. This is traditionally regarded as not less than three hundred years old. It was buried with others for safe-keeping during the colonial war. The beads composing it are mostly white with several oblique bars of the purple variety, and these may have had some special significance.

¹"Art in Shell," pp. 247-248.

²Burrows Ed. *Jesuit Relations*, Vol. 27, p. 315; *note*.

V. SHELLS IN ABORIGINAL COMMERCE.

It will now also be necessary to devote a little attention to aboriginal trade in whole shells. The presence of such shells as the *Busycon*, *Strombus*, and other varieties so far from their native habitat is one of the best evidences we have that relations more or less intimate existed between the widely separated tribes on this continent during prehistoric times. Thurston, in his *Antiquities of Tennessee*, says that "The ancient villagers of the Cumberland and Tennessee valleys must have been industrious and thrifty travelers and traders to have been able to bring or import from the far Gulf or South Atlantic coasts, by purchase or exchange, the vast number of articles manufactured from marine shells."¹ But how much more remarkable is it that these shells should even have reached Canada!

The shells of the *Busycon perversum* were most extensively used in this aboriginal commerce, and have been transported to great distances, being found in such widely separated localities as Tennessee, Ohio, Ontario, Michigan, Illinois, and Iowa. Professor Holmes says: "It is obtained along the Atlantic and Gulf coasts from Massachusetts to Mexico, and within the United States it is artificially distributed over the greater part of the Atlantic slope."² According to Sir Daniel Wilson the native habitats of *Busycon perversum* "are the Antilles, and the Bay of Campeachy on the mainland."³ He says further, "It is obvious from the large and cumbersome size of the American *pyrula*, that they must have possessed some peculiar value or sacredness in the estimation of the Indian tribes of the northern regions, to encourage their transport from so great a distance through regions beset by so many impediments to direct traffic. Their transport to the Canadian lake regions appears to have been practised from a very remote period."⁴ Mr. Boyle, also, in his *Notes on Primitive Man in Ontario*, says: "Ancient commerce with the south for large shells would seem to have exceeded that with the northwest for catlinite and copper, if we judge from what is exhumed, and notwithstanding the immense value that a large southern shell must have possessed by the time it reached this country, we occasionally find one or more⁵ of them in graves, from the shores of Lake Erie to the Georgian Bay. It would not be an unfair comparison to estimate one as the equivalent of a gold watch, and yet they are placed side by side with the remains of departed braves."⁶

Dr. Wilson also reports *Busycon spira'ia* from an ossuary in Beverly township; which species he says is "peculiar to the western coasts of Central and South America." Considering the great distance, how long a time must it not have taken before it finally reached Canada.

Rau, mentions the fact that "unwrought columellæ of large sea-shells have been found at considerable distances from the coast, as, for instance, in Ohio and Tennessee."⁷

¹ P. 309.

² "Art in shell," p. 192.

³ "Observatio s suggested by specimens of a class of Conchological Relics of the Red Indian Tribes of Canada West, *Canadian Journal*, Vol. III., 1854-1855, p. 156.

⁴ *Ibid.*, p. 157.

⁵ According to Dr. Wilson, sixteen of these shells were found in a single ossuary in Oro township, Simcoe county.—*Canadian Journal* (second series, Vol. III., 1858), p. 399.

⁶ P. 65.

⁷ "Ancient Aboriginal Trade," p. 376.

Marginella, *Natica* and *Oliva* shells were found in the mounds of Ohio by Messrs. Squier and Davis. *Marginella* shells were also discovered in an Illinois mound.

A broken valve of *Mytilus edulis*, from the Atlantic coast, was found on a village site in Victoria county. This is now in the Laidlaw collection in the Museum.

We have another illustration of the wide extent of this aboriginal commerce in shells, in the finding of *dentalium* or tusk shells in mounds of the Mississippi valley. These were undoubtedly obtained from the Indians of the Pacific coast; or, if these dentalia were natives of the West Indies, they may have reached Ohio through the Indians of the southern coasts of the United States.

Rau says that "more than a hundred years ago, it was noticed by Carver that sea-shells were much worn by the Indians of the interior parts—he chiefly refers to the Dakotas of the upper Mississippi—and reckoned very ornamental."¹

Professor Holmes accounts for the origin of the trade in shells by assuming that these objects worn as ornaments were transported "to distant places by wandering tribes, exchanges would take place with other tribes, and finally a trade would be developed and a future commerce of nations would be inaugurated."²

Many of these shells, and the ornaments wrought from them, also may have been reprisals in warfare. It is well known that some tribes of the modern Indians made frequent warlike incursions into the country of their enemies, often over a thousand miles away. "Bands of Iroquois from central New York," says Thurston, "came all the way down the tributaries of the Ohio in their light canoes, and up the winding Cumberland, to enjoy the pleasure of pillaging and burning the houses of the less warlike Shawnees near Nashville. They sometimes pursued the Cherokees and Chickasaws to the banks of the Tennessee River."³ Rau speaks of six hundred warriors of the Seneca tribe, who, in 1680, "invaded the territory of the Illinois, among whom La Salle sojourned just at that time, preparing to descend the Mississippi to the Gulf of Mexico. More than a hundred years ago, the traveller Carver learned from the Winnebagoes (in the present state of Wisconsin) that they sometimes made war-excursions to the south-western parts inhabited by Spaniards (New Mexico), and that it required months to go there." Rau concludes from this that "Similar excursions and migrations, of course, took place during the early unknown periods of North American history. In the course of such enterprises the property of the vanquished naturally fell into the hands of the victors, who appropriated everything that appeared useful or desirable to them. The consequence was an exchange by force—if I may call it so—which caused many of the manufactures and commodities of the various tribes to be scattered over the face of the country."⁴

A considerable impetus was given to the shell trade by the arrival of the Europeans on this continent, many of whom were soon engaged in it. Cabeça de Vaca was one of these early traders. In his *Relation* he tells us that he supported himself chiefly by trading, among other things, in flints, skins, sea-beans, mineral paint, pieces and "hearts" of sea-shells, shells used as cutting implements, and a smaller kind which passed as

¹ Opp. cit., p. 374.

² "Art in Shell," p. 188.

³ "Antiquities of Tennessee," p. 83.

⁴ Opp. cit., p. 349.

currency. He sometimes penetrated the country to a distance of forty and fifty leagues from the coast. The "hearts" of the shells were, of course, the columellæ. In much more recent times white traders have carried on this trade with the interior tribes, with considerable profit to themselves. Kohl, speaking of the Ojibways, on Lake Superior, says: "If the traders brought a large handsome periwinkle and held it to the Indians' ears, the latter were astonished, and said they could hear the sea beating in it, and would pay for such a miraculous shell, peltry to the value of forty or fifty dollars. There were also varieties of shells which they held in special repute: thus there was a long shell of the size of a finger, which in the Indian trade was worth more than its weight in silver."¹

CONCLUSION.

In the foregoing the writer has endeavoured to treat of everything in the line of shell, not even excepting the apparently insignificant objects, for in such a study as archæology we must recognize the enormous importance of small things. As Holmes says, "The slightest modification of these relics by the hand of man attracts our attention, and from this infant stage of the art until the highest and most elaborate forms are reached they have the deepest interest to the student of human progress."²

This detailed treatment also had another purpose—namely, to bring to those searchers in the field the importance of preserving everything they find. Explorations are too often conducted in a perfunctory manner, and often by inexperienced collectors, who are more on the lookout for rarities than the commoner objects, and thus a great many interesting facts, which might be deduced from such finds, are lost to science. Especially is this true of land and fresh-water shells, which seem to be ignored by most collectors.

We have also endeavoured to present numerous extracts from the early writers and explorers on this continent; which, although quite familiar to professional archæologists, are nevertheless not accessible to a large number of readers of these reports—especially those not in touch with our larger metropolitan libraries.

It only remains to express our acknowledgments to Hon. F. R. Litchford, K.C., for kindly identifying most of the *Unios* and oceanic shells herein mentioned, and also to Dr. W. M. Beauchamp, Dr. A. I. Kroeber and Professor Holmes for information furnished. Our thanks are also due to Miss Elizabeth J. Letson, Ph. D., of Buffalo, for identifying *Olivella oryza* mentioned on p. 67.

¹ J. G. Kohl: *Kitchi Gami* (London, 1860), p. 135.

² "Art in Shell," p. 188.

