

THE BURINS IN THE ESKIMO AREA¹

by

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Since Frederica de Laguna suggested that the so called "boot creasers" of the Dorset culture, well known too from O. Solberg's description of the "Stone Age" in West Greenland (Solberg, 1907) "would correspond in function to the chipped stone 'burins' or 'gravers'² of the Upper Paleolithic of Europe" (de Laguna, 1946: 139) it has become obvious that real burins and related implements occur in different levels of the Eskimo culture from Alaska to Greenland.

The most important step on the way for recognition of the Eskimo burin was made when J. L. Giddings in 1948 discovered the Denbigh Flint Complex and described burins and burin spalls as typical elements of this culture (Giddings, 1949, 1951, 1956). The question was further discussed by J. Meldgaard (1952), H. B. Collins (1953) and W. Irving (1955). More and more sites were published where the flint material included burins and related artifacts, from interior Alaska (Solecki and Hackmann, 1951; Irving, 1951, 1953; Campbell, 1959), from Arctic Canada (Meldgaard, 1952, 1955; MacNeish, 1954, 1956; Collins, 1955; Harp 1958; Lowther, 1960)³ and from Greenland (Knuth, 1952, 1954, 1958; Larsen and Meldgaard, 1958; Mathiassen, 1958).

It has been stated by different authors that the burin in the Eskimo area is similar to the Eurasian burin of Upper Paleolithic and Mesolithic Age. However, Collins distinguishes between "genuine burins and others with rubbed edges, which may have functioned as burins but were made differently" (Collins, 1953: 36). Concerning the true burins, he emphasizes that "the upper end has been chipped to a rather thin knife-like edge, so that in use the blade would have been moved back and forth in the plane of its width, and not transversely like the European burin"; and he further says that "the American burins also differ from

¹ I am obliged to F. Hadleigh-West for encouraging me to write this paper and helping me to translate it.

² Some of the authors in the field of Eskimo archaeology refer to the description of this type of tool by M. C. Burkitt (1920; 1949: 59 ss.) and G. V. Noone (1934). There the term "burin" is identified with that of "graver." Actually this may be correct as today an engraver does not use only needle-shaped, pointed but also chisel-shaped graving tools, the latter having more or less the characteristics of a stone age burin. But in prehistory the term "graver" should be used for pointed artifacts only.

³ I don't include the "burins of central or convex type" which MacNeish mentions from his British Mountain Phase (1959: 44 and Pl. 1/6) because I think that if this cultural phase is actually as old as the author thinks and if the artifact in question is really a burin—the illustration is not clear enough—we could not connect it with the burins and related implements discussed here.

Paleolithic examples in being more carefully shaped and more extensively chipped on the surface." Meldgaard in discussing the Sarqaq burins, collected by Hans Mosegaard, mentions that "a single burin can . . . be described as an 'ordinary' or chisel burin." The other burins of the Sarqaq culture have an "oblique, sharp or rounded front edge" from which "one or more 'burin-blows' are struck" (Meldgaard, 1952: 223). Irving points out, that the burins "in certain instances, and particularly at the Alaskan sites, . . . are accompanied by other implements typologically similar to Old World Paleolithic and Mesolithic forms; elsewhere, they are found in complexes that may be more distinctively American" (Irving, 1955: 380).

As the term "burin" becomes more and more general in the publications on early Eskimo cultures, I think it is necessary to fix what is actually meant. It can be seen from the above mentioned observations about Eskimo burins, that Collins and Meldgaard distinguish different kinds of burins and burin-like implements; they have also noted that there are certain differences from the Eurasiatic burin.

It may be useful to reconsider the definition of the Upper Paleolithic and Mesolithic burin in the Old World.⁴ Based on a formulation recently proposed by F. Felgenhauer (1962), I would describe it as follows: The burin is a stone implement with a chisel-shaped cutting edge (German: *Stichelkante*) which always runs in a right angle to the plane of the implement. This cutting edge is formed by the meeting of two rather narrow facets. At least one of these facets must be formed by one or several "burin-blows." If the other facet is not made in the same way, it may be formed by retouches, fracture or be unworked.

We therefore have central-burins, left-angle-burins and right-angle-burins which all may be formed by blows on both sides or by blows on one side and retouches on the other. Only on the angle-burins may one of the facets be formed by the breaking of a blade or flake before this has been transformed into a burin by striking off one or several spalls on one side (Fig. 1).

One often reads that burins have been resharpened after having been used sufficiently long so that the cutting edge had become dulled. This may have happened occasionally but I think that not infrequently during the initial preparation of a burin several spalls must have been struck off. The reason is probably that in many cases the first blows from the thin end of a blade produced only a point or a very narrow cutting edge. The following blows resulted in forming the needed cutting edge of some millimetres thickness (Fig. 2).

In this connection we have to note that most of the burin spalls

⁴ See footnote 2.

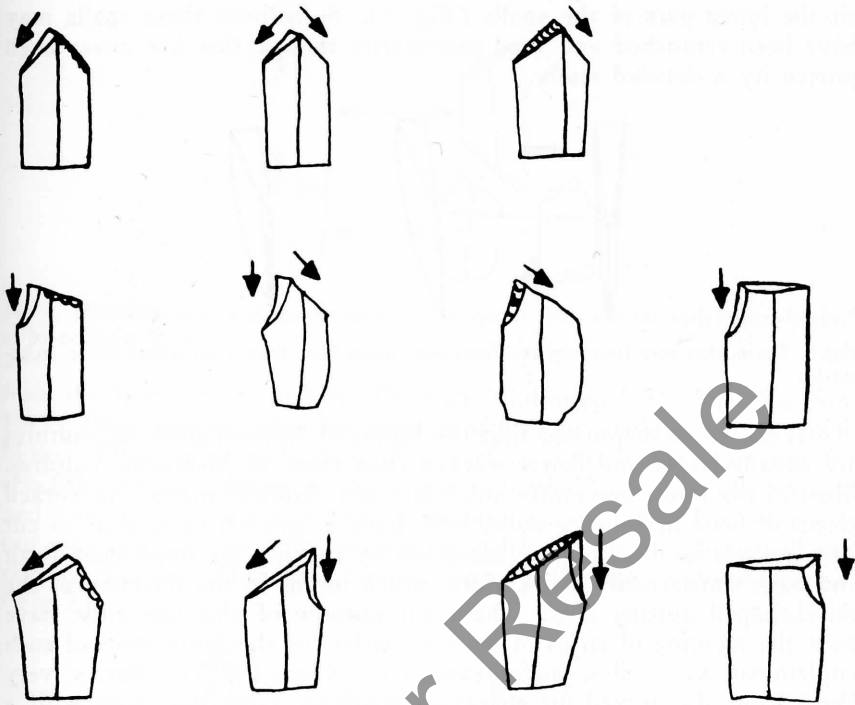


Fig. 1. Central burins (upper row), left-angle burins (middle row) and right-angle burins (lower row); from left to right: blow/retouch, retouch/retouch, retouch/blow, angle-burir (schematic)

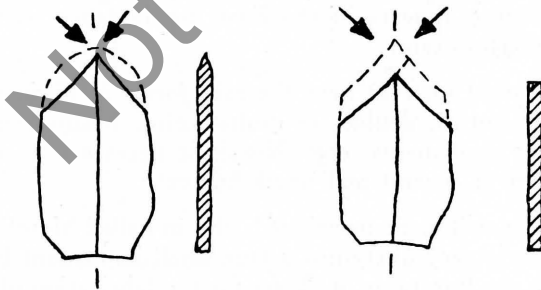


Fig. 2. Manufacture of a burin from a blade: striking of the first and the following blows (schematic)

found in Upper Paleolithic or Mesolithic cultures in Europe have a very typical form. The cross-section of their upper part differs from that of their lower part. If the edge of the blade or flake from which the spall has been struck off was already retouched, we find some of these retouches

on the lower part of the spalls (Fig. 3). Sometimes these spalls may have been retouched and used secondarily though this has never been proven by a detailed study.

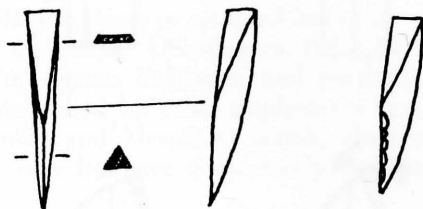


Fig. 3. Burin blow seen from top and from side; burin blow from a retouched blade (schematic)

It has to be mentioned that the burins of Upper Paleolithic cultures are usually larger and better worked than those of Mesolithic cultures. Most of the latter are rather small and less skillfully made. As worked pieces of bone and antler show, both have in general been used to cut long grooves in these organic materials by moving the implement forth and back transversally to its width, which means in the direction of the chisel-shaped cutting edge. The main purpose of this use must have been the securing of strips of bone or antler for the fabrication of such implements as needles, arrowheads, etc. (Clark, 1953). Burins very likely have also served for engraving purposes, especially those with a narrow cutting edge for drawing figures and ornaments on organic material, eventually also for carving purposes.

Most of the Old World burins are not retouched on their surfaces. However this feature appears in the East, for instance on some Mesolithic burins from Hokkaido.

There is no need to treat here the rare forms of burins: polyhedral burins, prismatic burins, double- or multi-burins, burins combined with scrapers or other implements, etc. Nor is it necessary to describe the different subtypes of central and angle burins.

One point has still to be mentioned: the so called Mesolithic "micro-burin" in Eurasia is very likely not a true small implement but simply a by-product from the fracturing of blades for the fabrication of geometrical microliths (triangles, trapezes)⁵ (Fig. 4).

There obviously are burins from the Eskimo area which correspond to the definition of Eurasiatic burins. We may mention some examples

⁵ In fact it would be better to use the term "pseudo-micro-burins" for these by-products so that very small real burins could be called micro-burins (I think that J. L. Giddings, [1951: 195] used the term in the second sense). But as G. R. Lowther has pointed out, it is probably too late to make a change (Lowther, 1960: 11).

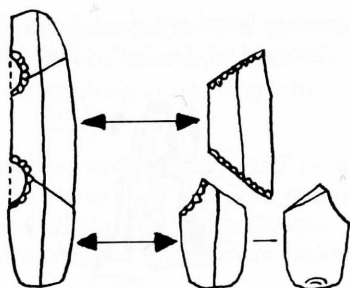


Fig. 4. Manufacture of a geometric microlith (trapeze) from a blade with "micro-burins" as by-products (schematic)

from the Iyatayet site at Cape Denbigh (Giddings, 1951: Fig. 59a, Nos. 1-4). Their cutting edge has been produced by striking two or more blows. There is no indication of a surface retouch (at least not for the flake-surfaces shown in the illustration; Giddings' Fig. 60a, Nos. 8 and 9 show that some may bear on the opposite surface a few retouches, but we can't call this a real surface retouch). By their rather small size they recall mostly Mesolithic burins. We may call them "ordinary burins" (Fig. 5).

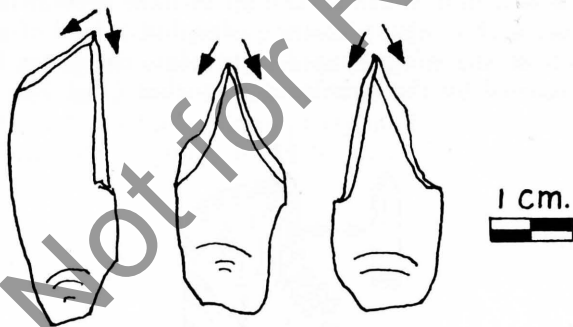


Fig. 5. Ordinary burins from the Denbigh Flint Complex at Iyatayet, Cape Denbigh (after Giddings 1951, Fig. 59a, nos. 1, 3, 4)

A second, more numerous category of burins from the Eskimo territory still have the typical cutting edge. But they are separated from the first category of burins by the fact that they have a complete or partial surface retouch on one or both of their surfaces. Some have been published by Meldgaard from Sarqaq and Disko Bay (1952: Fig. 78, Nos. 2, 9, 10). There would be no problem to use these artifacts like an ordinary burin. It is difficult to understand why these artifacts were retouched before the spall was struck off; the only reason I can see is that this should facilitate the hafting. I don't think that they have often been

made from other implements formerly used for a different purpose. We may call these burins "*retouched burins*" (Fig. 6).

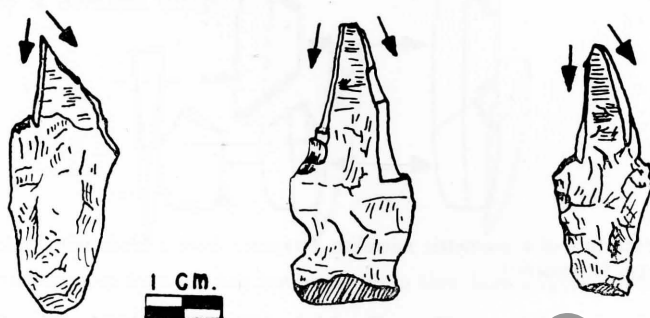


Fig. 6. Retouched burins from Sarqaq and Disko Bay (after Meldgaard 1952, Fig. 78, nos. 2, 9, 10)

Furthermore, there is a group of implements which in the field of Eskimo archaeology are also called "burins." Their form can be seen on a schematic drawing published by J. L. Giddings (1956: Fig. 1). Its basis is a well prepared blade (Giddings' example shows only large retouches on all the edges, but often this type bears surface retouches on one or both sides), from which several spalls have been struck off. This did not produce a chisel-shaped cutting edge, but a kind of point on the outermost part of the wedge-shaped front edge, the latter having been primarily sharpened by the mentioned retouches (Fig. 7). Solecki and

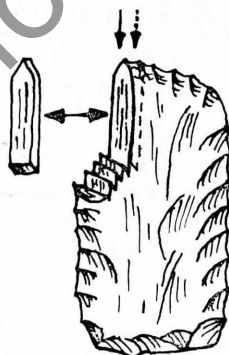


Fig. 7. Pseudo burin and spall (schematic drawing after Giddings 1956: Fig. 7)

Hackman even think that "these artifacts were originally side and end scrapers, showing attritional wear on one or more edge sides" (Solecki and Hackman, 1951: 88). This is the reason why H. B. Collins pointed out that in use such blades "would have been moved back and forth in the plane of its width" though he ranges them together with the true burins (1953: 36). I propose to call them "*pseudo burins*".

These artifacts, which thus differ in a very distinctive feature from the Eurasiatic burin, may have been made for the same purposes as real burins. But there is some indication that they may have had other functions.

First, mention may be made of the small pseudo burins from which so many spalls have been struck off that the remaining part of the front edge is very narrow and sometimes quite oblique (Collins, 1953: Fig. 3 k-p). The use as a "plane burin" is therefore rather improbable (Fig. 8).

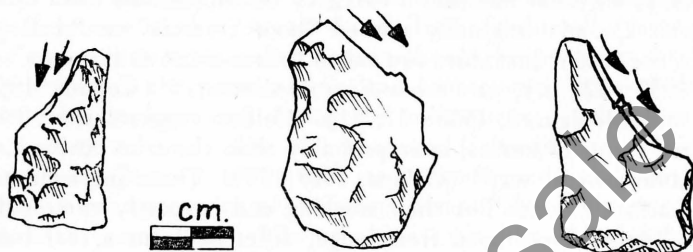


Fig. 8. Pseudo burins, probably used as cores, from a Dorset site at Frobisher Bay, Baffin Island (after Collins 1953, Fig. 3 n-p)

Secondly, there is the fact that the spalls of this type have a special importance as J. L. Giddings has shown (1956). They are four-sided and their upper edge may bear the traces of the retouching on the blades from which they have been struck off.⁶ It is certainly strange that a sharpened edge was used as striking platform. On the distal end of most of these spalls a very fine retouch can be seen (Fig. 9). Giddings points

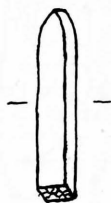


Fig. 9. Spall burin (schematic)

out that "there is no doubt that the retouched areas result from use or from some shearing process, as in pressing the working edge against bone or antler" (Giddings, 1956: 234). Giddings suggests that these spalls could have been shafted engravers, though besides a few antler objects from Cave 2 at Trail Creek (Larsen, 1951: 74) which might be related

⁶It seems that the burin spalls figured by Meldgaard (1952: Fig. 78, no. 5) and Knuth (1958: Fig. 4, no. 10-13) are of this kind and not like the burin spalls from Eurasia; the same is true for some Sarqaq burin spalls from Disko Bugt, West Greenland, published by Larsen (Larsen and Meldgaard 1958: Fig. 19).

to the Denbigh Flint Complex (Larsen and Meldgaard, 1958: 69), we don't know much about carving and engraving technique of this early culture. He also says that "even though the burin of the Denbigh Flint Complex was probably used primarily for grooving, it must have been regarded by its makers in many cases as a core for the production of excellent burin spalls" (Giddings, 1956: 236).⁷ I therefore suggest that it would be more accurate to call these spalls "pseudo burin spalls" or, if a secondary use as a burin can be proven, "*spall burins*."

Finally, we must mention a category of implements from Greenland and Arctic Canada originally named "boot creasers" or "drill points", which in the recent literature are called "three-sided drill points" (Meldgaard, 1952: 228 s.), or "*burin-like implements*" (Collins, 1950: 25; Larsen and Meldgaard, 1958: 17, 61). Collins suggests that "they are specialized forms of burins, later probably than the true burins, but used in the same general way" (Collins, 1953: 39). These implements again show a surface retouch but their working end is mostly three sided and ground. The wedge-shaped front edge, different from a real burin but similar to the pseudo-burin, runs in the plane of the width of the artifact (Fig. 10). Larsen suggests that these burin-like implements were not used as "boot creasers"⁸ but for cutting grooves in antler, ivory and



Fig. 10. Burin-like implement from Disko Bay (after Meldgaard 1952, Fig. 78, no. 16)

⁷ In fact the difference between these and the wedge-shaped cores like those from the Campus Site is not very great, though there the spalls are not struck from the sharpened edge but in direction to it. This means that the spalls from wedge-shaped cores have the bulb not, like the spalls from the burin-like cores, on the pointed end but on the wide end.

⁸ I don't know if the original identification as boot-creasers was based on ethnographic evidence. Boot-creasers are usually made of antler or ivory (Nelson, 1899: 108).

bone. He thinks that they may represent a later development of the true burin (Larsen and Meldgaard, 1958: 61).

It seems to me that the appearance of the different burins, pseudo-burins, and burin-like artifacts in the Eskimo area might have some chronological and chorological meaning. I don't think that the ordinary burin and the retouched burin belong to different levels of the American Arctic, because both these types are present in early Mesolithic cultures of the Old World: For instance on Hokkaido at Shirataki Locality 33 (Sugihara and Tozawa, 1960: 18). But I should not be surprised if in the oldest groups of the "Arctic Small Tool Tradition" (Irving, 1957: 47) the ordinary and retouched burins should be predominant whereas the importance of the pseudo-burin and consequently also of the spall-burin would have increased during the subsequent development of this group of early cultures. The fact that the Campus Site at College in Central Alaska (Rainey, 1939) with its wedge-shaped (also boat-shaped) cores⁹ has some specimens of ordinary burins¹⁰ but only one doubtful example of a pseudo-burin (Irving, 1955) which could also be a side-blade, may indicate that this industry is older than that of the "classic" Denbigh Flint Complex, where pseudo-burins are as well represented as ordinary burins and retouched burins. Furthermore, mention may be made that R. S. Solecki reports on two sites of the Arctic Small Tool Tradition from the Kukpowruk and Kokolik area: One of them (site no. 121) yielded wedge-shaped cores, the other (site no. 65) rather large polyhedral cores (Solecki, 1950: 67, 1951). It would be important to know more about burins of these two sites.¹¹ It may be that the pseudo-burin and the spall-burin technique are an American invention. At least I was not able to find similar examples in Asiatic industries; though

⁹ Befu and Chard (1960) give to this type which is also represented in Japan the following comment: "The special form of probable burin . . . which the Japanese archaeologists often call 'Shirataki engraver' (and which we have renamed 'Shirataki core burin') is often produced by a particular method which Yoshizaki has labeled 'Yubetsu technique'." It is true that these artifacts give sometimes the impression of having been used as core burins, though I prefer to call them cores and to not include them in my burin list of the Eskimo area.

¹⁰ A review of the material showed that besides the one true burin mentioned by Irving (1955: Fig. 1) there are two others of about the same (poor!) quality plus two which are more doubtful (on one the cutting edge is so narrow that it could also be called a graver).

¹¹ Though it seems that J. L. Giddings has recently found on Cape Krusenstern, northwest Alaska, flints like those from the Campus Site on beaches which are a little younger than those with traces of the "classic" Denbigh Flint Complex (personal communications to F. Hadleigh-West), on the other hand we must note that these kinds of cores are characteristic for early (preceramic) groups of the Japanese Mesolithic (Befu and Chard, 1960; Sugihara, 1960). And we find almost the same type of core in the Independence Culture of northern Greenland (Knuth, 1954: Fig. 103/5 and 104 a). I therefore think that this type of the Arctic Small Tool Tradition must have reached Alaska rather early.

we don't yet know very much about the burins on the opposite Siberian coast (Chard, 1955: 167). It would also be of interest to know if and what kinds of burins are represented in the "microlithic" industries of the Amur region, mentioned by C. S. Chard (1959: 47).

I have already mentioned that Meldgaard described only one of the Sarqaa burins collected by Hans Mosegaard as "ordinary," all others are pseudo-burins. The same appears from the publications of Larsen and Meldgaard (1958) and Mathiasen (1958) to be the case for Sermermiut and other Sarqaa sites in the Disko Bay area. Larsen states that the partly ground Sarqaa pseudo-burin (in my terminology!) may have developed in Greenland, "possibly on account of the abundance of angmâq which lends itself better to grinding than flint and similar materials" (Larsen and Meldgaard, 1958: 57). Furthermore, we may note that Collins (1953: Fig. 3 m-p) and Meldgaard (1952: Fig. 78/12, 13) illustrate exclusively pseudo-burins from Dorset sites.

If the burin-like implement which is especially characteristic for the Dorset Culture in Greenland, but appears also elsewhere and later (Larsen and Meldgaard, 1958: 62) is actually connected with the development of burins and pseudo-burins, it must be the latest offshoot.

This of course is only an hypothesis. There is no possibility of quantitatively verifying it through the literature as long as large reports including statistical analyses of the stone material are so scarce in Eskimo archaeology. It is certainly interesting to get the preliminary reports about the newest discoveries of each season of field work and to know the hazardous theories about the origin and development of Eskimo culture based on them. But besides this "arctic small paper tradition" we need more extensive reports too, where not only some type-specimens but if possible all or at least a large part of the artifacts found on one site are described and illustrated.¹² Only this will enable us to consolidate our knowledge about Eskimo-prehistory.

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¹² It would be very useful if the flint implements could, for the most part, be drawn. The photographic reproductions are usually so poor that often an exact identification is impossible.