

Joe Bann Wheat
If this were hafted on a shaft in such a manner that only the tip is still unhafted like this - this would produce a beautiful barbed hook for the taking of large fish or crocodiles, alligators or this sort of thing - something fairly large, fairly large ... that otherwise might get off so that they are *equipped* that means *at least* get off, so.

that an
analysis of the wear pattern of the thing itself might indicate that it was hafted.

Bordes Something like the *curvetron* points in the Upper Paleo. in France. That could well be. *for* Big fishes.

Phil Smith: Marie, You might take a look at ~~some~~ some things

and also .Cargo oasis in Egypt so called Neolithic, *very large* ~~ecave~~ inverted arch *concave*

double flakes.. retouch... Somewhat remininscent of *that of* the ... *notched*

although not precisely.

Warrington Then this brings us to the ~~E~~ Elinga material from Ecadore. This is material sent by *Mayer* ~~Myer~~ Oaks and ~~Bell~~ as I am sure you are aware the points that are found with this have a shape like a Fellscape Point but are almost invariably fluted. *Mayer* ~~Myer~~ Oaks and ~~Bell~~ are reluctant for some reason to use the term blade and do not wish to call these blades. And it ~~is~~ certainly seems to me that they are blades. I would like comments on this. They have also identified some of these objects as burins, and I think that they would be very interested in your ~~is~~ comments as to whether they are burins, and are they blades. *?*

Bordes: Well, ~~Bordes~~ speaking. There is no question that this is a blade. If that is not a blades, I don't know what a blade is.

Warrington That's my feeling too.

Bordes And you have a burin on this riggd blade, which is a preparation. And as for

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burins I can see at least two beautiful ones. Here is a nice burin on the ~~the~~

concave ^{truncation} percussion on this side. There is another burin on the convex ^{truncation} percussion

on the other side of the same tool. A double burin. This one except that it is

in obsidian could belong ^{in many of} to the Upper Paleo. culture in France. This one also

is a nice burin concave ^{truncation} percussion. And they are all over. No. One is

double the other is single. That is also a burin on a ~~pot/sherd~~ ^{fracture}

That's also a type well known here. Let's see. That's just a blade. That is ^{probably}

a burin spall, no question. I am not sure, but it can well be one, yes. Yes, that's

one. That's one burin on the concave ^{truncation} percussion. This one is not so good but it could well be. ^{of obsidian and of obsidian it is not as easy to make burins} Yes, it is one also, that's a burin. And once again it is not

so easy to make burins in flint. No, that's just a blades, I think.

Wormington Looks like *Seams* cave.

Bonds That probably is another one. Here is one broken. Broken but that was one.

That's a blade. Let me see. If you put them back again at the same time I take

them off, we can do that way for a very long time. That's a ^{bit of} blade too.

No. no. That's a blade, yes. And that. That's a burin spall, I think. A

big burin spall.

What's this.

Bonds Could be one too.

Wormington The dates are running about _____

Curran There are a variety of dates.

Bordes Yea.

alunin We prefer the date of 6000 B. C.

Bordes And what of use is this?

Bordes Younger.

Phil Smith And older, the obsidian dates are older. They are around 11000 .

Bordes That could be a burin spall. That just an *inverse truncation*.

Phil Smith *Yes +* *know Frey of Leakey*

Bordes Please don't speak of this man.

Phil Smith I speak of *donor Frey*

Next we'll speak of *...*

Bordes Yes, I would say there are a lot of burins in ~~ht~~ there. Would you care to

comment. Yes, you are specialist of the Upper Paleo, *after all*.

Madame Bordes I am speaking for *Cambier* For this ^{little} ~~second~~ tool he is thinking it is a prepared ^a little like the noilli burins *because of truncation*. This ~~connection~~ and size .

Bordes Because of the flatness of the flake ~~on there~~ *only think*

Madame Bordes Yes.

Bordes And there is no notch. Oui.

Madame Bordes Yes, but

Cambier (Speak in French)

Bordes There is a lot of burins.

Madame Bordes Yes.

Bordes

This one, this burin spall is interesting because it shows a lot of preparation of the flake the blade before taking off the burin spall. And this ^{has} very often has been mistaken for a tool. This is not a tool. Just a technical preparation.

....

Because just suppose I take this blade and I want to make a burin on it. Will I made a ^{truncation} ~~concation~~ here. But if I leave this angle here, the burin will not go. I have to retouch, put it straight, like that. and then it is very easy to get the burin spall out., ^{and prepare a} burin. And it will give you this kind of burin spall with retouch which has been supposed by many people to be special type of tool. But it's just a technical trick.

Madame Bordes

This as my husband said ^{it} is just what you can ~~be~~ put in the preparation.

Bordes

No question they are burins.

Madame Bordes

It is quite ^{well}

Piquet

It is the first time, two such burins are found in the industry

Wormington

The first that I know of.

Cynthia Irwin Williams ~~has~~. I think either this afternoon or tomorrow we

will have chance to look at some burins of quite different types, so certainly

burins from an industry, ^{possibly with the} equivalent age in Mexico. Apparently burins of one ^{one} ~~the~~ type

or another are very widely spread, but rather spottily distributed ⁱⁿ ~~thru~~ the New World

We get them both with blades and without blades, ^S sometimes just made on flakes.

I wonder if anyone would like to comment on possible methods of producing these

kinds of blades.

Crabtree Some percussion.

This is quite typical of percussion, of producing of the blades, you can see ~~the~~ compression there was almost no preparation. They left them very thick but you still get a great deal of compression. If you'll notice the little undulating lines one these. They appear to be flat on the surface and the cores would probably be quite conical when they had finished with ~~this, but~~ They apparently used fairly thin tabular pieces in order to get the thickness of the blade with these single ridges. ~~but~~ there is no regularity of form with this sort of thing on here, ~~or~~ more indiscriminate percussion ^{not} for a certain purpose, they did desire, apparently, these thick blades, so they would have to have a quite narrow core in order to produce this particular type of a tool.

Irving Irving speaking. I had occasion to look over ^{Mayer} Myer-Oakes surface collection *of 6000* at one time. I looked thru a good portion of it, and I didn't see anything that reminded me of a blade core. Many, many burins have a great variety of shapes but nothing that I would call a blade core. Now, I am not sure how that scores with the identification of ^{some of} these as blades. Could many of them be, perhaps, burin spalls, or is this getting too technical?

Crabtree It appears that they were, ~~excuse me~~, ~~Crabtree speaking~~. This appears to be a very narrow tabular form of ^{the} obsidian, and ^{the cores} they would have been utilized. ~~Now~~ I doubt very much whether a core would be ^{found - where one was} present in order to accomplish this type of

a very thick blade. ~~This may be the last of the core.~~ The one that Dr. Bordes has

may be the last of the core.

here. So you would go to the end of the thick tabular flake in order to ~~arrange these~~

remove a

burin of all sorts

to get ^{this} thickness from a cylindrical ^{or} rectangular core, it wouldn't be possible ^{to} with

recognize

anything that could be determined as a core, to get this type of flakes. It must

be a very thin flake to get this thickness if there is going to be a repetition

of this sort of flake. So the thick tabular flake would have been utilized to produce

these ^{so} it would be hardly identifiable as a ^{core} flake when they had completed ^{utilized} utilizing

what material they had on hand. That would be my feeling of this type of a

blade technique and it is certainly a blade technique that they did use.

Phil Smith

That would seem to explain it. Thank you.

Bordes

There is no question that ~~it was~~ ^{is} a blade technique. There is a preparation of

the side of the core.

Crabtree

Yes.

Bordes

There is no question about it. But now perhaps they went on and on until the

core was just finished and then ~~may be~~ ^{made it into} their burins.

Crabtree

Dr. Bordes, there seems to be no regularity of ~~any~~ preparation on any of the

ends of detaching these. ^{Just} It's by percussion ^{is} to take these and follow these

heavy ridges in order to ^{guide this type and to} get the thickness ^{of flakes.}

Bordes

It is not a very good blade technique, but it is a blade technique all right.

Warming

This is ^{my} ~~my~~ Oakes surface material. I was reluctant to transport any excavated

material. The plane might go down or something.

Mad/ Madame. ^{Bordes speaks} (in French)

~~Wormington~~ There are points with the shape of the Fellscave. Could someone get one of the Fellscave cast? But also fluted, ^{and} there are, I believe, a variety of side scrapers and, I think, some end scrapers, but I have not seen the full assemblage.

Irving speaking. (in French)

Bordes ^{Ya} Yes, fishes.

~~Wormington~~ ~~These are the.~~ Yes, but here these are FELLscave materials. These are unfluted in association with this we have the same shape, but fluted.

Bordes This one is perhaps, I am not sure.

~~Wormington~~ Well there is basal thinning on the F_ellscave material but on the Elinga material, there is real fluting.

Bordes That's cast.

~~Leubtun~~ This one here, Marie ~~said~~ ^{for comparison} said that the style of this was entirely wrong but

it was just ~~a slight thing~~ to demonstrate how, from a stemmed projectile point, the thinning was done on either side, which shouldn't be confused with the ^{Elinga} Elinga material because the form is entirely ~~wrong~~.

~~Wormington~~ That is a type of fluting.

~~Leubtun~~ Marie, well you would know better, than I because I have never seen this material.

~~Wormington~~ Well, I guess that wraps it up.

Bordes

Who is presenting that? Ok let him speak and speak clearly.

Irwin speaking. The collection that is in front of Bordes, Tixier, and Crabtree

is all from the site of Helgap, earliest date on this site is 9000 B. C. The

latest ~~earliest~~ date on the horizon that is represented here is 7000 B. C. ~~There are~~ *Phe*

latter industries. I brought collections, not necessarily representative in term

of statistical counts, this collection is largely aimed around the formation of

projectile points. You get ^mthis conner. These are blanks.

(Have mike trouble here)

Alvin Williams

This one has a *long connection*

Bordes

What is this?

Alvin Williams

Where's the hot spot.

I don't know. Hold it at the top. *elven* Now these tools *and* on the collection in

general is fairly representative of ^{all} ~~what~~ we term Paleo-Indian. At least in the

Plains area of the U. S. I think many of the types ^{correspond with those} ~~of course~~ found in Eastern U. S.

which I am not very familiar, ~~are~~ these end scrapers, which are statistically not

too numerous, the side scrapers which are numerous. The ~~technolgy~~ ^{technology}

If I start on this end, you have these large cores and these cores resemble in

some small fashion/Levallois cores. ^{but} If you could consider them Levallois cores, they

really aren't very classic. ^{They removed} ~~There are~~ large flakes which are also ~~classified~~

typologically levallois flakes. I brought one here. There is a little faceting

on the butt here. Notice that this platform is ground., before the removal, this

is an extremely characteristic aspect of the Paleo-Indian technology. This flake is levallois, but as I say, the technique, if you want to call it levallois, is sloppy.

The blades in addition which occur are not as good as the blades from the Clovis horizon. They also are sloppy, there are some here. And they were probably removed from cores such as this one that I ^{had} have there. There's another core here. They

would, as Don says, ^{simply} probably follow down with the percussion stroke down a ridge and they would retouch these blades ~~and~~ into side scrapers and retouched blades. Also they would like to produce large wide flakes which they could make into side scrapers and things. There are some tools on the end here which are rather interesting and

characteristic of only one of the horizons. These, as I said, these horizons are mixed. This goes thru a number of so called, ^{recognized} Paleo Indian groups even Scotts Bluff

what use^d to be called Angusturia, agate basin, midland, hell^u complex called Alberta and the projectile points from these, ~~to~~ some of them are ^{down} found in this

~~corner~~ corner. Now more interesting than the projectile points somewhere are the beginning stages of the ^{se} projectile points which you can see up in this corner

here. These ~~are~~ blanks from agate basin points, that were broken ^{in my} ~~in~~

Here this great long thing is a blank for an eden point and it was an ambitious project.

I think ^{the longest} it belongs to eden points, and the record is about ~~9 1/2~~ 9 1/2 inches. This

would have been 11 if he, well ^{presumably he had} ~~presume~~ may be he would have gone down ^{more} only 10.

if he had ^{peeled it down} ~~gone down~~ a little bit. We found the flakes which have been

removed from this and we have been fitting them back together. ^{just an} ~~This is~~ idea of the

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technology of it. One ^{thing that is important} ~~of these~~ and a great problem of the *American* is distinguishing between things which were cutting implements, i.e, knives, I brought two or three pieces which were probably knives in this conner, and things which are blanks or unfinished points, such as this piece right here . This was probably going to be an *Agate Base in* point. It's a bad piece of stone; there is a hole in it here. This isn't very good. So apparently they just didn't finish it. Here are two ^{of the} ~~with~~ complete points which would have been made from ~~this~~ ^{forms} ~~form~~ here . Here are other things which are commonly called knives, which were probably pre forms. Here is a pre form for one of these points here . You can see. Apparently he broke it before he did the final touch. Again this ^{illustrates} indicates the progression of the technology up to ^{this} ~~the~~ point ~~that~~ it was almost all percussion. Some of the work from this point on was pressure. Now this point ~~is~~ here is interesting from Don's point of view. This would have been a obliquely flaked point . They normally are. He was trying to turn his flakes ^{here and he} ~~here~~ he kind of goofed. And he never got them ^{quite} around in the right angle. He got started on the ~~wrong~~ pattern and was never able to straighten out and also he broke it mid stream. Here is an eden point. This has diamond shapped cross section. This also was broken in the manufacture. You can ~~see~~ see the stage which is prior to the small edge retouch which characterizes most eden points. Some of these things.

Baird's That's quite normal. There it has been heated.

Curran The scrapes are interesting because you have these generally rather short

scrapers . They are also characteristic of everything from Lindenmyer down. You have the kind with a corner on it which is not quite one of these little spurs but it ranges ^{from} ~~with~~ something with no spurs ^{to} ~~with~~ something with distinct spurs which is probably functional ^{am not quite sure} about this particular one. There is one over here with a little spur. Often inside the little spur, although not in this one, you will have a little flaking where they apparently did some of the ~~work~~ work on the plain face. And quite frequently you get a little notch ~~down~~ lower down in the scraper. This tool here is also characteristic of Paleo-Indian. Apparently both East and West, Coe had one of these things. ^{Quite} frequently you only get the single notch in here you get a double notch which makes it like a strangle blade and frequently this is broken giving the people a mistake for a drill . In fact it really isn't . These little things here are so called graving tips. I think that if Byers has any of the Bulbrook stuff here, he will find that the distance between these two little points is rather similar. I don't know precisely why it is true, also ~~f~~ of Lindenmyer measuring the distance between these points. They seem to run about the same length or the same width. I don't know why. Here is another so called knife. You can see that it is nicely finished ^{up} ~~but~~ not a blank for a point or anything. Here is a rather large end scraper . ~~Large~~ Large end scrapers are ^{fairly} ~~rather~~ rare in Paleo-Indian , although apparently not in the East, at least in the West they are fairly rare. Over here are the retouched blades, and these things, which I think I showed earlier , I don't know what they really are, they are finished tools, they're not blanks

They're not material that they bring back from the quarry. Some show ^{use + edge} ~~retouch~~ retouch.

I guess that is a good summary, unless you have further questions. I can, if anyone wants to know, point out the exact type of each one of these points later on that might be of interest. Oh, notice this burin on this projectile point. I think that there are two possibilities, one is impact, and quite frequently you get a impact fracture, I have not made an experim~~ent~~, largely because I have never had enough points to do this, although I've used some Archaic things to drive into the wall ~~to~~ see what kind of fracture you get, but this one I think was actually pounded on the top, ^{for as you see the mark} and this burin was caused by this pounding, quite a bit of pressure on the edge.

Maybe this is something similar to the piex escaier that Byers ^{has} ~~has~~ But it's not yet. I think that pretty well summarizes ^{the} ~~general~~ general collection. There are

a couple of cores; these cores are typical. Some ^{of the} ~~cores of course~~ appear in larger

quantities. One problem with Paleo-Indian sites, and this includes the Lindenmyer

site, is that most of the work ^{is done} done at the quarry which is often some distance

from the site. We do not get very large cores in the quarry. You can see. In

the site itself, the quarries which we have been trying to investigate, which are a

little hard to investigate are quite numerous, and I think ^{this} is true of Lindenmyer

So we don't know really what most of the larger cores look like. You want to say

something.

^{Bordes} Oh, well, I can try to say something. Bordes speaking. Well, that's a beautiful array of material, you have here ^{with} with a lot of different kinds of points. I won't try

to remember all the names. I can't . That is out of my horizon. But things which are interesting . This is a scraper of some kind and ^{these} ~~this~~ big things About that

you wouldn't know what they are . Well they can be tools by themselves. Kind of knives or *laurel leaf* ^{& some call them laurel leaf} But you know really, how you say, ^{this} is

just ~~this~~ unfinished stuff. Even if it ^{was} could have been used like that , I would

~~hesitate~~ ^{not} to say that this was the first stage of that. And that the; ^{definitive}

~~of this~~ point should have been about this width and this length, so it could well

be that this is derived from that. That being the first stage. Then this one was

a large one which is ~~broken~~ ^{but also probably once} also finished would have been much smaller.

~~That~~ Cynthia Irwin Williams ~~working~~. This material of ours from Hellgap

we do get occasional pieces of this kind which have been ~~found to be~~ ^{found} retouched

at the edge. To presumably make a cutting edge which is why Henry.....

thought they might be knives.

Barber Well, if you look at the edg here, there is quite a bit. ^{of retouch}

Barber That is not retouch. No. no. no. That is just some kind of rough of the

edge before striking new blows. That is ~~not~~ clearly some special retouch.

Irwin-Williams We do get ^{however} some rather large, ^{relatively} well finished. ^{points}

Barber I won't say they are not bigger , but knives that is quite possible, but ^{or laurel leaf shape} they

speak of this one. This one strikes me as ..stage in percussion of smaller things

like that. And ^{then} well the blades, oh well, they are blades, not very good, and they

were always struck from this kind flat blade core which is more like the levallois

than the
blade core ~~in the Upper Paleol~~ ¹⁴ *blade core but can give you perfectly good blades sometimes* which ~~is more alike than any other blade core,~~ but

can give you perfectly good blades sometimes as long as that . And then your flakes here, some are levallois like, not very good levallois, but they are. Oh, this one was burnt. That's a typical fracture of *heating*

~~Heating.~~

Bordes That's quite typical

Heat treating.

Bordes They tried to heat it and *burnt it - its happened*

Yes, that's a nice side scraper. That's a nice flake from making an d mixing like that. No question. Typical with this

Lewis Ground edge.

Bordes Oh, no, not so much ground this lip.

Lewis Yes, it is prepared but also notice that *it/it/* this platform has been exposed.

Bordes Oh, I am not sure. It can be smashed just like that. With some blows with something

Thisa.....

Bordes That you could find in the *Sudan* I don't think there

is anything very speical about it. Lot of side scrapers. Nice ones, beautiful ones.

Yea, this also. That's a kind of bifacial side scraper, perhaps . That also *nice*

Lewis that's rare.

L.P. 9
Bordes No, no, no.

Swain There is one maybe.

Bordes No. no, Not here ^{it doesn't matter.} ~~in this material.~~

Swain It's rare, anyway

Bordes ~~Could be~~ Could be. Side scraper on a blade, a retouch blade, ^{as you} like it. Not this one,

but ^{you} have seen. ~~it~~ ^{ya - this is an} End scraper on the notching. It's a kind of

composite scraper with convex ^{and} concave. Always small ~~multiple~~ bores like in the

Lower Magdalenian. This one has a ~~spine~~ ^(spine)

~~Spine.~~

Bordes That's one of these crazy things.

Swain Dr. Bordes, look at this, called the cutting edge. ^{no, this causes a lot of confusion} This has the ~~same~~ shape

and generally classified ^{both} as both knives. This ~~is~~ probably an unfinished point, and
this a ^{cutting tool,}

Bordes ya ya but you want to be optimistic
..... and I wanted to make a point, you know

Swain Sometimes ^{we} they are stupid.

Bordes Americans are ^{all too} optimistic. This one, you know, is a funny thing. It looks very
^{subifera} much like a bifacial seaper, small ones which are leaf shaped with this

big flak flake on one side. Of course, here there is some pressure retouch, that you

would not find in a ^{kena} scraper, but from this side it could very well come

either from some ^{Rena Culture} ~~conical core~~ or some..... ^{culture} in Germany or from early Mousterian

in...

Warrington Some Hungarian material.

Bordes Hungarian... not quite. Not quite. It's more you know, like the Solitrean or ^{most of those things -} ~~but~~ ^{so you can hold it} but there is no ~~cylindrical~~ ^{symmetrical} but this is quite ~~cylindrical~~ ^{symmetrical} one side ~~is just thin~~ ^{is just thin}

~~try~~ try to make it regular shape. That is only one edge which ~~is~~ interested them.

That's beautiful a end scraper with . ~~End scraper~~ , not a knife it is not cutting on the other edge, but it's rather ~~obliquely~~ retouch. What else. ~~I will not get.~~

Oh, yes. You see it seems that ~~ex~~ the Americans are already infected with ~~mass~~ ^{mass}

~~production~~ They have a lot of ~~plans~~ ^{blanks} and blanks and ~~blanks~~ ^{blanks}, ~~blanks~~ ^{blanks}, ~~blanks~~ ^{blanks}. That's

a thing which does not occur in France. ~~in Solitrean.~~ ^{as in the Solitrean, they} Either ~~they~~ finished a tool,

or they ~~worked~~ ^{work} it ~~and~~ ^{and} throw it away. But very ~~seldom~~ ^{rarely} we find ~~blanks~~ ^{blanks}. That is an ~~an~~ ^{half-} finished tools .

Curvin These are mostly broken let me point out.

Bordes This one is broken yes.

Curvin WE simply found both pieces.

Bordes That borkens piece....

Curvin You can see for instance on this one they got to the stage where ~~it~~ ^{they} hit this imperfection .

~~I have read~~ Bordes No, but what I mean is that ~~very often in American~~ ^{very often in American} I have ready in American publications that very often you find a cache of blanks so that, too many of them have never been found in France.

Orving I think it probably reflect a difference in social situation ^{of the tribe}

Bordes
Could well be.

coming A concentration of wealth.

Bordes You know there are two interesting differences. There is this blank ^{business} ~~difference~~

and there is your ^{quarries} ~~quarries~~ different from *camping site* In France, I don't know,

I never have seen something that would qualify as a *quarry* site, ^{distinct} ~~distinct~~ from

a *occupation* site. And that's one of the big difference, I think, between the

European and the American Paleo.

Erwin They quite often are quite distinct. ^{at} ~~at~~ the quarry sites ^{locally} ~~locally~~, for instance,

you can turn over several hundred thousand flakes and ^{never} ~~other find~~ finished tools.

If it is a finished tool it often is a very late finished tool from Tepee period

Indians

Bordes Yea, but that is not the case with us. Well that is about all I have to say

for ^{now} ~~that~~. Probably when Crabtree ^{will have} ~~has~~ pointed ^{out which to him} ~~out to me~~ what is obvious perhaps I will

say well I really agree, I agree.

Crabtree No, but this is ^a ~~the~~ widest array of different manufacturing techniques ~~that~~

~~most anything~~. I know it ~~start~~ starts in with ^{the} ~~cores~~ with several different

techniques in blade detachments and there are three, ^{3 different platform preparations} here, ~~we~~ notice the very ~~fine~~ ^{small}

^{platform} ~~projection~~ at the top. - This is not as large as a grain of wheat yet ^{to remove a} ~~if you take this~~

^{flake of this size} ~~all off~~, ~~it~~ shows a great deal of control in preparation ^{to remove a} ~~to remove this much material~~

~~on here~~. This shows another side of the edge. ^{flakes} There are the quartz. These two of

the quartz show that polish on the edge, Dr. Bordes, on this one here and apparently

on this, but 3 of ^{these} ~~this~~ show ^{this} the others looks like they are crushing the flat platform and ~~then~~ ^{these are} getting away from that. We have side struck flakes on the cores. ^{the crushing}

We have have the trimming flakes, as Dr. Bordes indicated . There is one that is a little unique ~~one~~ ^{the flake} to have turned ^{up} it up on one edge and ^{have} utilized the ridge in order to give it this conformity, and these are not too uncommon. This ~~sort of~~ ^{is} a thing ^{flake having} with a wide ^{distal end because} underneath where they don't want the narrow ^{portion} ~~balanced~~ in the center.

But it makes a very ideal ~~kn~~ ^{shave} or scraper, ~~or~~ at the edge ~~also~~ where this has been slightly retouched ~~where~~. Their thinning techniques are very superb; ~~at~~ their control of thinning ~~where~~ where they took advantage of the ~~step~~ ^{the} step and the hinge fracture ~~where~~. This one ~~is~~ a nice $\frac{1}{2}$ step fracture ^{terminating} completely ^{the center} at in here

^{by} and using the core tool method ^{to do} ~~and doing~~ this remarkable thinning., ^{to bring the} on the sides ~~flakes in from the side to meet in the center~~ here. Starting to get a very thin blade ^{like the solutrean} ~~like the solutrean~~ sort of thing ~~where~~ and coming ⁱⁿ on this side ^{to meet in the center}. This one ^{is} was an example ^{like the} of one that I was trying to find

^{this morning} ~~but we didn't happen to have it,~~ with ~~a~~ beautiful ^{solutrean} ~~solutrean~~ should-pei- shoulder point techniques. This is a very typical technique used with that, however, ^{by Solutrean} ~~their~~ ^{their flaking}

was a little more direct without ^{as} ~~so~~ much of the angle ~~where~~ but the spacing seems to be same ~~as~~ ^{as} as the one Dr. Tixier showed me this morning. ~~This one here,~~

I'll go a little fast so that we can utilize ^{our} ~~as much~~ time ^{well.} ~~for~~ here. They seem to be ~~these~~ collateral flakes ^{like} that Cynthia , Henry, and I were discussing, ~~this~~ type of

~~spacing~~ ~~where~~, using a complete flake rather than following ridges and yet keeping wonderful control on the edge. This one had apparently been retouched as a

knife, particularly on the one side, all from one side to give it a cutting plane
~~like this~~ like this so we have lost and then redulled again so we have lost
 a lot of the character of the edge, and it looks like a reutilized ~~blade~~ biface,
 or knife, or something like that. Evidence of heat treatment in this particular

one. These are quite characteristic ~~of these little sort of thing here of~~

the Lindenmyer site, ~~of these~~ ^{the} quartzite ~~and~~ ^{the} a variety of materials show quite a
 range in diversification of utilization of material, ~~with these~~ the flaking character-

istics are very much the same. With the quartzite ~~they~~ ^{the flake characteristics} are hardly identifiable,

~~the characteristics.~~ ^{Because of the texture of the quartzite} They lose many of their ^{characteristics} features ~~with their quartzite~~, while

they are fairly obvious with ^{the flake} ~~the~~ flint. You'll notice the sharp deep indentations

all the way thru in most of the examples, ^{This is because of the way} ~~in the way~~ that they have set their tools -

to get a deep enough flake so that they can ~~polish~~ ^{the flake} pop in off and they will feather

out. Almost no hinge fractures in any of these particular pieces. This one is a

superb example of ^{this type of flaking} ~~that sort of thing~~, but by the nature of ~~that~~ the material, there

is almost no detail ~~to show~~ ^{to} show n o. It looks almost like it was ground and polished ~~out~~.

~~You turn it~~ edge wise on the light and you still have this same character but a longer

narrower flake, ^{But} they still don't appear to be a parallel flake type, ^{they have} with very

very little slant. They are ~~only~~ ^{directed} directed inward, towards the ^{center} edges. This ^{specimen} one I didn't

^{castic} see ~~here~~ ^{the one they said was broken in making} ~~instead of being broken here~~, and the control of the quartzite is very

wonderful. This ~~instead of like this quartzite~~ ~~one~~ shows a little different

preparation. ^{show} This side with the basal polishing of this, ^{edge} but the well defined bulbs

of this ~~one here~~, ^{Shows} showing the last row of ~~like~~- flakes that were detached ~~of these~~ ^{flakes} have a slight slant to ~~protect the point coming in from this side~~ ^{prevent breaking the tip of the point. The flakes are slanted} ~~backwards~~ ^{toward the base}. This is ~~not too obvious on that side~~ ^{are not too obvious on this side, Removal of flakes was backwards and inwards} for point characteristics ~~from the point~~.

This particular ~~one~~ ^{Tip: on} ~~like that~~ ^{Point}. The rest, I guess these are some of the Alberta styled. ~~Two of these up at the top but there is not a great deal on~~ ^{These}

the surface ~~that has to do with being diagnostic~~ ^{have little} other than this one ~~here~~ ^{value} which ~~was~~ ^{secretly} ~~apparently~~ ^{which} ~~and shot when they missed somebody and hit a rock~~ ^{secretly} ~~but it is quite~~ ^{obvious} ~~evident~~ ^{whether} ~~being a projectile point.~~ ~~In that particular case.~~ I'll turn it over

to somebody else, I think ~~that's all the flint working~~ ^{I can say on the} ~~types~~ other than it is beautiful array of many different ~~things~~ ^{types} represented in this collection.

Woomington
What about this one?

Qualities
It appears to be a percussion pre form, ~~a~~ ^{made from a} tabular piece of stone ~~which would make~~ ^{its} ~~this is~~ ^{made from} ~~instead of it being~~ ~~a single blade~~. It's done by the core method

of producing this ~~on here~~ from a tabular form of material and it is most certainly a pre form, or it hasn't been ~~shaped~~ ^{finished}, but the spacing ~~of~~ ^{of the flakes} the regularity ~~is~~

same indication ~~of this sort of thing~~ ^{as it is a preform} ~~of~~ ^{Note the} spacing ~~of~~ these very wide inward flakes.

~~in~~ ^{and} ~~but~~ instead of using the ridge, each ~~one~~ ^{one} is a separate flake ~~and~~ ^{and there is no} ~~and not~~ ^{with the ridge} utilizing ~~this~~ for a parallel flake, ~~and~~ ^{to note the} it might be interesting that parallel

flaking would ~~be~~ ^{Technique} flakes with straight sides. These have rounded sides or, what would you say, ~~a~~ ^{more} convexity, ~~to them~~ ~~like that~~.

Cynthia Irwin Williams ~~has~~. I wonder if you would like to comment just from a purely technological point of view, how do you think for the first thing, those blades would have been produced? By what technique?

Bordes That is rather easy to do. As Crabtree pointed out there seems to have been several different techniques, but *you know the experiments I have* just made these days show me that it is very difficult sometime to make a distinction between one technique and the other. For instance, this I would say *it would be rather with* ~~was~~ a wood billet *than* on something else.

Irwin Before this congress.

Bordes But this morning I ~~too~~ took ~~out~~ a beautiful ~~blade~~ blade with a punch technique.

And I got exactly that.

Irwin It could be punch technique.

Bordes Could be. One thing is definite; it is not stone struck.

Phil Smith Right.

Bordes *That is a different thing,*
..... ~~something~~. That is not stone struck.

Irwin We, ~~our~~ comment on that *as* we find no ~~it~~ hammer stones.

Bordes Never on an anvil.

Irwin Anvils might be. ~~never on an anvil.~~

Bordes I will tell you something even in the culture in France where we know a lot of stone struck stuff, very seldom we found the stone hammers.

Irwin Yea, well I think we would have to examine the flakes plus the hammer stones.

Bordes

Very probably ^{when the hammerstone} some of the broke or was ^{just too worn out} ~~took on out.~~ ^{They just}

throw away ^{it like} ~~thing~~ Mousterian or let us say Folsom

Clavin

I might add, speaking of primitive psychology from the gentleman who was trying this large eden point here ^{broke it}, we found the flakes which fitted on to ^{it} ~~this thing~~ and he didn't throw it very far, so it indicated that he didn't feel in too bad a temper about having it. ^{break,}

Bordes

How much far away was it?

Clavin

Oh, about 6 feet.

Bordes

Six feet, that's always something you know. It could be ^{related to the} made ~~with~~ stone.

~~... did not just fall~~

To hold ^{hell} with it. No steel flap with it

Croft

Well, Cynthia, I ^{have been} was trying to replicate the character, I'm missing it. I'm

getting ~~it~~ closer but it is still not characteristic ^{of Hell flap} held yet ~~if~~ we were going to

make a pre form ~~on~~ here for fluting purposes but the difference is the wide

^{flakes on this sort of artifact.} differences in this sort of thing ~~is~~ here . It is a little narrower, but I am

producing these deep bulbs in spacing this so that you leave the little triangular

portions at the top spacing ^{the flakes wider.} ~~this sort of thing like that.~~ There ^{the little triangular portions} were later removed ~~but~~

sometimes they weren't. ^{the flakes by removing} Then they would alternate ~~against~~ the heavy side on the

opposite side ^{of the previous flake seen} but unless you have a ^{model} reference it is hard to remember ^{the exact} on ~~that~~ side

^{detail of the edge character} of what this edging.

Bordes

How did you do it , Don?

Croft

Just with pressure, but I give it a thick ^{bite} bit with the flake, fast ~~on~~ here so ^{tool so it pops}

the flake will
it wouldn't carry on thru. *feather out*

Bordes ... That was all right.

Cesbroux ~~And~~ I have tried to change techniques, ^{I have been} working ^{on bending flakes} at one, so I ruined everything for awhile ^{for} bending ^{all flakes when} them, and I don't want them to bend.. It's very difficult to change ~~over~~ ^{Technique} from one, to the ~~other, of the different styles~~

Bordes: It's difficult to make one technique. Well, about this burin, you know.

I don't think it is ^{a natural} very, ~~it is not your~~ break. I think that possibly it was broken ^{then} and they ^{tried on} did a kind of burin blow there. Was ^{it} to make a burin or was it ^{to} just because they wanted to take a small lamelle ^{in some} thing like that, I don't know. Technically, it can be called a burin. If it is only one ^{in the whole} ~~in the culture~~ - well.

Irwin speaking. There are no burins except they are a minor tenth of 1 percent of burins on breaks which are probably accidental.

Bordes
Ah, you never can tell.

Epstein? To move it along here I think you, ^{the result of} at least ~~the result~~ of this conversation you think that all bifaces can be broken down into 2 categories, and you are destroying Am. archaeology. They are either blanks, or they are finished products. I'm very much concerned ^{can} as to how you, make this judgement so surely.

Irwin speaking. If you are making a biface, it's either a blank or a finished product, eventually, ^{or} somewhere in between.

Epstein: I wonder.

Epstein

I'm very much concerned about why, I think as Dr. Bordes would say, this is probably a blank. In other words, there seems to be something going on over here as to certain kind of judgement ^{as} if I understand it right now it seems to me that if it doesn't have pressure fine pressure flaking it is a blank.

almond

No.

Epstein

I ask for clarification on this.

Bordes

The thing is, the thing for which I think this ~~is~~ seems unfinished is that first ~~that~~ it looks unfinished. Nothing would be easier to get a straight edge, here very easy. No trouble, it takes about two minutes and then on the other ~~hand~~, ^{hand, you know} if there was only this, but you have things like this one which is much more...

Well that ^{is} about all I get when I am making a ^{lauree} ~~lower~~ leaf and somebody disturbs me before I am finished and I put it somewhere to pick it up when I have time. ^{of the} That's about the shape it was, size, and the weight is ~~downy~~, the amount of finishing of the edge and so on. Well, perhaps after all these blanks ^{were} ~~would~~ finish as tools; I don't know, but when we call things scrapers after all ~~we~~ we don't know if they were doing any scraping. They were perhaps cutting, who can tell. Till some time machine is invented, we must try to study the things ^b by classifying them as well as we can and giving them names.

E.

We have to give them functional names Dr. Bordes.

B

Oh, well.. functional —————