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## THE PRINCIPLE OF THE SCREW IN THE TECHNIQUE OF THE ESKIMO

BY MORTEN P. PORSILD

**I**N a brief paper written in Danish, annexed to the report on his well-known expedition to the Scoresby Sound region of East Greenland, C. Ryder<sup>1</sup> states that bone arrowpoints from both coasts of Greenland in olden times were fastened to their wooden shafts by means of screw-bearing tangs. Later Thalbitzer saw similar points in the collections from the Swedish Nathorst expedition to East Greenland (p. 365), and in a recent paper (I, p. 162) I have given a few figures of such screw-bearing tenons of arrowpoints from West Greenland. When the manuscript of the paper last mentioned was sent from Greenland to Copenhagen for publication, I did not have access to several leading works by American writers on the culture of the Eskimo. Thanks to the courtesy of the Bureau of American Ethnology at Washington, the American Museum of Natural History of New York, and Prof. F. W. Putnam of Cambridge, Mass., a number of valuable books on the subject were kindly placed at my disposal, and I now learn that Dr Franz Boas also has touched on the problem of screws as an indigenous Eskimo invention.

As it sometimes has been said that primitive man was acquainted with only two ways of uniting two rigid objects endwise, namely, by nailing and by lashing, it is interesting to know that the

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<sup>1</sup> Pages 310 ff., cited in the bibliography at the close of this article.

*primitive Eskimo knew also the principle of the screw and that he invented the device himself.* As the figures given by Ryder and Boas do not illustrate the best-developed forms of the device, and as I have had the opportunity of obtaining additional material since I wrote my first paper, it seems advisable to present a more detailed account of the subject. Besides the information gathered by myself, I have to thank the following gentlemen for the loan of specimens from their collections for examination: Mr J. Daugaard-Jensen, Director of the Administration of Greenland, Copenhagen, formerly Royal Inspector of North Greenland; Rev. H. Mortensen, Godhavn; Mr T. Hedegaard, manager of the trading post at Agto, near Egedesminde, and Mr N. Thron, manager of the colony of Holsteinborg.

I may be permitted first to present a translation of the passage of the author first cited, C. Ryder, which gives a full account of the occurrence of screws in the handicraft of the Eskimo of Greenland. He writes (pp. 310 ff.):

On the tapering lower end of six of these arrowpoints are cut two knobs resembling fragments of a thread of a levogyrate screw. They are diametrically opposed, each of them making hardly half a turn. Such attempts to produce screws are found also on old arrowpoints from the west coast, sometimes two pairs over each other, and even in single cases a complete thread of a screw with several turns. The screws are nearly always left-hand ones, these being the easiest in making such an arrow, as the maker grasps the arrow with his left hand, the knife with his right, and holds the cutting edge of the knife slantingly toward the outer side of the arrow. By a revolving movement of the arrow, the knife cuts a left-hand screw. A left-handed person will grasp the arrow with the right hand, the knife with his left, and the screw thus becomes a right-hand one.

#### TYPES AND MANUFACTURE OF THE SCREWS

In the passage above cited Ryder gives an explanation of the Eskimo method of making screw-pointed objects, and I may state that the same method is followed at the present time by West Greenlanders. Of course arrows are no longer in use, but the butts of cleaning-rods and of ramrods for guns have often a set of spiral cuts or an elaborately worked screw, giving a better hold for the tow used in cleaning. The knife is held slantingly, according to the

pitch of the screw desired, and by simply revolving the rod outward, an accurate marking spiral cut is easily made. Starting from this first cut the several forms are carved (see fig. 1). Three principal types are distinguished, as follows:

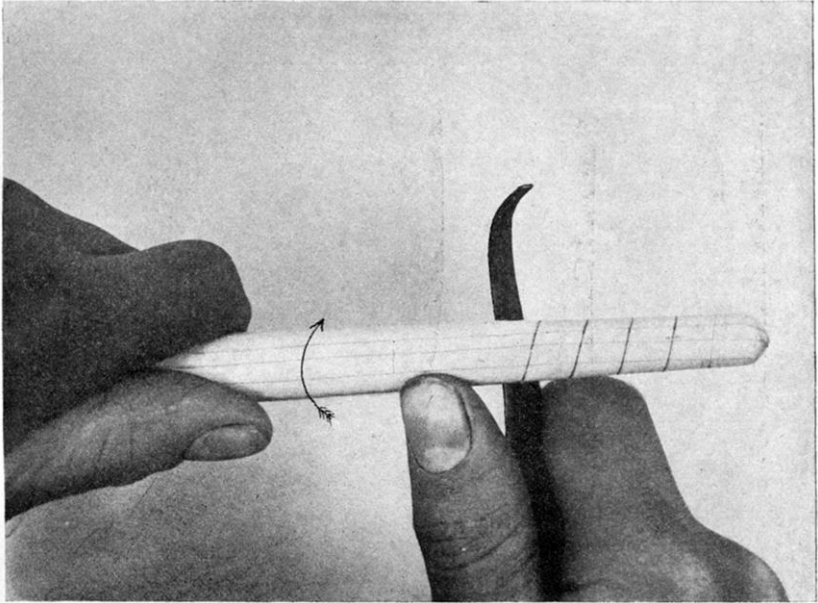


FIG. 1.—The first cut in Eskimo screw-making by a right-handed person.

I. The simplest type (fig. 2, *a*) is developed by cutting small chips from a little below the spire of the marking cut (fig. 1) downward to the next spire. This screw, provided with a sinew-lashing, will easily enter a hole in a rawhide or a mortise in soft wood, but will offer considerable resistance in being pulled out. This form is the most common one used in plugs for closing wounds, but it is also fairly common on arrowpoints.

II. A more elaborate type is shown in figure 2, *b*, which has a thread of several turns in high relief on the surface of the tenon. This form offers equal resistance to being pulled out or being thrust in. It is very common on arrowpoints.

III. The third and most elaborate type (fig. 2, *c*) is very

common on arrowpoints and seems to have the widest geographical distribution. Here are found one or two pairs of slanting projecting knobs, forming together parts of the thread of a screw. In studying arrows with such knobs, the knobs will always be found carved on the flanks of the piece of antler, where this material has the greatest strength, while the less resistant parts are cut off entirely. In former times the Eskimo doubtless realized the fact that a screw-

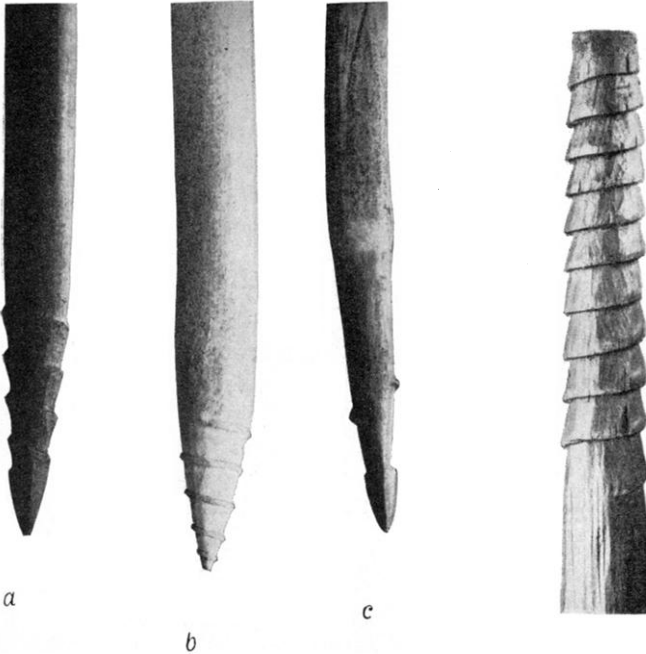


FIG. 2.—Types of Eskimo screws. *a*, The simplest type. *b*, A more elaborate type. *c*, The most elaborate type. (Exact size.)

FIG. 3.—Butt of a cleaning-rod belonging to a left-handed hunter; Hunde Eiland, Disko bay. (Exact size.)

thread carved out of the weaker parts of the antler is of little use for holding the point in the shaft, and that a complete screw is more liable than the knobs to split the shaft.

I wish here to say that the terms "simple" and "elaborate" are used in a technological sense and not as suggesting a difference in the age of the types, as all occur here together; indeed the two forms appear in a single set of arrows deposited at a grave, both having been fashioned and used by the same individual.



ARROWPOINTS WITH SCREWS. (ONE-HALF SIZE)

The extreme point of the tenon, below the knobs or the screw-thread, is often, but not always, formed as a four-sided awl. This device is very useful when the point has become loosened, since, by simply twisting the arrowpoint, the awl and the screw will act together and force their way deeper into the shaft. This awl-shaped point is extremely common on arrows of the third type, with knobs alone, but may occur also on arrows of the other types.

As already stated by Ryder, nearly all Eskimo screws are what may be termed left-handed, a fact directly attributable to the method of making and because most persons are right-handed, as above explained. A screw made by a left-handed person will of necessity be what we call a right-handed one. As an example there is illustrated (fig. 3) the butt of a cleaning rod belonging to a left-handed hunter of my acquaintance.

#### DESCRIPTION OF SOME ARROWPOINTS WITH SCREWS (PLATES I-III)

No. 1. Igdlorssuit, Ubekendt Eiland,  $71^{\circ} 13'$  N. lat. A rather short but very strong and heavy point; butt, cutting edges, and barb well ground and polished, and still very sharp. The tenon with a complete thread of about 5 twists (type II), cut with a knife, the markings of which are still visible. The specimen is not weathered. Length 22 cm., weight 22 grams.

No. 2. Similar, from the same place. Dark brown, with two barbs on the same side. Screw of type I, with awl-shaped point. In this example also the cuts are conspicuous. Length 23 cm., weight 17 gr.

Nos. 3-4. Igdlorssuit. Two small, light points, belonging to the same set and evidently made by the same person. Both have long cutting edges; No. 3 with two barbs on the same side, No. 4 with two barbs opposed. Tenons with one pair of slanting knobs and well-formed awl. No. 3, 18 cm., 10 gr.; No. 4, 20 cm., 10 gr.

No. 5. Uvkusigssat Fjord, about  $72^{\circ}$ . Somewhat weathered point, the edges no longer being sharp. Tenon with screw probably of type I. Slight traces of knife cuts are still conspicuous. 24 cm., 20 gr.

No. 6. Tartusaq or Svartenhuk Peninsula,  $71^{\circ} 25'$ . A strong, well made, unweathered point, with one lateral barb and long cutting

edges. Tenon large, with one pair of knobs and distinct awl-shaped point. 28 cm., 25 gr. This point was found with the shaft in fairly good condition. Plate III, 31, shows its upper end with the sinew-lashings. The shaft is of driftwood, but very dry; length 40 cm., weight 15 gr.

No. 7. Disko Fjord, Disko Island, 69° 40'. Well pointed, but without cutting edges or barbs, and probably not an arrow but the terminal point of a bird dart or of a salmon spear. Tenon with two pairs of knobs and a small awl. 15 cm.

No. 8. Disko Fjord. A very small but finely worked ivory point, with one lateral barb and a riveted iron blade. Tenon with spiral twists. Length 8 cm., weight hardly 2 gr.

No. 9. Well made and well preserved point found on Kronprinsens Eiland in Disko bay. Tenon well formed, with screw of type II and with a short awl. 23 cm., 20 gr.

No. 10. Kronprinsens Eiland. Fragment of an arrowpoint with tenon resembling that of the last, but without awl.

No. 11. Hunde Eiland, Disko bay. Arrowpoint with upper end of unusual form, long cutting edges, and one lateral barb. Tenon with screw of type II, with about six revolutions. Length 25 cm. As the middle part is much weathered, the weight is not given.

No. 12. Egedesminde. Fragment with screw of type II.

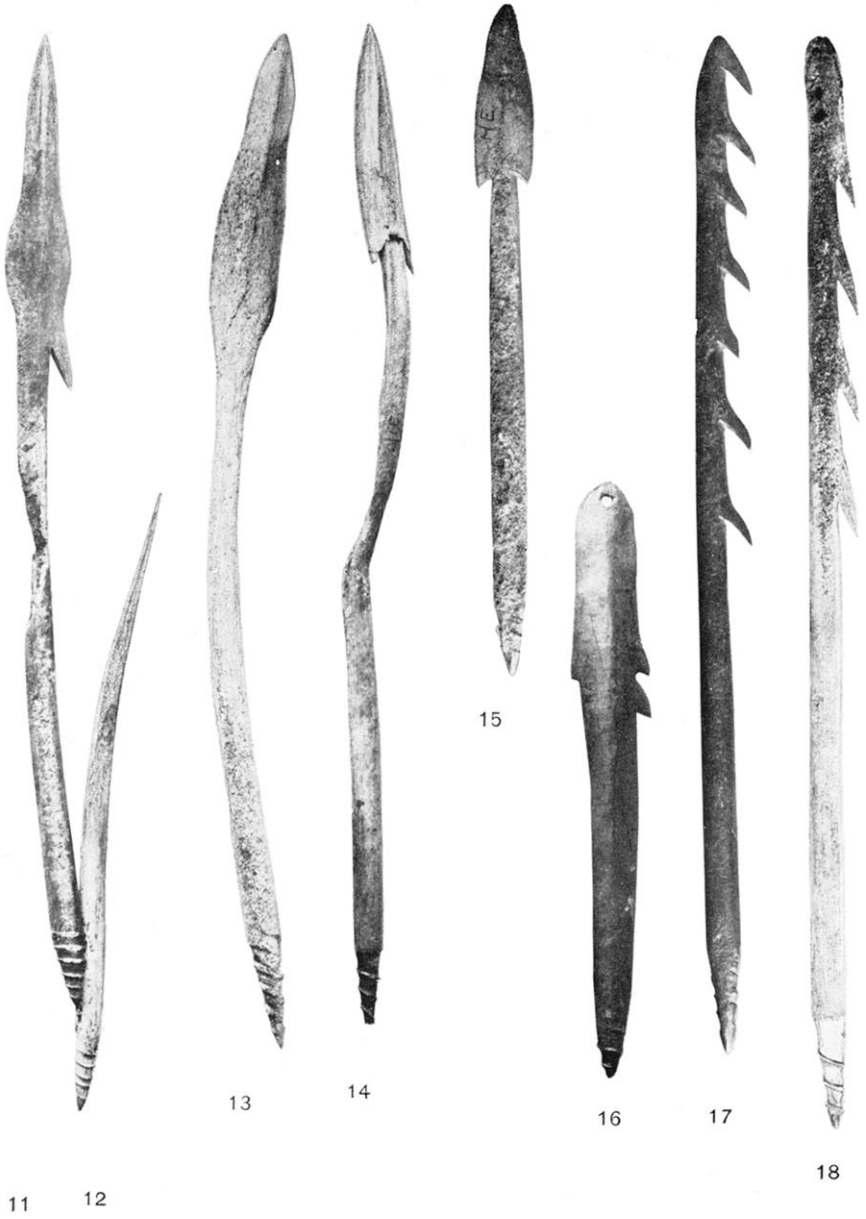
No. 13. Hunde Eiland. With long cutting edges, but without barbs. Tenon with screw of type I. 27 cm., somewhat weathered.

No. 14. Hunde Eiland. With long cutting edges and two small opposed barbs. Much weathered; the basal parts, however, are well preserved, showing screw of type I, over the uppermost twist of which are seen numerous small cuts for roughening the tenon (not visible in the photograph). Awl-shaped point, broken off. 27 cm.

No. 15. Hunde Eiland. Short, somewhat weathered point with two opposed barbs. Tenon with remains of a screw and with a well preserved awl.

No. 16. Hunde Eiland. Rather clumsy, not well made point, with cut for an iron blade. Tenon short, with screw poorly made. 10 cm., 14 gr.





ARROWPOINTS WITH SCREWS. (ONE-HALF SIZE)

No. 17. Environs of Egedesminde. A *pangaligtoq*, or automatically working arrowpoint for deer-hunting (cf. Porsild, II, and III, p. 620. It seems that arrows of this peculiar use have been known also to the Eskimo of Alaska; cf. Murdoch, p. 205). Seven lateral barbs, still very sharp. The upper cutting point was probably originally longer, but was broken and resharpened. Tenon with screw of type I and with awl. 27 cm.

No. 18. Egedesminde. A rather well-preserved *pangaligtoq* of fine workmanship, with four lateral barbs and with terminal groove for an iron blade. The point was split by the stroke and repaired with a sinew lashing through two holes with uniting grooves. Tenon with elaborate screw of type II and with indistinct awl. Length 29 cm.; weight without iron blade, 21 gr.

Nos. 19-24. Egedesminde. Six arrowpoints found together at a grave and probably made by the same person. All rather weathered.

No. 19. Two cutting edges and two lateral barbs on the same side. Tenon with distinct screw, transition between types I and II, and with short awl. 25 cm.

No. 20 (not figured). Fragment with nearly identical tenon.

No. 21 (not figured). Point with long cutting edges and two opposed barbs. Tenon with slanting knobs. 20 cm.

No. 22. Similar specimen, but with two barbs on the same side. Tenon with one pair of knobs and distinct awl. 17 cm.

No. 23. With two opposed barbs. Tenon with two pairs of knobs and with awl. 20 cm.

No. 24 (not figured). Similar to the last, but with a riveted iron blade and hence no cutting edges. Tenon with knobs and awl. 17 cm.

Although the points of this set of six arrowpoints differ in the arrangement of the barbs as well as in the form of the tenons, there are some features of the workmanship which suggest that the whole set was made by the same person. The specimens with two lateral barbs on the same side show a characteristic flattening of the flank between the barbs that seems to be due solely to a whim of the maker and hardly had any intended purpose.

Nos. 25-28. Kangatsiaq, District of Egedesminde. A set of four very characteristic arrowpoints, evidently made by the same

person. The remarkable features are the slender stems, the great distance between the lateral barbs, and the riveted iron blades of which traces are still preserved. Probably they were a sort of *pangaligtoq*. In all the specimens the tenon is rather short, with a screw of type II consisting of about  $2\frac{1}{2}$  revolutions, without awl.

|                      | Length without<br>blade | Distance between<br>barbs | Weight without<br>blade |
|----------------------|-------------------------|---------------------------|-------------------------|
| No. 25 (not figured) | 30 cm.                  | 9 cm.                     | 20 gr.                  |
| No. 26               | 25 "                    | 8 "                       | 15 "                    |
| No. 27               | 29 "                    | 5 "                       | 20 "                    |
| No. 28               | 31 "                    | 10 "                      | 20 "                    |

No. 29. Kangamiut, District of Sukkertoppen,  $65^{\circ} 50'$ . A heavy point with two lateral barbs on one side, a small one on the other. Tenon with well-worked screw of type II. Rather weathered. 22 cm., 15 (?) gr.

No. 30. Kangamiut. A short, stout, rather well preserved point with one large lateral barb on one side and a very small one on the other. Tenon with two pairs of knobs. 20 cm., 20 gr.

The thirty arrowpoints described above, the tiny No. 8 alone excepted, are made of reindeer antler, and most of them, at least all the larger ones, have been used in caribou hunting. They are nearly all more or less curved, a result of long exposure to the weather. If kept dry, objects of antler will last for centuries in the arctic climate, as is ordinarily the case with arrowpoints stuck in crevices amongst the stones of a grave, where rain and melting snow soon evaporate. But specimens embedded in tufts of moss or accidentally lost on ground covered with vegetation are much more readily affected by the weather, partially through action of organisms, and will soon acquire the appearance of greater age than better preserved specimens show.

#### GEOGRAPHICAL DISTRIBUTION OF THE SCREW

A. WEST GREENLAND. Although the material from which arrowpoints of the west coast are made is rather accidental, it still ranges from about  $65^{\circ}$  N. lat. to about  $72^{\circ}$  N. lat.: that is to say, it covers the principal caribou districts of the colonized part of the west coast, the district of Godthaab and Frederikshaab,  $62^{\circ}$ - $65^{\circ}$



ARROWPOINTS WITH SCREWS, AND UPPER END OF ARROWSHAFT. (ONE-HALF SIZE)

N. lat., excepted. From this district, however, I have also seen specimens (not now at hand), and I do not doubt that arrowpoints with screw-bearing tenons have been very common along the entire coast of Danish West Greenland. From Ryder (*loc. cit.*, p. 310) and Thalbitzer (*loc. cit.*, p. 365) we also learn that numerous points of this kind are preserved in the museums of Copenhagen and Stockholm, perhaps also elsewhere. A number of them are also probably still preserved in their wooden shafts, the screw-bearing tenons thus being concealed.

*B. EAST GREENLAND.* From the Scoresby Sound region six points with screws are mentioned by Ryder (*loc. cit.*). From the same region and from Franz Josef fjord the Nathorst expedition brought seven points with screws, according to Thalbitzer (*loc. cit.*, p. 365).

*C. CENTRAL TRIBES.* A point with slanting knobs is figured and described by Boas (III, p. 397, fig. 193, *b*) from Frozen strait. Probably also the small point figured by the same author (II, p. 83, fig. 116, *a*) from Boothia Felix has traces of slanting knobs on its tenon.

*D. ALASKAN TRIBES.* In the memoirs by Murdoch and Nelson I find neither description nor illustrations of screw-bearing tenons of arrowpoints, but Boas says distinctly (III, p. 398) that "points of this kind are found frequently on Alaskan specimens."

#### GREENLAND ARROWPOINTS WITHOUT SCREWS

In various papers Boas has stated that the bone arrowpoints of the tribes of the Central Eskimo ordinarily are beveled and attached to the beveled upper end of the shaft with sinew lashing, in contradistinction to the arrows of the western tribes, which usually have tapering points fitted in mortises. It is interesting to note that the first kind occurs also in Greenland, although the second is far more common. In his paper (*loc. cit.*, p. 366, pl. XVI, fig. 8) Thalbitzer describes and figures a point with one lateral barb and with a slit for a blade but without nail-hole. The author has some doubt about the purpose of this object, regarding it as either an arrow or a point for a bird dart or a salmon spear. According to my view it is the point of an arrow which was provided with a stone blade, hence

the thickening of the upper butt for strengthening. The tang of this specimen, as well as of a similar one found by Thalbitzer (loc. cit., fig. 82), seems to have been lashed to the shaft. A third

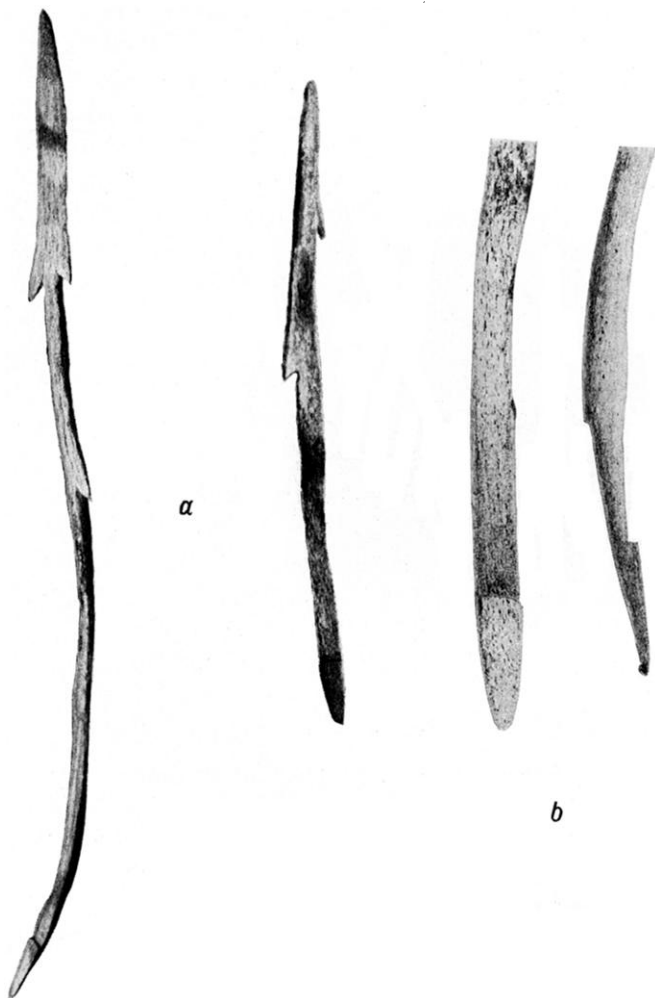


FIG. 4.—*a*, Arrowpoints with beveled tangs; from Iginiarfik, Egedesminde, west Greenland. *b*, Tangs of the preceding. (One-half size.)

specimen, collected by Nathorst in northeastern Greenland, is also mentioned by Thalbitzer (p. 369). These specimens are somewhat weathered, but the illustrations are not sufficiently clear to make it

certain how the attachment was effected. But I have in my collection two examples from a grave near Iginiarfik, in the District of Egedesminde, which show that both the purpose of the object and the method of attachment are beyond question (see fig. 4). One of these has a long point with two cutting edges, two opposed lateral barbs, and a third secondary one; the total length is 32 cm. The other is shorter (20 cm.), with two unopposed barbs, and probably has had an inserted blade, as the cutting edges are not developed. The tangs of both specimens are identical, being beveled and of bayonet shape, evidently intended to be fixed by lashing to a correspondingly formed butt of the shaft. Both specimens are much weathered and may perhaps be of greater age than most of the others herein described. But it may be repeated that the weathering alone is no sign of antiquity, since several of the screw-bearing specimens are as greatly weathered, and indeed sometimes half is totally weathered away, while the other part is as fresh as if it had been made a year ago. These may be the product of the personal style of their maker.

#### PLUGS AND OTHER IMPLEMENTS WITH SCREWS

The occurrence of screw-like cuts on modern cleaning-rods for guns has already been mentioned (see fig. 3).

Plugs for closing wounds in seal-hides before towing have been in general use throughout the western coast of Greenland, but they have so long ceased to be made about Disko bay that many hunters are not familiar with them at all, although in house ruins and on beaches one may still find old specimens more or less decayed. At least in the southernmost parts of Greenland such plugs are still in use, every canoeman having a bundle of various sizes lying under the bladder on the aftdeck of his kayak. They are generally of wood and are more or less wedge-shaped according to the form of the wound made by the harpoon or the lance. The purpose of the plugs is not only to prevent loss of blood, but particularly to make it possible to inflate the seal's body in order that it may float, thus making towing easier. Inflation is accomplished in the simplest way, the hunter blowing into the wound or the anus of the seal.

There are two kinds of wooden plugs. One of these has a number

of transverse parallel grooves with oblique edges. This form is thrust into the wound until one of the grooves exactly closes it. To pull the plug out, the wound must be slightly enlarged. (See fig. 5, *a*; Boas, II, fig. 18, has the same form from the Central tribes.)



FIG. 5.—Types of wooden plugs for closing wounds. (Models; exact size.)

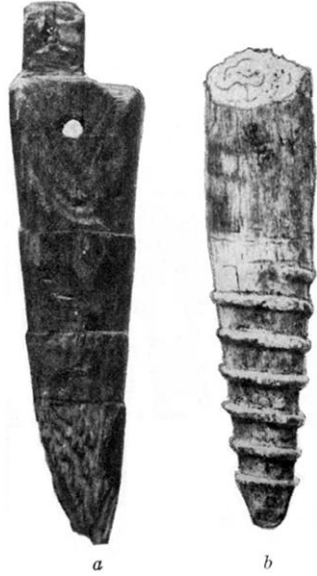


FIG. 6.—*a*, Old wooden plug for closing wounds; from Hunde Eiland. *b*, Probably a plug for closing wounds; made of whale bone; from Hunde Eiland. (Exact size.)

The other kind has a groove cut spirally, resembling the arrow screws of type 1. This kind is screwed into the wound until it is filled, and is easily unscrewed without enlarging the wound (fig. 5, *b*). The same form is also known to the Central tribes (cf. Boas, I, fig. 402). It is readily seen that a screw-like cut in a flat object will not prove effective in a hard substance, such as wood; but in soft materials, like rawhide, a flat screw will work as well as a cylindrical one. Hence the tenons of arrows are nearly always cylindrical in section, whereas the plugs are usually elliptical.

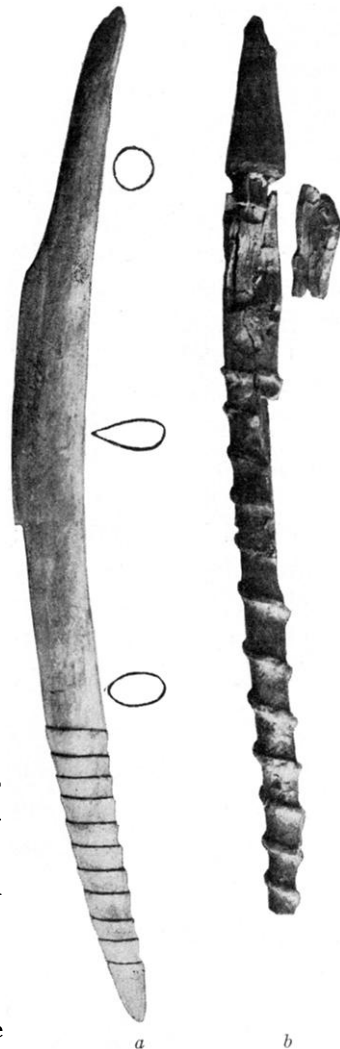
Figure 6, *a*, illustrates an old wooden plug from Hunde Eiland in Disko bay, with grooves on one side only. It is not well preserved.



Figure 6, *b*, is a stout piece of whale's bone in which a fine screw of type II is carved. As the piece is too large for an arrowpoint, it may have served as a plug.

Figure 7, *a*, shows a wooden implement the use of which is uncertain. The part with the elaborately cut screw is elliptical in section; the other part has a cutting edge reaching nearly halfway up. The upper point is cylindrical. Total length 28 cm. Manîtsoq island, near Egedesminde.

Figure 7, *b*, shows an odd piece of somewhat rotted wood, on which has been cut a very well made screw of type I. The piece is not of driftwood, but of a native willow (*Salix* sp., probably *S. glauca*). It seems never to have been straight, and as the wood of this species of willow is soft and of little strength even when new, I believe the object was never put to practical use, but was fashioned merely as a pastime and then thrown away. Total length 25 cm. House ruins on Manîtsoq, near Egedesminde.



#### REMARKS ON LINGUISTICS

Although the technique of the Eskimo has developed the principle of the screw, his language—at least the dialect of Greenland—has no vocable expressing the common concept of a screw. From the verb

*qipivâ*, 'he twists it,' is derived *qipineq* or *qivneq*; 'a winding,' 'a twist,' 'a spire,' whence *qivnilik*, 'provided with twists' (*qivneq*

FIG. 7.—*a*, Wooden implement of uncertain use; from Manîtsoq, Egedesminde. *b*, Carved willow stem, probably not for practical use; from Manîtsoq. (One-half size.)

and the affix *-lik*, 'having'). As the term "screw," together with its numerous compounds and combinations, cannot be translated literally, the Eskimo of Greenland either invents new terms for the several screw-bearing objects introduced into Greenland or else paraphrases the Danish terms in accordance with his conception. A screw to be fixed in wood or metal is called *kikiaq qivnilik*, 'a nail with twists'; but a screw used to clamp two things together becomes *sukaterut qivnilik*. The same combination, *sukaterut qivnilik*, also signifies 'a screw's nut,' because *sukaterut* is 'a means for straightening or tightening something'—for instance, the string used to tighten the hood of the waterproof jacket around the face is also correctly called *sukaterut*. A twisted string may be called *qivnilik* in contradistinction to a braided one, which is known as *perdlainilik*. Other implements introduced with their Danish terms consisting of a compound of the word 'screw,' the Greenlander has translated in his own way; for example, a vise, Danish *skruestik*, is translated *pusugutit*, from *pusuk*, 'the first and second fingers of the hand together.' To the Greenlander the jaws of a vise are the essential acting parts, not the screw which moves them. *Pusugutit* is therefore also the correct translation of 'forceps,' 'nippers.'

#### IS THE ESKIMO SCREW AN ABORIGINAL INVENTION?

The fact that screw-bearing implements are so frequently found in house ruins and graves of West Greenland leads naturally to the question, Is the screw an aboriginal invention or was it suggested by objects of European provenance? If the screw were known only in that part of the Eskimo region, a decisive answer would not be easy. The great bulk of old implements from West Greenland in the collection here treated, as well as in the more numerous examples in the principal museums of the world, were not gathered by scientific persons, but by natives who sold them to collectors; hence we are almost totally ignorant regarding the condition and age of the graves or the ruins in which they were found. The phrase "very old" in the language of the natives may mean half a century or a dozen centuries. But even in undisturbed ruins or graves we have no reliable basis for estimating the age of these objects. An interesting attempt in this direction has recently been made by C. B.

Thostrup,<sup>1</sup> who distinguishes three different periods of settlement based on the condition of the ruins of winter houses, namely: (1) The oldest winter houses are indicated only by a slight elevation of the ground where the walls formerly stood. (2) In the houses of the next period the roof has fallen in, and the walls, though still standing, are covered with earth and vegetation. (3) The houses of the latest period are but little demolished, and the passage and dwelling room are not yet filled up or overgrown with vegetation.

Nevertheless, there are some facts which lead to the belief that screw-bearing implements were made before the advent of Europeans into West Greenland. First, the bow and the arrow were the first aboriginal weapons to be discarded after the introduction of European objects, and arrows of bone with iron blades are remarkably scarce. Second, the custom of depositing objects in the graves was abolished immediately after the introduction of Christianity. Decisive evidence of the aboriginal character of screw-bearing objects, however, is their occurrence in far-off regions that have in no wise been influenced by the white man. Boas (III, p. 398) has already said that objects from Frozen strait exhibiting the screw are perhaps the best proof of the antiquity of the device; but the occurrence of numerous specimens from the east coast of Greenland, where the Eskimo were exterminated before the white man came to investigate their remains, speaks still more decisively for the antiquity and aboriginal character of the Eskimo screw.

#### CONCLUDING REMARKS

We thus reach the conclusion that the principle of the screw is an old and original invention of the Eskimo, executed by a method of his own. This method is still practised by the "civilized" West Greenlanders of our day, in analogy with other ancient processes originated at a time when only stone implements were available (cf. Porsild, I, chap. "How a stone-knife was used by the Eskimo").

Although the screw may have been familiar to the Eskimo for unnumbered centuries, our idea of the device as a physical entirety

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<sup>1</sup> "Ethnographic Description of the Eskimo Settlements and Stone Remains in Northeast Greenland" (Danmark-Ekspeditionen til Grönlands Nordöstskyst, 1906-08, B. IV, no. 4, p. 335, *Meddelelser om Grönland*, XLIV, 1911).

has not been impressed on his mind in such manner as to cause him to originate a term synonymous with our own. He has noticed only the "twisted" surface, and even the modern Greenlander, who by practice has learned the working effect of a screw, has not invented a term strictly applicable to that function.

In consonance with nearly every recent contribution to the culture of the various Eskimo groups (Boas, Ryder, Thalbitzer, Porsild, and others), the observations here presented aim to show the remarkable unity of culture of that widespread people.

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