

Crabtree

We have little short shell like fractures ~~inside~~ here with deep ^{bulbs} ~~beals~~ of pressure, ~~on here~~, But ^{it} ~~this~~ is unique ^{to} ~~here~~ ~~is doing~~ a pressure retouch ^{and} ~~in~~ a serration ⁱⁿ ~~at~~ the same operation. ~~This is still.~~

~~In the same complex.~~

~~In the same complex.~~ This one shows more of a random technique without any regularity of flake. ^{ing} ~~It also~~, They did use the same technique ~~of this~~ in their serrations in order to leave this, but it has much more pronounced ^{bulbs} ~~beals~~ of force ~~in~~ ~~here~~ as ^T they moved their tool ahead, and they haven't followed the ridge in order to guide the flake with ^{the} ~~a~~ precision ~~that~~ they did ^{on} ~~in~~ the ~~order~~ other. ~~The~~ other sets of tools, ~~in this one.~~

Phil Smith

Could that be due to a difference in the material?

The material is slightly more granular, however, the texture remains almost the same. It's a little different in character of workmanship ^{than you} ~~here is the tool~~ find ^{on} ~~with~~ the other one. They hadn't sufficient control as they ^{had on} ~~did~~ ~~with~~ the first bipoint that we mentioned, ~~there~~. Part of this looks like a retouching and ^{it maybe} ~~make~~ a resharpener operation that they used ~~with this particular one~~ ^{it} ~~that~~ may have been ^{resharpened and} ~~utilized~~ as a knife, ~~for resharpener~~. ^{With} ~~With~~ the ^{burin} ~~.....~~ points and scrapers, you might point out ⁱⁿ ~~to~~ which ~~the~~ order you ^{would like them analyzed} ~~would like to do this~~. I'm just not quite sure, ~~but it is~~ ^{but some of these scars} ~~only the outstanding flake~~ that some of these that could have been ^{from} ~~due to~~ function, as the flakes are removed without a great deal ^{more} ~~of~~ precision. This ^{scrapers} ~~is~~ interesting. ^{Notice} ~~particularly as to~~ how they would curve the flakes over ^{and terminate them at} ~~one time like that~~ ^{the edge}.

ce. 25.1.4 (16)

~~With the terminate~~ It's not too common with ^a the scraper technique ~~to~~ to have this regularity of flaking. ~~and~~ however, this has been ^{abraded} ~~abrasive~~ slightly from use, but it is a well formed scraper from a single flake. ^{Notice} ~~And you noticed~~ the point of force! It's ^{at this end.} quite small without any ^{overhang left} ~~overhang~~ on this side as ^{the flake} ~~this blade~~ was detached. Of course it is hard to tell the ^{original of the flake} ~~full~~ length, but it was much larger longer ^{than it is now.} ~~than this flake and it~~ ^{made by resharpening a} ~~it~~ may have been ~~utilized from~~ a much longer flake by ~~resharpening~~ in order to get this character. There seems to be very little pressure, ^{work on} ~~in~~ this ~~sort of~~ material, however, it is a very fine ^{grade} ~~blade~~ of dark jasper. This one is another type of ^{a flake} ~~scraper~~, also ~~very~~ flat. ^{suit} ~~The same type of~~ flat pressure ^{tips} ~~point~~ on the two of them. These are identical ^{in preparation} ~~here with their percussion~~, almost like ^{the} ~~an~~ indirect percussion sort of thing that we were doing a few minutes ago. I mean it is quite comparable. ~~If you'll note they are~~ But they have, ^{a little better} ~~a little better~~ flake platform preparation, ^{on this side,} ~~which we were doing here on this~~ side, without, ^{the} ~~our~~ long overlap on ^{each} ~~this~~ side ^{of the buren flake as this would spread & carry on three.} Some of ^{the} ~~the~~ buren flakes, ^{and microliths} ~~and microliths~~, ~~they~~ are quite reminiscent of ^{the} ~~the~~ Hopewellian ^{type of} ~~blade~~ ~~blade~~. In some cases ^{they use a ridge & sometimes they use a double ridge} ~~blade double blade~~. You might sort out some of the ^{proximal} ~~ends~~ of the pressure points that are very ^{characteristic} ~~clear~~ of the Valley of Mexico. ^{it appears,} ~~There is there is~~ ~~almost~~ a little polishing done on the end of this ^{flake for a platform} ~~part~~ ~~one~~ that I am looking at. But this is ^{very distinct,} ~~clearly,~~ it is probably a ^{notice how they have cleared their} ~~pressure point~~ ~~from~~ both sides ^{of the platform the flake} ~~so~~ this is more easily detached, ^{from} ~~and~~ in order for the precision of ^{the flaking} ~~the tool~~ it appears that pressure may have been used in this case. ^{I don't know} Whether one could set an ^{another} ~~.....~~

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2 tool to this side and strick with this degree of accuracy ~~and~~ precision, I would ~~be~~ ^{be} a little toward the pressure technique rather than the percussion on this side. ^{Because of} ~~as well as~~ the shock of ~~heat~~ ^{the tool}, you can't distinguish between this section of ~~an~~ ^{the} obsidian blade and one from the Valley of Mexico. You can see the directions of the little stiations on this side from the tearing of ~~this~~ ^{the flake from the core,} ~~at the point of force, of that one~~ But it is just a single section ^{and we} don't know what the length of that one ~~is~~ ^{was} but it appears to be almost like the Vallley of Mexico ^{core!} ~~quartz.~~

Driving! Don, access to (inaudible)
Also here are drawings of cores from which the microblades probably came. I don't know whether you can say anything about the ~~the~~ drawings. I'm sorry I don't have the cores themselves here.

Crutcher: Well, the cores are quite distinctively different from the Valley of Mexico cores ~~and~~ and they are typical Hopewellian sort of things because these are rectangular ^{cores} ~~cores~~ tube shape, ^{ed.} so ~~that~~ they could keep following ^{across} ~~back~~ the face ^{of the core}, like the experiment we were doing on the long ^{tabular} block of obsidian with ^{the} ~~that~~ same sort of a technique. But they are vertical with the face, apparently, rather than leading back ⁱⁿ ~~from~~ underneath and preparing a slant this way. These are vertically downward ~~in~~ from this sort of thing.

Driving! There seems to be two ^{sub-types} ~~some~~ one with the ^{platform} ~~angle~~ at a 90° ^{angle} and ~~one~~ ^{the other} with a platform ^{at anywhere from a} ~~with anywhere~~ 35 to 40° angle.

Crutcher: Are they all of obsidian? ^{Driving! No} ~~With these of the vertical.~~ ^{Do these flakes that were removed vertical from the core,} ~~Would there be a~~ ^{or platforms.} ~~difference in the types of the pressure points~~ ^{and} ~~here with these,~~ ^{Do these flakes} ~~and~~ ^{and} the jaspers

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indicate
~~indicating~~ two different ~~kind~~ techniques?

Driving; No, I don't believe so, I think there might be a chronological difference rather than a technological one.

Crabtree This ~~foot~~ ^{group} in here has quite...

Driving That is quite different.

Crabtree I'll turn it over to Dr. ~~Ford~~ ^{Bordes} now, ~~etc.~~

Bordes Well, I have ~~several~~ ^{some} comments to make. On difference-well, it is quite a ~~new~~ ^{new culture} ~~type~~ ^{lucrative} for me, this type of tools I don't know quite well. First.....

~~First thing~~
~~ef-the-use-of-the~~ microblades- Have, you any idea of the use of these microblades?

Driving; Not very much except that I believe that they were used in a manner similar to the small bifaces. They were ^{probably} ~~hafted in a row, probably~~ ~~hafted~~ in a row in a groove along an antler arrowpoint, or perhaps a knife. In another collection very similar to this, many microblades have one edge removed by a sort of a ~~burin~~ ^{burin} blow which made one edge square. It's almost like a ~~back~~ ^{backed} blade but not made by retouch.

Bordes: Well, they show ^{a little} special use, anyway.
~~Well, say,~~ ~~weight.....~~

Driving; Not very much.
Bordes; They are almost fresh
Bordes another thing about the percussion of these microblades
.....
they are very straight
.....
They are very straight. But I don't ^{think quite possible to make them} ~~see how they made them by~~ ^{by percussion.} I shall

this afternoon
try, to show you that it can be done. ~~And~~ ^{of} the cores, ~~some are certainly~~ ^{some are certainly} cores only

These, you know, look very much like some kinds of ~~cores~~ ^{carinate (sp.)} ~~and~~ ^{scrapers} and....

Could be, you know, that they are at the same time, cores ^{and} tools.

Drvin: ² Could be

Bordes It will be interesting to see if these little *retouch on the drawings* are made by utilization or made *on purpose*.

Drving I think there is occasionally abrasion on the ~~obsidian~~ *obsidian* cores. It ~~did~~ doesn't show up on the cores of *chert* ~~sherd~~ or jasper.

Bordes But ~~oxygen~~ *obsidian*, of course, if very *brittle*.

Drving Yes.

Bordes: Because it is ~~was~~ *was* found in France *it would be classified as a carinet* scraper/ *But this blade, of course,*

You say that the part... which was inside the wooden shaft -
was ~~that~~ it was fresh. *and the outside has been sharpened times again.*

Drving: I believe so.

it is quite possible.

Bordes: Since ~~when?~~ Have you found such things in the shaft?

Drving At Trail Creek, I believe they found such things and ~~at~~ *at Perotack (Ch. esp.)* there which is much later. They are very common.

Bordes Because you know, ~~that~~ *that*, we have ~~found~~ *probably* things like that in the Upper Paleolithic.

Not this type but what we call ~~la~~ *la* ~~dos~~ *daw* and we are pretty sure that they were. Those that we found, you know. *the problem which is up* into the shaft.

and So that ~~what was shown~~ *one question is ask.* I ask you.

Drving Many of the small bifaces are assymetrical ~~but~~ when they are in mint condition,

A and those, I believe, were also hafted in the side but it's not definite in any one case.

Bordes Another thing which is very strange are your ~~burins~~ *burins*. They are out of this world as far as ~~burins~~ *burins* go. It seems to ~~be~~ *have been a* very strange way of making ~~the~~ *them*!.

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They can be burins, of course, ⁶ but it looks as if
but... they took some small ~~flake~~ ^{flake} with a ^{end fracture} ~~the kind of~~ ^{in its technical} ~~as a singular~~ form to take off the ^{burin blow!} ~~burin blow~~.

or else ^{made} they ~~meant~~ this kind of ~~hand~~ ^{end} by ^{bifacial retouch} before ^{striking} ~~sitting~~

the ^{burin blow} ~~quite strange~~ ^{which is something quite strange} because it is ^{characteristic} ~~quite strange~~ of the Upper Paleolithic in which you find where as good ^{a technical form} as possible. ^{to take off} ~~to take off~~ the ^{burin blow?} ~~burin blow?~~ to the

Here it is a very queer ^{striking platform} looking form. Or perhaps they did it after. I don't

have ^{light enough!} ~~the right to know~~. No, no, no, ^{it was struck on this end -} ~~it was struck on this end -~~ this valuable ^{striking platform - very strange!} ~~striking platform - very strange!~~

Erving. Excuse me, but looking at the whole collection of 175 of these ^{burins,} ~~burins~~ you find,

well, there is one ^{burin} ~~burin~~ blank with no ^{spalls} ~~spores~~ knocked off. It's simply a ^{triangular} ~~rectangular~~ flake retouched to this ~~has~~ ~~shape~~ ^f shape, a trapazoidal flake. And the retouch is already there on the surface.

Bordes ^{ya, ya, ya!} ~~ya, ya, ya.~~

Erving But they also did subsequent retouch on some of them.

Bordes' But most of them ^{have this} ~~are the~~ same preparation which is ^{different} ~~perfectly even~~. Here is one

which is more right ^{of burins.} ~~of burins.~~ It's amusing. There has been ^{just} ~~just~~ a ^{burin blow like that in the longitudinal line} ~~burin blow like that in the longitudinal line~~ and probably after ^{that... the burin was used.} ~~that... the burin was used.~~ They made some retouch and perhaps

they took it under a ^{burin blow!} ~~burin blow!~~ I'm not quite sure. It's difficult to tell.

It could be.

Erving There are many broken ^{burins} ~~burins~~. This is the broken end of a ^{burin} ~~burin~~, and so is this.

Bordes Of course. But... ^{you have always} ~~you have~~ ^{always} this strange ^{queer} ~~preparation~~.

I will try... *Tomorrow* to make something like that. This is the first time I have seen something like that. As for you *burin spall* - *yes* ~~but~~ some of them have been *shot really* ~~chopped there~~, to make something of a small bores, microbores,

Living

These pieces of antler were cut with *burins* ~~burins~~, I believe.

Ya
~~Now~~, it looks like . But your *small burins* -

Bordes

Ya, Ya, Ya, no question. That has been done with a very. *but* It looks as if

there were other

~~as a~~ light tools *for this little work. Well, it could well be that this* Where the will be of this special preparation

is another manner to make a type of blade which is fairly common in the Upper

Paleolithic in France which is, I don't know, *how* to say, or to describe it in English

because, *(round barrow with cord)* ~~arrow~~ or *point of barrow* ~~arrow~~ and it *works* like that. ~~And that could~~

be something. Different way to make the same to get the same *results.* ~~razors.~~

Ah. these are scrapers. *! Small* ~~Most are~~ scrapers.

These are nice.
And these could be *Solutrean*.

I can show you exactly the same in *upper Solutrean* ~~Europe~~

Living

These are so consistent in size that I think that ~~remain-to-fit~~ they were made to fit almost a standardized handle.

Bordes

Ya.
And this? This one. *! this is a funny Solutrean.*

Ah, you say that this is a knife

Living

I believe so, yea. These are other examples that fall in the same category.

Bordes

Why?

Irving: The other example have much less taken off here. They are bigger and triangular this way. I think that it was held in the handle this way and sharpened down to this little point.

Bordes: Ya. Here is a ^{burin} burin blow.

Irving: ^{Yes} For sharpening perhaps.

Bordes: Ah. I don't know. I think ^{they missed} perhaps.

Irving: Accidental?

Bordes: Either it was an accident or they tried to make ^{a burin} the burins ~~and they missed it~~.

But ^{another burin} let me see. Oh, there is no question. There is a ^{burin} burin blow at the other end. They made a ^{burin} burin out of it.... ^{an ordinary burin}

Irving: That I think was a hafted knife, ^{whittling} ~~working~~ knife.

Bordes: Ya. It could ^{well} be. I am not ^{familiar with the Arctic culture.} familiar with the Arctic culture. I am following up with something, that's ^{working} ~~working~~ with flint ^{tools.} ~~tools~~.

And what difference what you are working with. If it is to ^{cut} ~~set~~ something soft well then it pays to put ^{handle} ~~handle~~, but if you want ^{to work} something hard you ^{use} ~~lose~~ more time putting ^{the handle on} ~~under those~~ of flint than you would making ^{other} ~~these~~ of tools. So I wonder ^{really} ~~if most of~~ ~~of~~ these things we are ^{hafted.} ~~of~~.

Irving: Many of these have lots of retouch. No they're sharpened many many times. Always on one edge ^{not} ~~never~~ on the other edge.

Bordes: Ya, Ya, Ya.

Irving: Some have grinding or polishing along these ^{basal edges} ~~base~~ edges which, I think, may have

to do with hafting because *of the end scrapers & the burins also*

Bordes *With that thing it was holding,* ~~What's that thing you are holding,~~ you know. ~~The~~ *the other* doesn't matter, you know!

I think know that in *Arctic, the* people ^{had} hafted tools and I am fairly sure that the Upper Paleolithic ^{and then} in the middle ~~had~~ some hafted tools. But you know, the time

you spent to put the ~~tools~~ ^{haft} to a thin knife is so big compared to the time you might can really be of use that I wonder . How does it feel about the sharpening of the

edge. Of course . It's a sharpening in a way , but I will say that nothings ~~gets~~ *cuts*

as well as a fresh flake without any sharpening. *So it will project*

the preparation of a .. Ah, what is the word.

Saving Make the edge stronger.

Bordes Ya. To do it. ~~id~~ I don't ~~think too well.~~ *find the word.*

Crabtree Change the angle?

Bordes No.

Sawin Scrape

Bordes *Rather than* ~~to~~ make it shapp and also to ~~ma~~ change the end of it because with a fresh

flake you can cut meat very easily, but as soon as you work on something hard, it

~~crushes~~ *crushes* and becomes serrated ~~but.....~~ *is a bad way* and you can do not much with it.

With this, it cut~~s~~ ^{the} ~~with~~ retouch. It's much less ~~cutting~~. I ~~couldn't~~ do that you

see with a fresh ~~blade~~ ^{flake}, but you can scratch or ~~sear~~ ^{score} the skin without cutting ~~the edge~~

And if you want to work on something hard, well, this ~~is~~ was done with a blade,

alright a blade with some ~~visualizations~~ *ventilization*. You can see by the undulations. It bites ~~then~~ *and*

slips, and bites, and slips. When you want something really good *really smooth* you use a technique which is different and which I think was used by the Upper Paleolithic. Your work that on the side of the ^{burin} ~~burin~~ like that.

alving Many of these ^{burins} burins have that kind of use retouch. This one does.

Bordes Let me see.

alving It's pretty hard to see. No. It's not here, I'm sorry

Bordes Not this one.

alving No. I'm very sorry.

Tipier *The other is burin spall.*
Does the burin.....

alving { Yes.

Do you see ~~see~~ any signs of ~~tr~~ heat treatment or can you tell?

Crabtree *Without the core, I find it difficult.*
~~Dr. Bordes~~, I find that these are indicative of heat treatment, ~~on here~~. The other

~~is~~ ^{is} very fine-grain ^{of} with the core one could ^{perhaps} pick up a facet of the outside ^{of} the original surface for comparison.

I don't see any of the outside edges of the cores on these ~~particular~~ ones. ~~This piece~~

Phis ~~here of the haft knife of burin~~ ^{with the burin point} ~~quite or whatever, on there.~~ ~~This one here has,~~ of

course, a retouch on the outside, ~~But~~ it appears to be the same texture ^{throughout} ~~of the other~~

~~that the rest of it does, and it may have been a shaping, this is the rest of it~~

~~full length flake, the entire flake here, but by the luster of this material~~

~~but one~~ ^{burin} ~~would be by~~ studying the cores to determine whether there was any difference in texture ~~in this one~~. I hate to ~~maybe bring up an~~ ^{start an} argument with Dr. ~~Bordes~~ ^{Bordes} here, but the edge

of this ~~right here~~ ^{artifact, but} actually, by retouching you can ~~reach~~ ^{produce} an extremely razor-sharp edge.

But this ^{sample} appears to have been ^{abraded} and ^{the flakes} hinged back in by function, ~~as they~~
^{from} scraping and these little short ^{flakes} ~~are~~ are broken back ^{inward} and they are not full length

out to the edge of ~~this one here~~. But by setting ^{the} ~~ahead~~ your platform ^{ahead} each time, you can
 leave the same sharp ^{edge} ~~edge~~ by ^{the pressure} your retouch. However, ^{as Dr. Borden said,} for regular cutting,

^{a fresh struck flake,}
~~your regular blade, as Dr. Bord suggested, being detached is much sharper~~

^{a fresh struck flake has}
 more regularity of ~~flaking~~ ^{but hasn't the strength of a} ~~edge~~ ^{flaked}

^{pressure retouched edge:}

~~edge does~~ By retouching properly ~~on here~~ you can still leave that razor

edge. However, it ^{won't} ~~can't~~ have the regularity of the original flake itself. But it

appears there has been heat treatment particularly with this sort of ^{chert} ~~thing~~. That's

almost opal ^{like} in texture, and it is not opal. It's one of the hard ^{cherts} ~~stones~~ or agates ^{or silicious materials}

I think that is all the comments I have on this particular piece other than they may

have devised two methods of detaching these ^{burins} ~~burins~~ which is not ~~particularly~~ likely

~~By~~ ^{the flakes} percussion on ~~the~~ obsidian you ~~will~~ get undulations and ~~these~~ are extremely flat

and extremely smooth on the side. ^{with} My experience ~~with~~ obsidian has been ~~more~~

^{a flake with many ripples from}
~~of the ripples~~ ^{and direct or indirect percussion} ~~compression, from even indirect percussion with that sort of~~

it would be difficult to determine the

~~thing,~~ ~~and the~~ placement of the tools ~~of this~~ without the core, ~~it would be difficult~~

~~to tell~~ But ^{from} these broken pieces ~~of this~~ on these short flakes, and the size

of the platform and the very flatness, ^{of the flake on all three sides,} ~~on all three sides of this edge,~~ this edge, and

this edge, ^{and underneath, the surface,} appears to be very smooth and extremely regular, ~~but~~ ^{This} is not too

characteristic ~~here~~ of a percussion sort of ^{blow} ~~blow~~ of obsidian, ^{with the} ~~with the~~ ^{chert and using pressure} we have

more strength and there is not much undulation in the ^{flakes} ~~flaking~~ detached.

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Bordes Here are some ^{percussion} small blades.
~~perforation.~~

Crabtree: Yes. You see on the edges of ^{blade} ~~the~~ the slight compression ^{from percussion.} ~~of this sort of thing~~
~~_____~~. This one is thicker and ^{of} ~~with~~ the flint, ^{and} it won't compress as much but it ^{does} has
a slight compression. ^{is} But with the heavier the dorsal ridge ~~is~~ on the flake ~~the~~ the
less compression there can be. The ~~the~~ ^{is} thinner the flake the greater the amount
of undulation, ~~there could be.~~

Epstein Dr. ^{Bordes} ~~Bord~~, where are those ^{specimens from?} ~~specimens~~ "from"?

Bordes This? I made them. Just some small blades ~~made~~ made by ^{percussion.} ~~compression.~~

Crabtree This is quite a flat one but it ^{is} a bit ~~of~~ a thickness ^{etc thickness} ~~as here to~~ eliminates
^{the undulations.} ~~this sort of a thing here.~~ This is a little thinner one ~~here~~ and you see a few of
these waves ^{but} ~~and~~ it's not as obvious in flint as it is in obsidian. So perhaps it could
indicate ^{maybe} ~~maybe~~ two methods of ^{detaching.} ~~that sort of thing.~~

Bordes These are not the best that can be made by ^{percussion} ~~compression.~~

Crabtree Right, Right.

Bordes I will try to make better and see if they ^{compare with this.} ~~come out.~~

Crabtree True.

Drving Shall we move on to the ^{Anagula} ~~Anagules~~ specimens then?

Tipier I think there were many innocent remarks made on this blade ^{set} and also on this
^{burin} ~~burin~~. An important thing on this burin ^{think is} ~~is~~ they were polished. It the first
time I see the two techniques of polishing and then ^{burin spalls,} ~~burin force.~~ I never saw this

Yoshisaki (spelling)

even I think Professor show me things like this.

Orving

Possibly ~~more~~ possibly.

" I don't know of any from Japan . But it's possible that some should show up.

Bardes

No. not from Japan-from Alaska.

Orving

~~More possibly~~ *likely* from Alaska - more likely

" But if they were from Alaska they were ~~possibly~~ *probably* from the very same site. He has some of my specimens .

Tipier

Something very characteristic in this ~~burin~~ *burin* there is ^{here}, you see, a notch and this notch was always removed always remade before even ~~burin~~ *burin* ~~spore~~ *spall*. I think this is very important . It's a very complicated technique, you see.

Fabier

Both these bladelets .

Thier

I've rather nothing to say after Mr. ~~Gruber~~ *Gruber* and Prof. ~~Bardes~~ *Bardes* , but I think

there is one important thing ^{on} this one we can see the ~~perforation~~ *preparation* of the core. You, see ,

R and I think this ~~perforation~~ *preparation* was like some ~~perforation~~ *preparation*. Yes. Here is. The original

thing is the ~~under form~~ *underform* by striking the platform and the bladelets. It is very, very sharp. I never saw this but in Egyptian ~~predynastic~~ *proto-dynastic* ^(spelling) . There are such cores or the kind of scrapers with this very very cutting edge, you see.

Epstein

Professor ~~Tipier~~ *Tipier*, how does the notching ^{compare in} with regard to the ~~burin~~ *burin* of the Norton ^{Complex}

Tipier

I think it's a notch.

Epstein

How ^{well} does this compare to the ~~Not~~ *noille* technique? Would you?

Tipier

I think it's just the contrary. In ~~Noaille's~~ *Noille's* technique the notch is made to control

the end of the ^{burin spall.} ~~burin~~ ~~spore.~~ Here ^{I think the} ~~the things~~ notch is made to have the ^{burin spalls} ~~burin spores~~

longer, you see. I think it's just the contrary.

Bordes! Could be. It could be, but I'm not so sure. It could be.

Irving It could be to eliminate the jagged edge left over if the ^{burin} ~~burin~~ is to be used later for scraping .

Bordes No. But the ^{rather} thing would be to try and make some of these ^{burins} ~~burins~~ and see how it works.

Tipier ~~The program is,~~ The program is, ... → What part of this burin was used?

" And why polishing the two biface and dorsal face why, where?

Irving Relatively soft material as compared with the other ^{burins.} ~~burins.~~

Bordes Wah- What is this material?

Irving! I don't know . It's a ^{relatively either} ~~rather~~ soft, volcanic or sedimentary material, but it is used for not other artifacts at the site.

Bordes And this, this polishing could be the result of working, you know.

" ~~You see,~~ Working like that going inside the groove.

Tipier Yes, but ~~this~~ one is polished all around.

Bordes Ah, yes, but you can also the side to out.

" I don't know. You can do a lot of things ^{with a burin} ~~with a burin~~ except ^{kill your mother-in-law.}

Byers Is ^{it} polishing ~~characteristic~~ characteristic of ^{the burin blanks} ~~the burin blanks~~ in the Arctic small tool division

all the way across ~~the~~ ^{to the Atlantic}

Irving: ^{Burins} ~~Burins~~ are very commonly polished when they show up in ^{Sardark (spelling)} ~~Sardark~~ and pre-dorsal ^{dorsal} ~~dorsal~~ ^{Technique}

The same sort of polishing and often more extensive than that which shows up on these.

That is sometimes almost the whole ^{implement} instrument is covered by polishing and then the

^{burin spalls}
~~burin spores~~ are removed after that. Is that, does that answer your question.

Byers: That's what I had in mind. ~~Is~~ ^{This is} true in the Labradore ^{burins too} ~~specimens~~ also. ^{and the Barset}

Irving: I believe so. Yes, ~~Throughout the Arctic~~ and Hudson Bay and throughout the Arctic ^{Archipelago (sp.)} ~~Arctic~~ and ^{Subarctic (sp.)} Greenland. In ~~Sardax~~ and Greenland almost all the ^{burins} ~~burins~~ are polished like this.

Epstein: ~~speaking~~. Bill, can one see a ~~direction~~ ^{striations} in polishing here? What I'm thinking of is, some of the materials from ^{El Duga} ~~Alegua~~..... that Bob Bell has. He has a side scraper, concave side scraper, that show definite ~~striations~~ in the direction of the edge; just straight away from the edge, and I'm wondering whether there is any direction visable ^{the polishing of} in your burins.

Irving The striations that I have seen go in all directions. The striations go in all directions on these burins as far as I can make out and there is no complete regularity. They are at several different angles to each other.

Epstein: Well then another question comes to mind. If ~~then they are not~~ possibly they are ^{not the} result of use, Mr. Crabtree, do you see any possible connection here between this polishing ^{what seems} and on the surface or ~~what appears~~ to be the surface and possibly the edge polishing that you've been using in working flint?

Crabtree Well, Jerry, ~~This is Don Crabtree~~, I haven't examined the ^{burins} ~~burins~~. I left this up to the people who are ^{familiar} ~~working~~ with ^{burins} ~~burins~~ and I am not familiar with them and I really didn't examine ^{them} ~~them~~, you see, ^{with burin techniques I have had} ~~so far~~ for burins ~~I've had~~ little experience.

So I'd rather not make any statement regarding that.

Epstein *well, just an idea.* *whether* *grinding*
~~well~~ I was wondering, here, you use edge ~~lining~~ as a technique of strengthening

the edge so that it can withstand impact.

Crabtree Yes.

Epstein: And I'm wondering here whether this grinding which is on the surface may possible prevent, ~~may possible~~ *or* make the burin edge that much sharper because it may possible just prevent flaking on the ~~underside.~~ *other side.*

Orving: That's possible, Jerry, but I'll point out that some burins ~~were~~ *made* of soft material, ~~are~~ or all burins made of soft material, are polished ~~on the surface.~~ *on the faces* -All-burins made-of Almost all the burins made of ~~shards,~~ *chert or* of chalcedony, jasper, or whatever it may be, have edge gridding on most of the edges, ~~But~~ they don't have polishing on the faces. The edge grinding may well have something to do with preparing the platform for knocking off burin spalls, but it occurs on other edges as well so that it may have had something to do with protecting your fingers when using it or hafting the thing. The polished burins, I think, when you examine all 10 or 12 from the site, it looks as though the polishing was a way of obtaining the shape of the tool, but there are other ways to interpret.

Bardley: The best would be to experiment, and see ~~if~~ *how* we can make these. Well are there questions on this material? Well lets go to the throwing ones and.

Orving: The material at the other end of the table is from the ~~Anagula~~ *Anangula (ch. 44.)* site in the Aleutian Islands excavated by Professor ~~Leitman~~ *Lofman*