

Courtesy of the American Museum of Natural History, New York City

Bull walrus on an ice floe.

CARVINGS IN WALRUS IVORY

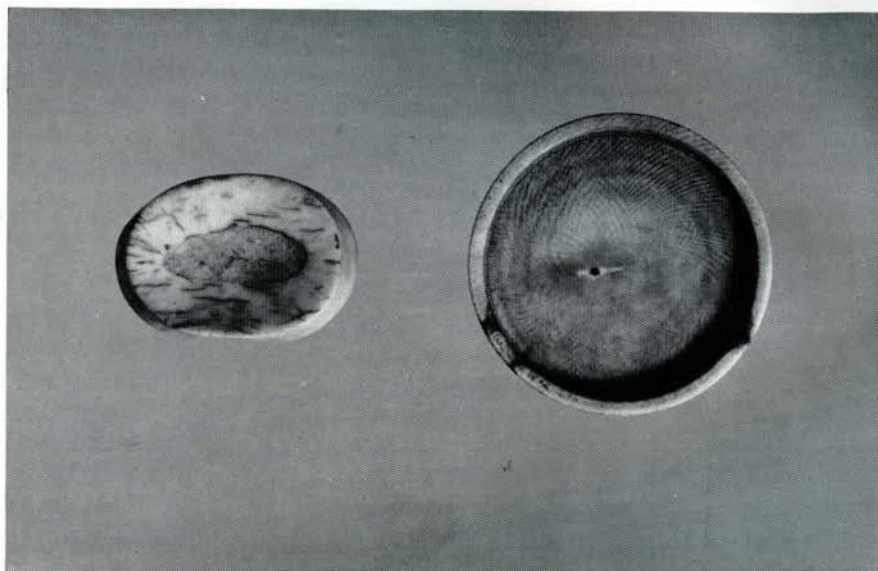
Schuyler Cammann

When anyone mentions walrus ivory, we immediately think of small Eskimo carvings from the northernmost parts of the world. The words may even conjure up a mental picture of short yellow men in fur clothing, spearing the huge sea mammals from slender skin boats, and later cutting out the long tusks to carve or engrave them in their spare time. Few people realize that, although the walrus itself is now limited to the extreme northern seas, it once ranged somewhat further south, and that—as we shall see—its ivory has traveled far afield since comparatively early times.

The tusks of a walrus are really the greatly lengthened canine teeth of its upper jaw. In the course of evolution, they became highly developed in this way for the purpose of digging out the clams and small shellfish that make up the animal's principal food, and also to serve as weapons. In addition, they aid him in climbing up slippery rocks and crossing icy ledges. In spite of their great usefulness, the tusks finally became a serious liability to the walrus, because ivory hunters, during the last thousand years, have ruthlessly exterminated the once-great herds in their efforts to obtain the precious substance.

The tusks of a bull walrus quite often grow over two feet long, and those of the cows may be even longer, although the latter are much more slender. The largest tusk known—from a Greenland walrus—measured 37½ inches in length and weighed more than ten pounds. The record for the Northern Pacific variety is only slightly less.

A newly-taken tusk has a white outer portion, which gradually turns yellow with age and exposure. This outer part is plain in cross-section,



This and all following photographs in this article are by Reuben Goldberg
Eskimo lip-plug of walrus ivory and Chinese box-lid of elephant ivory, to show
contrasting structures.

lacking the fine intersecting lines that identify elephant ivory, but it forms a relatively thin layer. Most of the interior of the tusk is composed of an inner core, made up of a secondary deposit of dentine which fills the original pulp cavity as the tooth grows longer. This core substance is slightly darker in color, and looks as though it were made up of small crystals. When a cross-section of a tusk is held up to a bright light, this middle part is strongly translucent, in marked contrast to the opaque outer portion. As it is found only in walrus tusk, this strange core substance provides an easy clue for identification, immediately distinguishing it from any other kind of ivory.

Most modern carvers try to limit themselves to the outer portion, and avoid showing the core of the tusk as much as possible. Yet, we shall see that in some parts of the world, where walrus ivory was rare and highly prized, the core material was often deliberately exposed, and even emphasized.



Assorted walrus tusks: teeth from an adult Greenland male and young Alaskan female, with three pieces of fossil "beach ivory" from Alaska.

Among the first people to do fine work in walrus ivory were an unknown group who lived on the western coast of Alaska more than a thousand years ago, before the Eskimo came. Very intricate carvings from this so-called "Ipiutak culture" were found near Point Hope, some years ago, by Dr. Froelich Rainey with Helge Larsen of the Danish National Museum.

Most of these antique carvings had taken on a handsome brownish tone from long burial. Even richer colors, ranging from creamy brown to a purplish black, are found in the fossil tusks which have been washed up by the sea on the northern coasts of Alaska and Siberia. The present-day Alaskans call this "beach ivory," and prize it highly for making ornaments or small carvings. Modern work in this fossil ivory can easily be distinguished from the antique by its higher gloss.

The Alaskan Eskimo, living south of Point Hope and out on the islands of the Bering Sea, have carried on the ancient heritage of walrus ivory carving. In addition to toys and personal ornaments such as lip plugs, they have used it for all manner of strictly useful tools and implements. This was a practical necessity in a region where wood was so rare—except for occasional drift logs—and metal was for a long time almost non-existent.

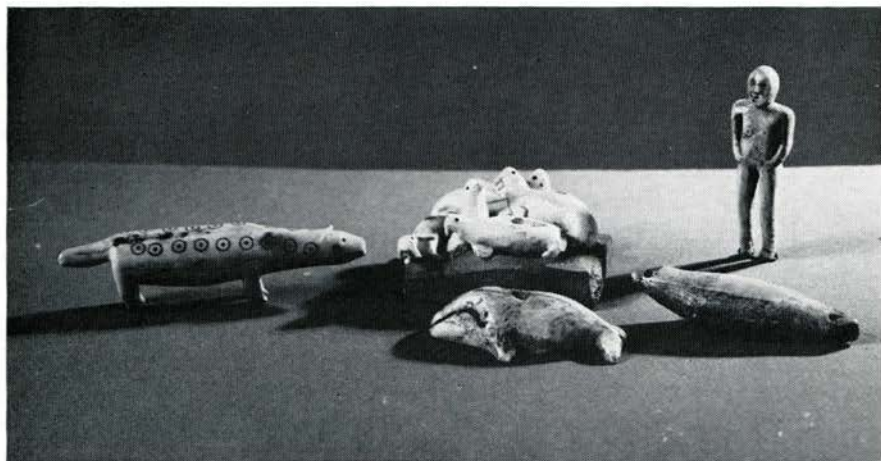
Alaskan Eskimo men made many kinds of hunting implements, such as harpoon heads and shaft-ends, "seal scratchers" tipped with real seal's claws for scratching on ice to attract these shy animals, bolas ends for ensnaring small game, snow goggles, and the edges of sled runners. For the nautical side of their life, they used it to make all manner of boat fittings, and fishing gear: such as harpoon rests, shuttles for weaving nets, and net-gauges to measure the width of the meshes, fish lures, and plugs for bladder floats. For ordinary daily living, they made ivory bows for bow drills, snow knives and snow-shovel ends, tobacco pipes, and hollow containers such as snuff boxes, as well as countless other things. To list all their common uses for walrus ivory would be an endless task. The University Museum has all these types, and many more.

We usually think of the Alaskan Eskimo as an essentially peaceful folk, but in the past they and their Siberian neighbors were more warlike. In those days they used walrus ivory armor, drilling holes in flattened sections of the tusk and lashing them together with strings of rawhide. They pre-

ferred to use fossil ivory for the armor plates, as they considered it stronger and less liable to split, while its darker coloring provided better camouflage for a raiding warrior. The Eskimo seem to have borrowed the idea for this kind of armor from their Chukchi neighbors in Eastern Siberia, who in turn probably got it from the interlaced bone armor of an earlier group of Northeast Asiatic sea rovers, the Oriental equivalents of the Vikings in Europe.

Although some of the Alaskan Eskimo are clever at making small carvings of people or animals to use as toys or amulets, their chief artistic expression has been in engraving pictures on the walrus ivory. Originally, they probably drew them for keeping records of events, or for hunting magic. Later they did them primarily to decorate things they had made, as shown in the accompanying pictures. Sometimes drawings seem to have been done just for pleasure, on an old tusk.

Figures of men and animals, or even elaborate hunting scenes were scratched into the surface. Then a dark substance made of a mixture of gunpowder and blood was rubbed into the lines to make them stand out permanently. During the last ninety years or so, the engraving has been done with good steel knives. Formerly they used sharp flints to



Alaskan Eskimo figures of walrus ivory; note walrus herd in center.

scratch the lines, after first softening the surface of the ivory by soaking it in urine, so the stone could cut into it more easily.

The use of walrus ivory also spread to other peoples in southern Alaska and down the northern coast of British Columbia. By the time the tusks had traveled that far, they were quite expensive and highly valued. In a few cases the Indians used whole tusks, incising them with totemic designs. As a rule, though, they carved smaller pieces to make such specialties as shaman's charms, or the strange open-ended tubes called "soul catchers," for trapping spirits.

After the tourist trade developed in the second half of the last century, the Northwest Coast Indians began to make cribbage boards and other popular items from walrus ivory, to sell to passing travelers. They could make a cribbage board by taking a long section from a fairly straight tusk, drilling rows of small holes in the top for the counting pegs, and fitting it out with four peg-legs below. Often they added decoration in the form of engraved scenes or handsome floral designs.

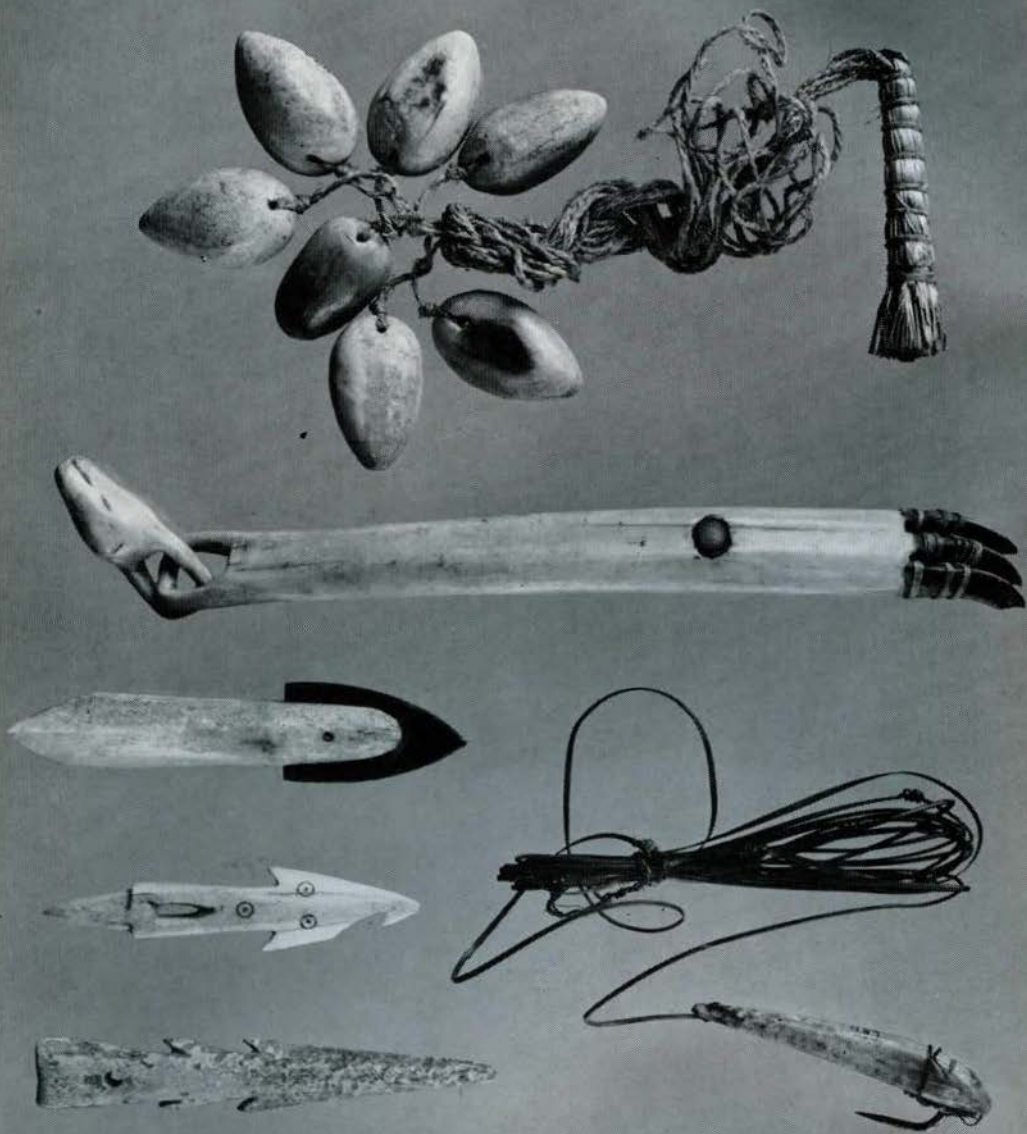
The Haida Indians showed particular skill at this kind of work. Sometimes they also made amusing figures of white men—Russians or Americans—attaching heads of carved walrus ivory to bodies cut out of wood or argillite, so the white ivory would suggest the light flesh of the pale-faces.

More recently, during this century, small figures of totem poles or miniature animals have been turned out in various coastal towns, as far south as Prince Rupert, for sale to the tourists. In the 1920's and early 30's, many of these figures were actually being made in Japan from imported tusks, and then shipped back across the Pacific to be sold as local North American work. Some of the Yokohama-made polar bears and mountain goats were quite lifelike, and far above the usual artistic standards of the native craftsmen, yet they lacked the primitive charm of the local originals.

The Eskimo of northern Greenland have also used walrus ivory for making tools, over many centuries. But they never seem to have shared the artistic skill of their cousins in Alaska, except in a few places where they have been specially trained under Danish influence in recent years. Long before having any contact with them, the Europeans had independ-



Alaskan Eskimo utensils: walrus ivory bow for drill, old snow-goggles, snuffbox, needle case, net shuttle, pipe, and edge for snow shovel.



Alaskan Eskimo hunting gear: walrus ivory bolas for birds or small game, "seal scratcher," three harpoon-heads (one slate-pointed) and a fish lure.

ently developed a high skill in this craft, and one of the most notable examples of mediaeval European carving in walrus ivory was recently excavated on the site of an old Norse settlement in southern Greenland.

This was the head of a bishop's staff, which was discovered in 1926, in the ruins of the Cathedral of St. Nicholas at Gardar (modern Igalito), and is now in Copenhagen. It was clearly of European workmanship, and its discoverers have suggested that it was probably not made locally, but in Iceland. Even if it had actually been made in Greenland, it must have been made by a colonist. Comparing this handsome piece with work of the Greenland Eskimo, from any period, clearly shows that the honors for fine ivory carving in the North Atlantic area should go to the peoples of mediaeval Europe.

The walrus was systematically hunted for its teeth, oil, and leathery hide off the northern coasts of Europe since at least the 9th century A.D. About the year 880, a Norse navigator brought some walrus tusks to Alfred the Great of England, and described to him a voyage he had just made around Scandinavia to Perm in northern Russia. He had been searching, he told the King, for "horsewhales" which "had in their teeth bones of great price and excellence." (By "bones in their teeth" he probably meant the highly valued core substance.) Although this is the first formal record of it, a walrus hunting-industry was probably already well developed in northern Europe at that period.

By the 11th and 12th centuries walrus or "morse" ivory was being carved on a large scale in England, Germany, and the Netherlands, as well as in Scandinavia and Iceland, which were nearer the sources of supply. It was generally an anonymous art, but the name of one famous ivory worker has survived. This was "Margret the priest's wife," a woman who did carvings for Bishop Paul at Skalholt in Iceland, during the latter part of the 12th century. It has been suggested that she may have made the staff-head that was found in Greenland, for its probable owner, Bishop Jon Smyrill, was a friend and contemporary of Bishop Paul and stayed with him for some time before his ordination.

The pastoral staffs of mediaeval European bishops had two alternative kinds of ornamental heads, both of which were often executed in walrus

ivory. One was the familiar curling volute of a typical crosier, while the other was a simpler T-shaped figure known as a tau-cross. The latter was usually composed of two slender dragons, branching outward from the central mass which had the socket for the staff proper, then turning back so that their heads would face each other. In either case, several sections of tusk had to be pieced together to complete the whole design.

Along with examples of both types of staff-end, modern European museums also exhibit other interesting mediaeval carvings in walrus ivory. These typically include small images, panels carved with religious figures or Biblical scenes, circular boxes called pyxes for holding the sacred Host which were made from sections of the hollowed tusk, and ecclesiastical seals. Many handsome chess pieces from that period are also shown in modern collections.

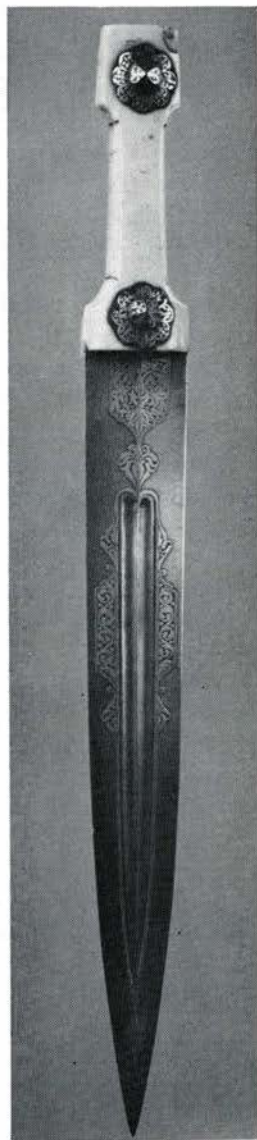
The British Museum has a famous hoard of mediaeval walrus ivory chessmen, discovered in 1831 on the island of Lewis, off the west coast of Scotland. A workman discovered them in a small subterranean chamber after high seas had washed away a part of the shore. The original group consisted of some seventy-eight pieces from several sets. Their great variety suggests that they may have been part of the loot taken by a Viking raider, who treasured the small carvings in a then-precious substance for their potential trade value, with no feeling for the game itself.

The Lewis find included bearded kings on elaborate thrones, some of them surrounded by retainers, richly dressed queens, and knights on horseback in full armor, all helping to reconstruct the mediaeval scene. There is still some question whether they were carved in England or in Scandinavia. Possibly they were made in Iceland, which was then famous for such work. In the year 1051 the colonists there sent a set of walrus ivory chessmen with a chess-table of the same material to King Harald of Norway, as the most precious gift they could produce. Iceland and Scandinavia were also noted during the mediaeval period for walrus ivory draughtsmen used in playing checkers. The finest of these were sculptured in low relief with human figures, often illustrating occupations of the time. Others were decorated with religious scenes, playful animals, or fabulous monsters.

In those mediaeval times, Northern Russia too lay within the Viking sphere of influence, and from the 9th century on, walrus tusks called "fish teeth" also became an important trade item there. By the 12th century, an ivory carving industry was flourishing in Archangel, producing ornaments, game pieces, and religious carvings, like those from Scandinavia. Sometime later, inland Tobolsk became equally famous for small sculptures in the round. Although it was far from the sea, tusks were brought there up the Ob and Irtysh rivers, from the northern seas.

By 1649, the walrus ivory industry in Northern Russia had become so lucrative that the Court declared it an imperial monopoly. The taste for fine carvings in this medium continued on in court circles until the fall of the last Czar. Aside from the elaborate pieces of small sculpture turned out for noble patrons, perhaps the commonest use of walrus ivory in Russia was for the handles of knives and swords. Many of the best Cossack and Caucasian daggers from South Russia had hilts made of it.

After the conquest of Siberia, work in walrus ivory also became an important industry of Asiatic Russia. The carving there seems to have developed out of the local arts of the Koryak and Yakut peoples, who had long been making sketches on walrus tusks, as well as doing small figures. The American Museum of Natural History in New York has many examples of the earlier carving of both these tribes.



Cossack dagger from South Russia, with walrus ivory hilt.

The Imperial Government encouraged the Siberian carvers by sending art teachers from European Russia, but the Westerners brought in highly elaborate designs, which were not as satisfying as the simpler and more primitive patterns formerly used. After the Revolution, the Soviet Government in turn offered support to the Siberian industry, and beginning in 1921 helped it to market its products. Through the Amtorg trading agency, Siberian carvings were exported to be sold in the larger cities of Europe and America, together with other Russian handicrafts.

Along the rivers of European Russia, during the early Middle Ages, walrus ivory was carried to Byzantium. It was one of the rare items which the Vikings, who then controlled the waterways of Russia, could offer in exchange for the handsome gold and silver jewelry of the Byzantine metal-smiths, then famous all over Europe. The craftsmen of mediaeval Constantinople worked the walrus ivory into crucifixes, icon plaques, reliquaries, and religious book covers, as well as making more secular things, such as combs and personal ornaments.

They handled the substance much more skilfully than did the artisans of Northwestern Europe, who were working in a more "barbarian" tradition. The Byzantine Museum in Athens has a number of fine old bishop's staffs of walrus ivory, some of which have probably come down from that period; while the Benaki Museum there displays some more recent walrus ivory carvings, in the form of combs, powder horns, and writing boxes, etc.

In addition to being carved locally, walrus ivory was also an important item in trade through Byzantium. Byzantine merchants, and Russian fur traders working through Constantinople, passed on tusks to the Arabs, Turks, and Persians, all of whom especially prized this material for making knife and sword hilts. The first Arabic reference to such hilts dates from the year 982, and they were still popular during the 19th century, nine hundred years later.

Later Arabic writers spoke of the substance as having a wide range of colors, from white to yellow and red (brown), to gray and black. Perhaps these colors were created artificially by some of the pickling processes used in the Near East to increase the hardness of the material; but it also seems possible that pieces of the old "beach ivory" or long-buried tusks might have been brought down from Northern Siberia, along with the fresh ones.

The vogue for hilts made of walrus ivory was especially strong in Egypt, where they were in great demand. Al-Biruni, a famous 10th century Arabic historian, reported that the Egyptians would buy walrus tusks for a price equal to two hundred times their actual value.

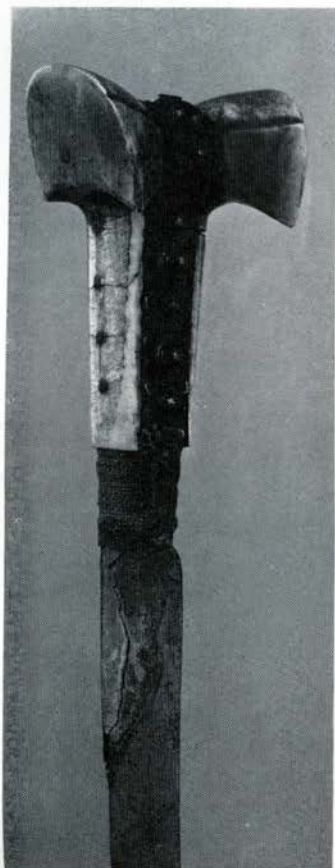
Why was the walrus ivory so highly prized? Not only was it rare and difficult to obtain in Moslem countries, and expensive because of the long distances it had to travel before reaching there. In addition, the Near Easterners thought that it had magic powers, and this was the primary reason why they were willing to give so much money for it.

Of course, the peoples of the Near East and North Africa knew nothing whatever about the creature who supplied the tusks. In fact, it is doubtful if the middlemen who helped to provide the ivory knew anything about its ultimate origin, either. In this general state of ignorance, legends inevitably arose. Perhaps some of them were deliberately started by the merchants who wanted to increase the demand for their ivory. In any case, people said that the tusks were horns or teeth from a fabulous creature, and that they possessed the miraculous powers which our European ancestors later ascribed to the horn of the unicorn.

Not long after the trade in walrus ivory began, the people of the Near East firmly believed that the tusks, or pieces of them, could not only detect the presence of poison, but could also staunch wounds and stop the flow of blood. These two ideas are reflected in the two principal ways of using walrus ivory in the mediaeval Near East: for spoons, and for knife or dagger hilts.

When the old palace of the Sultans of Turkey, in Istanbul, was opened to the public as the Topkapı Sarayı Museum, visitors found in the palace kitchens numerous spoons and ladles with their bowls of walrus ivory. The long slender handles of the spoons were made of other valuable substances, such as coral, elephant ivory, or lapis lazuli. Since the walrus ivory was rare and precious, they used it only for the working end, which would come in contact with the food, firmly believing that it would begin to sweat if it neared a poisoned dish.

A typical Turkish palace spoon is pictured in the *University Museum Bulletin* for December 1950. That particular one had its bowl made of



Walrus ivory hilt on Turkish yataghan (sword).

hornbill ivory instead of walrus tusk, but the basic motivation was the same, as hornbill ivory was thought to have similar poison-detecting properties.

The second magical belief, that walrus ivory would stop the flow of blood, was the chief reason for its popularity on Near Eastern sword and dagger hilts. When a noble or warrior was wearing such a hilt, he would have an additional sense of confidence in battle. Trusting in the effectiveness of this magical first-aid device, he could feel that even if he were slashed by an enemy, he would just have to touch the ivory to the wound to start its healing.

To make sure that other people would know that their hilts were of true walrus ivory, and not made from the cheaper elephant ivory of India, the Arabs, Turks and Persians usually saw to it that the characteristic markings of the inner core would appear on the surface. It would always show at the top of the hilt, anyhow, unless this was capped with metal; and it would show at the sides, too, if they were deeply enough incut—as were some of the Persian hilts, and all of the later

Algerian ones. But that was not enough. To ensure that the inner texture would be obvious to anyone, the prospective owners very often had the hilt-makers split the tusks and mount the two pieces back to back, after shaping them to fit the hand. When it was treated in this way, no one could mistake it for elephant ivory or anything else, and everyone would be properly impressed. The University Museum has some fine Persian daggers which show this clearly.

Persia has had a strong cultural influence on Afghanistan and on the western parts of Turkestan, as well as on Northwestern India, and at times all these regions have been under one rule. Therefore, the precious walrus ivory found its way on to those more remote places in the packs of Persian merchants. Each of these three areas had traditional knives of very different patterns, so each used the ivory in its own way, making distinctly different types of hilts. Last summer, at the Afghan National Museum in Kabul, we found several examples of the so-called "Khyber knives," which had belonged to past rulers of Afghanistan, having plain but handsome handles of this substance to set off their magnificent blades.

In these more distant lands, walrus ivory fetched a correspondingly higher price because of the difficulties of importing it, and no doubt the tales of its miraculous powers also increased with the miles. Even after it had become fairly common in India through seaborne trade from Europe, it still brought from five to ten times as much as was given for elephant ivory, although it was less satisfactory to work because of its coarser-textured core.

Some of the trade in walrus ivory with India by sea was conducted by the British East India Company, as far back as the early 17th century. But the Indians were somewhat suspicious of tusks brought by the Europeans—possibly because they looked too fresh and new, or else had not been split to show the highly-valued core. The records of the East India Company contain a letter written in 1619 from their agent in Surat, reporting that the walrus ivory he had just received from England had been sold at a loss. The following year, when another shipment of tusks came to Surat, they were sent on to Persia, where the Company's agents had reported a greater demand for them. Very possibly, some of these same tusks, after being appropriately treated to yellow them a little, found their way back to India in the flourishing trade between Persia and the Moghul Court.

Many of the fine Moghul sword and dagger hilts were made of walrus ivory. Emperor Jehangir had a special passion for tusks with dark mottling—probably fossil ones. When his son, Shah Jehan, presented him with one of these, he had it made into two hilts and an archer's thumbing, and was so enthusiastic about the results that he handsomely rewarded



Persian daggers with typical hilts of walrus ivory core.



Indian knife and daggers with hilts of walrus ivory.

the two artisans who had done the work. To one he presented a high-sounding title, with an increased salary, a robe of honor, and a jewelled bracelet; while the other received a robe of honor, a bracelet of gold, and an elephant.

Jehangir's enthusiasm for the material was so great, in fact, that he sent out agents into Persia and Western Turkestan to buy pieces of it for him. When a choice mottled tusk was found in Transoxiana, he was so delighted that he sent thirty thousand rupees worth of choice goods in return for it. Describing one of his choice walrus ivory hilts, this emperor remarked that of all the gems of great price that he had in the treasury, he considered this the most precious.

Other Moghul emperors were also fond of walrus ivory, but they were more restrained about it; and through the Moghuls, walrus ivory ultimately found its way into the courts of the Hindu rajahs, as well. Thus, its use gradually spread throughout all India.

The Indian artisans used a special process for treating the walrus ivory, which may have been developed in Persia, or elsewhere in the Near East. They pickled it in a special wrapping, leaving it there as long as fifty years. This must have induced a kind of artificial fossilizing process. Not only did it enhance the color, but it was said to give the substance greater strength and toughness, to prevent it from splitting. It was also supposed to roughen the hilt slightly so it would not slip in the hand—an important consideration in a very hot country.

The Near Eastern commerce in walrus ivory did not stop in India and Turkestan. Some pieces continued right on across Asia over the ancient trade routes to China.

In 1518, for example, the Sherif of Mecca sent some knives with handles of walrus tusk to the reigning Ming Emperor, along with other precious "tribute gifts," to exchange for silk and other valued Chinese commodities. But this was probably not a one-way trade. When Al-Biruni was writing about the Arabs' use of walrus ivory in the 10th century, he used a variation of the Tatar-Chinese name to refer to it. Quite possibly the Moslems of Western Turkestan had already been receiving it in their trade with the Tatars who lived further east, on the borders of China.

The Chinese themselves had received walrus tusks in their tribute from the northern tribes since the 8th or 9th century, and they and their Tatar neighbors in Manchuria had long prized it for knife hilts. In time, chopsticks and small wine cups were fashioned from it, as well, because the Chinese, like the Near Easterners, had somehow come to believe that objects of walrus ivory could detect poison in the food. Eating utensils of walrus ivory were especially popular with nobles and officials who felt that they had potential enemies.

Because of its rarity and supposed magical powers, walrus ivory commanded a high price in mediaeval China, so counterfeiters tried to take advantage of the interest in it. One Yüan dynasty connoisseur, writing in the early 14th century, cautioned that the original substance gave off an odor like cinnamon when it was rubbed, while the imitations did not.

Much later, during the late 17th and 18th centuries, the Chinese managed to obtain considerable amounts of walrus tusks from the Russians in Kiakhta and the Gilyaks of Eastern Siberia. Still later, beginning about 1790, American and British ships brought over the tusks from Alaskan waters. In the year 1844, for example, some two and a quarter tons of walrus tusks came to Canton in British vessels.

The walrus ivory chopsticks continued to be popular in China, selling for six times the price of those made from elephant ivory, because their magical reputation persisted. In addition, the later Chinese tended to use walrus ivory for all the things that they generally made from elephant or mammoth tusks. They carved it into archer's thumbings, personal seals, and mandarin beads, snuff bottles, belt toggles, handles for the eagle-feather fans, stems for long tobacco pipes, "abstinence plaques" (*chai-chieh p'ai-tze*) to announce that the wearer was fasting, and pierced covers for the fighting cricket cages, along with many others things.

In Peking, the Chinese developed a special industry for making things from the inner core of walrus ivory. They generally stained the finished products green, with verdigris, so that they appeared so be made from one of the more crystalline forms of jade. At first this was probably deliberately done to deceive the gullible into thinking that they were buying objects of real jade, as in the case of the flat rings, or leaf-shaped pendants

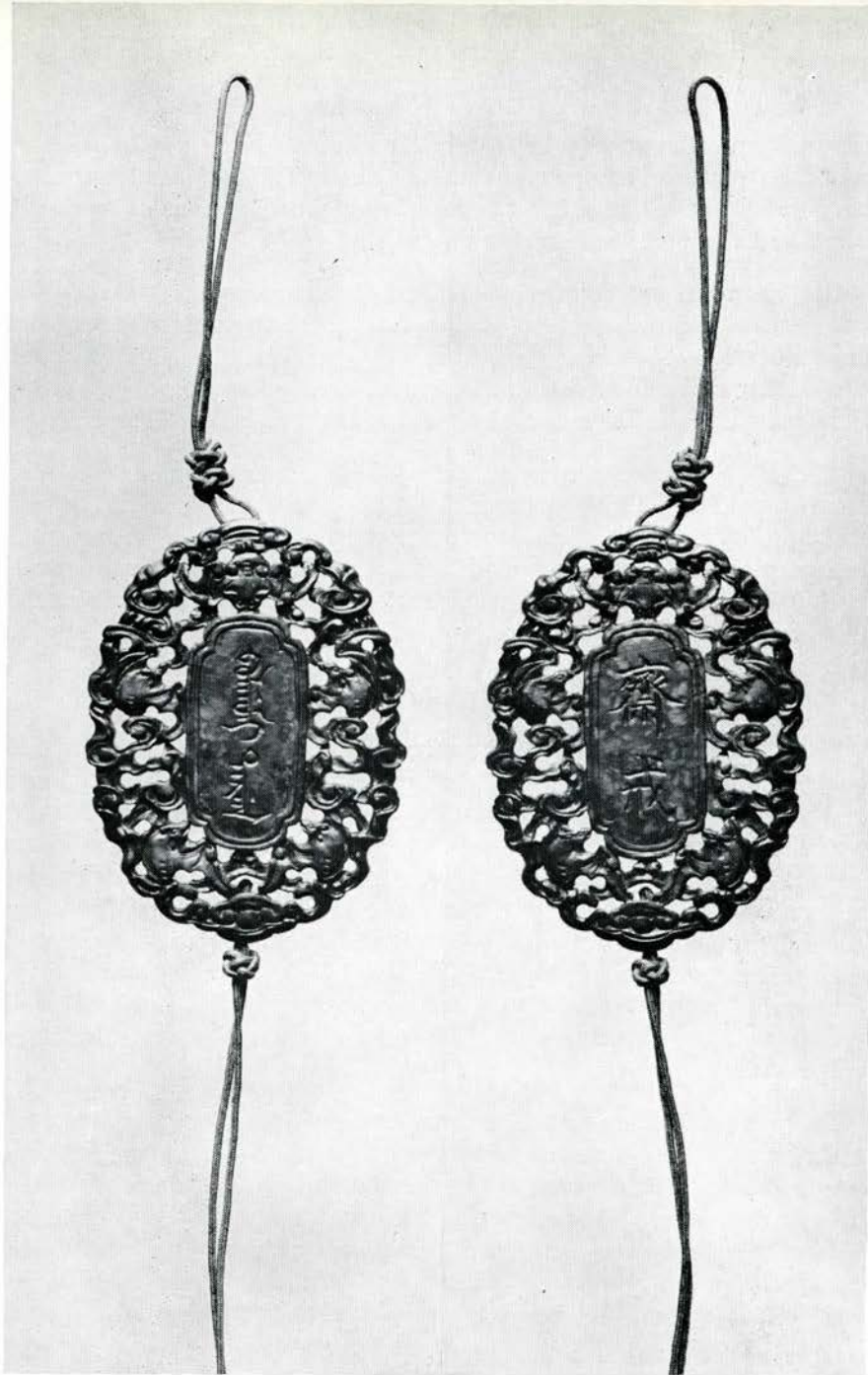
made for women's earrings. But eventually it became an established way of treating walrus ivory in general.

Counterfeiting jade with walrus ivory sounds at first like a far too obvious attempt at deception, but observation shows that it was really quite a clever one.

Certainly elephant ivory or bone could never be successfully used to imitate jade, as these do not take dyes well, and their density of structure would immediately betray them. However, the dyed core of walrus ivory, by contrast, is surprisingly effective, looking very much like actual jade. It not only has the crystalline appearance of jadeite, but in thin sections it has the proper translucence as well, even when dyed; and it absorbs the coloring very well, becoming completely permeated by the deep green pigment. Then, too, a quick rub with an oiled rag even gave it the characteristic greasy feel of jade.

But there are two quick tests for distinguishing real jade that it could not pass. Although the dyed core material is very hard, it still can be scratched with a sharp steel knife, while jade cannot be; and it does not give out a sharp musical note when it is tapped with metal, or with another piece of the same substance, as jade does. Thus, the walrus ivory "jade" could not have long deceived a knowing jade buyer, and probably its chief service was to provide a quite convincing substitute for those who could not afford to buy the dark green shades of the much-prized stone. This it continued to do, long after most people had become too wary ever to mistake the dyed core material for genuine jade. Even the ladies of the Manchu court did not disdain to wear ear pendants made from it.

By the 19th century the Chinese no longer seem to have taken any pains to imitate walrus ivory itself, because they were getting the tusks in such large amounts that it was no longer so extravagantly valued. Importing the tusks was a very profitable business for foreign merchants in China, until the Peking walrus ivory industry died out, along with so many other luxury trades, after the fall of the last dynasty in 1911. Walrus tusks could still be found in the ivory carving shops of Canton's "Jade Street" in the mid-1930's, as I personally observed. Yet, even there, it had



Manchu abstinence plaque. Two sides of a walrus ivory pendant inscribed in Chinese and Manchu writing to warn that the wearer is making a religious fast and should not be offered certain luxury foods.

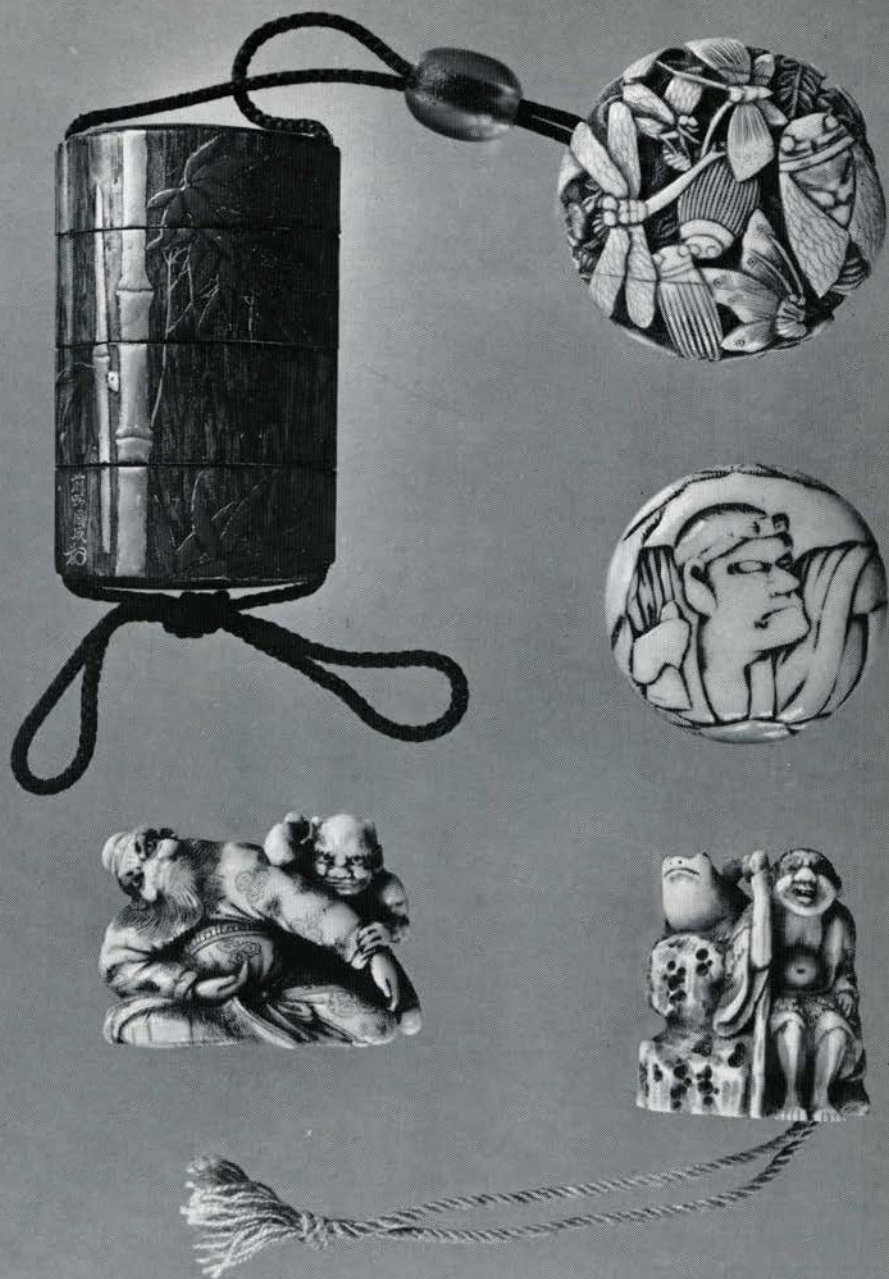
largely been replaced as a substitute for elephant ivory by the cheaper and better-grained hippopotamus teeth, imported in considerable quantities from Africa. (The latter are easily distinguished by their more abrupt curve, and a flattened surface near the tip.)

Old Japan was very fortunately situated for obtaining walrus tusks. Not only was it near the northern Pacific area where the walrus herds were until recently so abundant; sometimes individual animals came ashore on the northern islands of the Kuriles group, in their home waters. Thus, the Japanese inevitably used a good deal of this material in their carvings.

The most common form of walrus ivory carving during the later feudal period of Old Japan, from about 1700 to 1867, were the toggles called *netsuke* which were used to fasten the *inro* boxes, purses, and tobacco-pipe sets to the men's cloth belts. Equally familiar were the small, intricately carved beads called *ojime* that were worn on the cords of the *netsuke* and *inro* sets, along with much larger beads made in sets of sixteen or more for Buddhist rosaries, and small carved figures called *okimono* which were used for simple house furnishings.

Since the *netsuke* and *inro* sets were the only personal ornaments that commoners were allowed to wear during the feudal period, rich merchants and wealthy farmers spent much money and effort in search of well-carved *netsuke* and *ojime* beads of unusual substances. Those made from walrus ivory, and whale or porpoise teeth, were highly prized; although elephant and mammoth ivory ones were even more in demand. It was harder to get these latter substances while Japan was closed to foreign trade, and their rarity, together with their finer grain for delicate carvings, made them far more valuable. We have some good examples of walrus, elephant, and mammoth ivory *netsuke* in the University Museum's extensive *netsuke* collection.

In the later 19th century, after the opening of Japan by Perry, increased trade brought large amounts of elephant ivory, and the carvers found it so much more satisfactory to work that they became self-conscious about using walrus ivory. They came to consider it a very inferior substance. When they used it to make the over-elaborate daggers and swords, so popular with the tourists at the end of the last century, on which the ivory hilts and scabbards were crawling with fighting warriors or whimsical



Four Japanese netsuke of walrus ivory. The inro-set at the top shows how these toggles were typically used. (Here the ojime bead is of glass.)

animals, they often capped the pommel and the foot of the scabbard with elephant ivory to conceal the telltale core structure at the ends. Similarly, the more recent portrait figures or okimono made of walrus ivory usually have the top of the head more deeply scratched to indicate the hair than is really necessary, and sometimes even have pigment added, in order to mask the core material at the top. Meanwhile, a wood, bone, or elephant ivory base-plate hides it at the bottom. Of course these tricks cannot fool anyone who is really familiar with ivory, because the smooth surface texture, without any crisscross of fine lines, shows at a glance that the things are not made of elephant ivory.

Walrus ivory wandered still further afield. One of the last places one would expect to find carvings in this medium would be the Hawaiian Islands, yet the University Museum has a clear cut example from Old Hawaii. This is an ivory pendant in the form of a flattened hook, suspended from a royal necklace made from many strands of finely braided human hair. Such necklaces, called *lei niho palaoa*, were typical in the old culture of the islands, being reserved for chieftains and their wives, and tabu to anyone of lesser rank. The hook-pendants were made of stone, wood or ivory, but the ivory ones seem to have been the most prized. Previously, the latter have always been described as having been made of sperm whale's teeth, but it now turns out that many of them were not.

After identifying our hook as made of walrus ivory rather than whale's tooth, I discovered two more similar examples in the American Museum of Natural History, and when I reported this to the Director of the Peabody Museum in Salem, he replied that they had found several more there. Meanwhile, Mr. E. W. Bryan of the Bishop Museum in Honolulu investigated their collections at my request, and discovered at least thirty-nine such hooks of walrus ivory there, together with a considerable number of walrus ivory beads made for the traditional women's bracelets.

Some of the walrus ivory hooks in the Bishop Museum have a square hole cut through the shank for attachment to the necklace, instead of the more familiar round one. This has previously been considered a pre-European trait, and if it was, it raises some interesting questions about the antiquity of walrus ivory in Hawaii. The custom of wearing the hooks themselves goes back to prehistoric times in Hawaii, but the ancient



Hawaiian royal necklace of finely-braided human hair with a hook of walrus ivory. The face of the shaft clearly shows the core markings.

archaeological examples in the Bishop Museum were made from limestone and calcite. The age of the earliest ivory ones has not yet been determined, although Captain Cook's expedition reported seeing ivory hooks and bracelet ornaments being worn in 1778-79. Unfortunately, the kind of ivory they then saw was never specified.

If these hooks were made of walrus ivory—as well as whale's teeth—before the Europeans came, it would be necessary to explain how the raw material could have reached the islands. The Polynesians who settled in Hawaii were great seafarers, accustomed to long voyages. They had to be, or they never could have reached there in the first place. It is remotely possible that some of them might have made one or more early trips to the Aleutians, where they could have acquired tusks in barter. But as yet there is no proof of this.

The earliest opportunity for walrus ivory to reach Hawaii by trade would have been in 1779. The year before, Captain Cook had discovered the islands on his third great voyage of exploration. He explored them briefly, and named them for his old friend the Earl of Sandwich. Then he had cruised northward up the west coast of North America to Bering Strait. In the Arctic waters north of Alaska food ran short, and his men were forced to hunt walrus for meat, killing a number of them. When the ships returned to the Sandwich Islands in 1779, it seems likely that Cook's men had brought some of the tusks with them. If so, they may well have used them in barter. The log of this voyage states clearly that trading with the natives was one of the favorite pastimes of the Englishmen while they stayed in these islands.

Whether or not walrus tusks came to Hawaii in the time of Captain Cook, or even before that, plenty of them must have been brought down from the North during the first half of the 19th century by American and British whalers. The whaleships regularly stopped there for water and provisions on their long voyages, which often took them up into Arctic waters and then back to the South Pacific cruising grounds.

The native Hawaiians are said to have made the ivory pendant hooks as late as the 1890's, and they were still being worn occasionally in the 1920's, but the custom has since died out with the passing of the old island culture. We have no records to tell how the carving was done, but

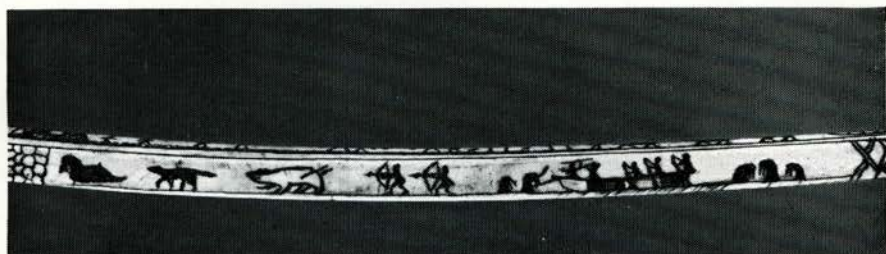
one account speaks of the habit of deliberately discoloring ivory objects by wrapping them in *ti* leaves and smoking them over burning sugar cane, to give them an antique look. Doubtless this accounts for the rich yellow or brownish color of some of the existing examples, which cannot be entirely due to their age.

A recent catalogue for an exhibition on the arts of the South Seas stated that whalers had also brought walrus ivory to Fiji, and illustrated this statement by a fine carved figure from this museum. Unfortunately, this did not provide very convincing evidence, for, as our records show, the figure in question was obviously made from two sperm whale's teeth, one fitted into the other. Thus far, no authentic walrus ivory carvings from Fiji have appeared. If any should turn up, they would undoubtedly establish a long distance record for such work by a people far removed from the source of the material.

Whether or not the whalers ever brought walrus tusks to Fiji, they played an important role in spreading the ivory further around the world. The crewmen on the whaleships carried tusks all over the Seven Seas to work on in their spare time. They prized them above the more familiar whale or porpoise teeth because of their greater rarity and broader surface for decoration. The sailors' usual method of working them, as they whiled away the leisure hours on their long voyages, was by engraving pictures of people and ships, or whole scenes. Ordinarily they pricked them in with a sharp knife or awl, and then filled the closely dotted lines with black pigment, the way the Eskimo did. They called this "scrimshaw" work.

Although the whalers generally intended these carved or engraved walrus tusks and whales' teeth for their friends and relatives at home, they often ended by bartering them in the foreign ports where their ships put in. Thus, carved walrus tusks found their way to such distant places as Valparaiso, Chile, and other South American seaports. In the same way, some even reached Australia and New Zealand.

Before the end of the 19th century, carvings in walrus ivory could be found in many distant parts of the world. Their distribution has been truly international.



Alaskan Eskimo drill bow with walrus hunting scene.

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