Following is a brief, but step-by-step, description of my methods of producing a Folsom artifact and is particularly concerned with the removal of the channel flakes.

1. ~~TYPE AND SIZE OF STONE AND THERMAL TREATMENT.~~ Lithic material.

First I select a piece of stone that is desirable for Folsom manufacture, i.e., something that has a high lustre, that is adaptable for flaking, but without flaws or inclusions. In selecting the stone, one must attempt to get as near perfect a piece as possible. If the stone does not have these natural qualities - such as obsidian or glass - then one may use the thermal treatment such as I described ~~in a paper~~ Tebiwa (Butler & Crabtree 1964) published in ~~Vol. 7 of the 1964 edition of the Idaho State University journal, "Tebiwa".~~ When using the quartz family minerals, it is always desirable to use the ~~thermal method~~ that have been altered as the heat treatment ~~, as they are much tougher and this heat treatment will give them the~~ is vitreous character of glass or obsidian and make the stone much easier to work. Of course, an artifact

can be made without this thermal treatment, but I have found much use of this heating in ancient Folsoms and one gets a more perfect and easier manufactured tool from the treated material. When the thermal treatment is used, it does produce a glassier material and the flake will have greater flexibility, and, therefore, it is easier to guide and will not hinge-fracture as readily as untreated stone. The stone also loses a lot of the toughness after the thermal treatment but it will retain its hardness.

For practice purposes, one can use glass, for it has the same breakage, the same mechanics and the same physical characteristics of stone.

One should have material that has this glassy texture in order to cause the fluting flake to part when this great amount of pressure is applied. Cohesion is present and, if the material is glassy - either naturally, or by tempering - it is much easier to break this cohesion and then follow the flake thru and guide it to produce the

shape and the fluting flakes on either side of the artifact.

After I remove the blanks from the core for purposes of making a Folsom, I then temper them the removed blanks, if I am working with the quartz family minerals. This is my method, but I have found that some of the Indian flakes seem to have been tempered before they were removed from the original core. Ancient man seems to have used both methods - tempering the stone before removal, but, more often, I find that he tempered the flakes after he had removed them from the core.

I temper my blanks after removal from the core, as the larger the size of the block, the harder it is to control the heat - to keep it from cracking or to heat it slowly enough and cool it slowly enough to temper the entire stone without crazing. Ancient Man, however, seems to have mastered this art and we have much to learn about this tempering process and about the actual chemical, monecular, and mineral changes that take place. If one has started working with a small piece of stone then

BLANKS

If one starts his manufacture with a large block of stone, then he can use the blade core technique by using a hammerstone to remove a series of blades FROM A CORE which can then be worked into artifacts. These we will refer to as blanks. These blanks are removed from the original ~~block~~ MASS of stone by percussion and one will remove as many of these as is possible from the original PIECE ~~block~~. This is done for economy, for, otherwise, there would be a great waste of good material if just one blank were struck off and the remaining block of stone discarded. I would imagine that Folsom Man also conserved his material in this manner and later used these blanks for making artifacts. These blanks usually are slightly curved when they are removed from the original stone.

If one has started working with a small piece of stone then I use what I call the core process and that is to use a hammerstone and strike off all of the surplus material by percussion until, roughly, I have a preform.

The materials we use for making artifacts today all have the same physical properties as those used by Folsom Man,

so, considering everything was the same, the results will be the same.

SHAPE AND FLAKE

So far, we have started with a rough piece of stone and have now, by using percussion, made our blank. As noted before, these blanks will be slightly curved when they are detached, by percussion, from the original stone. To correct this, I use an antler billet, or soft hammerstone, and, by percussion, I eliminate the curve and shape the blank into a rough form of the tool it will, later, resemble. However, I leave the blank slightly larger than ~~I want~~ the finished product.

After the blanks of suitable size have been detached from the core and the curve eliminated, we are now ready to shape and flake the blank into a pressure flaked artifact. To do this I use the pressure technique of pressing the flakes off and shaping the artifact. ~~To do this I now use~~ a pointed tool ~~to~~ form and surface-~~chip~~ the artifact by pressure. I place the preform in the left hand, which is protected by a leather pad. The blank is placed in the palm of the hand with the base resting near the heel - or the big muscle -

of the thump and in such a position so that one side and edge of the blank is ~~in a working position~~ exposed to the workman. The blank is laying in the palm of the hand with the basal end resting on the big muscle of the thumb and the four fingers curled over the distal end of the preform, with the edge of the blank resting on the heel of the hand. Enough pressure must be exerted to hold this piece of stone securely but not enough to bfeak the blank when pressure is exerted. PREFORM The edges of the blank must be exposed for working purposes. The edges are then sheared to provide regularity and a platform for the retouching of the artifact. The first pressure flaking will remove the irregularities left by the percussion work and then it must be retouched or re-flaked again to make regular even sized flake scars over the surface of the artifact. When completed, it must have a smooth surface and be regular in form. A detailed paper will be forthcoming which will explain the methods used to prpduce the different styles and character of surface flaking.

There are many styles and kinds of pressure techniques, depending on how the hand is held, the support of the stone, the position of the tool and preparation of platforms for retouching. Each one of these will show a different character of surface techniques and, usually, represents different groups of people. These different groups used different methods and techniques for flaking the preform and also for removing the fluting flake. How each group removed this fluting flake we cannot be sure. All I can give is what knowledge I have acquired from my own experience in flintknapping. There is quite a difference between the character of workmanship on artifacts found at the Lindenmeir Site and those of the Texas finds and some of the Eastern United States. Each group of people seem to have developed a little different technique in the preparation of the artifact prior to fluting.

When preparing a preform to produce a Folsom Projectile point, it is desirable either to bring the flakes to the center, producing a ridge from the base to the tip; or one can curve the flakes over and bend them over the surface and past

the center. If the artifact is too thin, a flake cannot be pushed all the way thru to the tip. If it is too thick and the ridge is too high, the fluting will be very narrow. Therefore, the contour of the surface of the artifact has a direct bearing on the width of the flute and the final thinness of the finished artifact. The cross section will be either diamond-shaped, or it will be double convex, and the convexity controls the width of the flake. The surface must be regular or, as the flake is removed, it will cause undulations. They will be similar to the undulations which is the result of fluting by percussion.

In the primary preparation and flaking of the artifact, the edges must be left sufficiently thick along both sides for the final clamping for it must, later, be placed and held in a vise in a particular manner for removing the fluting flakes and these edges must be strong enough to withstand the pressure of the vise.

As I have said, the preform must be shaped and flaked before the fluting can be done. How to shape and flake a

preform, pressure flaking, and retouching will be covered in a forthcoming article. This article is concerned, chiefly, with the fluting flake of Folsom which is removed after the pressure flaking and retouching has been accomplished.

SHAPE

The outward shape is of great importance for the final removal of the fluting flake. Folsom has a wide, ~~blunt~~ obtuse shape because the fluting flakes are parallel and, during removal, have a tendancy to spread and, therefore, the shape must be wide. It is no accident that this artifact is short and wide. Folsom Man designed it this way to give the artifact added strength, to provide for the guiding and removal of the fluting flakes, and so it would provide clearance for the shaft for easier removal from the game.

PLATFORMS

The next step is platform preparation. One must free a spur platform at the base of the artifact. Starting at the base, one removes, by pressure, enough stone on either

side of the center line to leave a projection - or platform. Then I free the platform by removing small flakes on each side of the platform towards the surface from which the fluting flake is to be removed. The platform must be properly centered and in the right position to permit basal thinning. Most of the Folsoms that I have studied have been knife-edged at the base and just a bare portion of the original platform of the last flake was remaining. This remnant of remaining platform was between the tangs and one could see that the fluting flake had removed all but a small portion of the platform. The angle of the platform is very important for applying pressure. One must figure the angle in relation to the cone of percussion or pressure. We might call it the cone of force. If the platform is projected to clear the base, you have already established your cone out away from the stone, therefore, a more direct downward pressure can be applied without a big bulb of percussion or force going back into the base of the artifact and causing crushing and loss of the tangs on either side where it is held in a vise. After I have prepared the angle of the platform,

I polish the surface of the platform by abraiding it with a piece of whetstone. This polishing enables the stone to withstand the necessary pressure without crushing the platform.

METHOD OF HOLDI NG

Now we will consider placing the artifact in the vise. The holding devise I use is a carpenters vise. If I did not have this, I would use a wedge to split a green limb or root of a tree, then insert the artifact in the split, remove the wedge, and use a tourniquet of thongs and a rack stick to secure the artifact firmly.

A variation of this could be to use a piece of hard wood similar to a boot jack with notches on the under side to be placed on the base of the artifact with the point on a suitable support and the foot placed on the wood while applying pressure at the base of the artifact.

Another method of holding may have been to have lashed two poles together to create a scissors device to hold the artifact.

One must center the artifact perfectly in the vise so that the platform is in line with the tip of the artifact. If it is not properly centered, the flake will go off at an angle diagonally. After the platform and the artifact are centered, one must consider the method of holding. I use two pieces of wood in a wood vise for holding the artifact. The angle of placing the artifact in the vise is very critical and, also, it must be held firmly by the vise. Before I secure the stone in the vise, I polish the outward edges of the artifact so it will stand the pressure of the vise. If any irregularities are left on the edge, they could cause fracturing. The edges of the artifact are ground before it is placed in the vise. Grinding of edges may be a multipurpose operation, but most of the Folsom artifacts appear to be ground. This grinding may have also served to

prevent cutting the thongs in the hafting methods.

Let's consider the support of the tip of the artifact in the vise. It is a little difficult to explain the mechanics of this operation. I don't really have the right termonology to explain this, but the Folsoms in Wormington's collection showed polished points. These were apparently discards, as the fluting flake had not been carried the entire length of the artifact, but the polished surface, and quite a quantity of material, still remained on the point. After viewing Wormington's collection, I tried polishing the point and then I placed it in a vise. The point must be pressed down and out to a leading edge of some solid material. The angle of the point when it is set against the leading edge of the support is very critical. And it must be placed exactly right so that the applied pressure on the platform will go straight to the point but still sufficiently away in order to clear the point of support and not allow compression or pressure from both ends. This angle cannot be explained other than by illustration and demonstration

and one can learn this critical angle of placing the artifact in the vise and on the support and the necessary applied pressure only by trial and error.

When making these artifacts, I have destroyed hundreds of them by snipping off the points as the flake, naturally, will spread. So, if it is not supported, when it comes to the end, it will curl back under and one will lose the tip. Apparently, sometimes, Ancient Man recovered the broken artifact and made the stubby type Folsom by reworking it after the fluting was done. This I have done, myself, when I have snipped off the tip, but still left enough of the body of the artifact to produce a usable tool. However, after the fluting has been done, it is very easy to determine a reworked point. One can easily see the reworked flakes intersecting with the fluting flake and can readily see if the point has been re-pointed after the longitudional flakes have been removed. The fluting flakes leave a concavity down the center of the artifact which forms two parallel ridges down the sides of the artifact so if one is reworking

the edge of the tool in any way, the flakes will travel over the ridge left by the fluting flake and destroy the regularity of the ridge.

FLUTING

After one has shaped, surface chipped, established the proper platform and ground & polished it secured the artifact properly in the vise he is then ready to remove the fluting,or channel flakes,by pressure. The tool used for removing the fluting flakes from each side of the artifact is a crutch of hard wood about four feet long with a block of wood to fit against the chest. At the end of this crutch I secure a pointed piece of copper, which is secured to the shaft of the crutch by a FERROL to keep it from splitting. The point on the shaft may be of horn, antler bone or a piece of tough stone, or copper such as I use. After the unfluted artifact is properly placed in a suitable holding devise, the tip of the flaking tool(crutch) is placed on the prepared platform of the artifact and the other end of the crutch is placed against the chest.

Then the shaft of the crutch is grasped, with both hands, about ten inches from the point of the tool. The feet are placed on the vise, for support. Then the full weight of the body is applied to the crutch, at the same time pressing the forearms against the legs and pressing outward. The downward pressure must be greater than the outward pressure to keep the point of the tool from slipping off the platform. If the flake is still not detached, one has to slightly lift the body and drop it at the same time to exert the proper outward pressure. I weigh 172 pounds and, with a large artifact, I must use a thrust to detach the flake.

If the first flake is satisfactorily removed, a new platform is made for removal of the channel flake on the opposite side and the same method is repeated. The relationship of the downward and outward pressure must be in perfect balance becauseof the weakening of the artifact by the removal of the first flake. The outward pressure can break the artifact much more easily than before the first flake was removed.

One of the most important and critical steps of removal is placing the flaking tool (crutch) at the proper angle on the established platform. If this angle is not correct, the artifact will be crushed, or the fluting flakes will feather out short. If one will examine the fluting at the top and bottom of a Folsom, he will see how critical the angle really can be. In order to flute the artifact, the angle of tolerance is probably within one or two degrees of vertical and this is all the tolerance one has when applying pressure in order for the fluting flake to come thru to the point but still away from it without snipping off the tip.

The pressure tool must be placed on the platform at right angles to the barbs and it should be tilted approximately 2° from vertical towards the knapper. To compute the angle between the platform and the supported tip, one must draw an imaginary line so that the axis between these two points will not direct the pressure entirely into the tip. The angle must be at such a degree that the pressure applied

will allow the fluting flake to feather and move forward and out away from the artifact sufficiently to avoid removing any material from the tip.

One of the most difficult problems of making this artifact is the final fluting. This operation presents a problem because, by the time this fluting is to take place, one is working with a formed and flaked tool that is quite thin and, therefore, vulnerable to crushing, breaking and distal end snipping during the fluting process. Even Folsom man encountered this problem, for I have seen evidence of reworked artifacts that show clearly that he, apparently, snipped off the end of his artifact, but then he reworked and resharpened it and produced the stubby type Folsom. An Archaeologist or flintknapper can readily determine reworked genuine Folsoms, as it is quite apparent where the reworked flakes intersect with the fluting flake after removal.

The angle at which force is applied on the platform is very critical and only the proper angle taken will prevent

crushing the artifact. The angle of force must be the exact angle from the platform to the distal end of the artifact, yet just missing the tip. When force is applied at the basal platform, one is also getting force from the polished distal end which, literally, shears the fluting flake from the artifact.

In considering the angle, the downward pressure is applied directly above and exactly in line with the center of the base to the point. The pressure must also be at right angles to the base for, if it is not at right angles, it can cleve it down the center or the flake will go out sideways. Therefore, the pressure must be directly at right angles to the center of the base. This is very important. When applying downward pressure, one knows by the size of the flute that is to be removed just how much pressure to apply. For this I use a crutch against my chest and, by using a thrust at the same time with an outward pressure, I am able to guide the fluting flake the length of the artifact to the tip. The control of the outward pressure will also conteract the cohesion at the

top. It will start the flake tearing loose from the top and then one will guide it with the downward pressure. However, straight downward pressure,alone,will not produce a flute - it will crush the artifact. The platform will stand a tremendous amount of downward pressure, but the flake will not be detached unless outward force is used in combination with DOWN outward force. As one is applying the downward pressure, this controls the curve of the flake from the base to the point. If you will examine a Folsom and run your fingers from the point to the base, down these grooves, you will find that it will swell in the center which will give you a convexity on both sides of the longitudinal distance of the artifact.

The fluting flake must be bent from the base to the point and, in order to control this bending, one must practice with the downward and outward force and gain this knowledge from actual work. This bending takes place as the fluting flake is being removed by applying downward and outward pressure on the prepared platform. One will acquire a muscular reaction that is almost faster than

mental, and this reaction is a difficult thing to describe and can be learned by practice. Some call it an impulsive pressure and others have different means of expressing this reaction. They know that something happens, but find it hard to describe exactly what takes place. It is actually a bending of the material and following the flake thru - guiding it thru to the tip.

SECOND FLAKE

After one side of the artifact has been fluted, this same fluting method must be applied to the opposite side and the same platform preparation established. If the top of the platform, at the base of the artifact, has been left flush with the tangs when one removed the first fluting flake, then he must re-prepare the platform for removal of the fluting flake on the opposite side. He must prepare this platform in the same manner as platform preparation for removal of the first flake. The removal of the second flake is much more critical than the first flake because of the area of stone to be detached. The size of the flake from the base to the point, is perhaps as much as thirty times the

cross section of the artifact,itself. By the removal of the first fluting flake one has so thinned and weakened the artifact that the breaking point is more critical.

When the second flake is being removed, the platform must be in such a position so that when the second flake is removed, the platform will be detached with the second flake in such a manner as to leave a knife-edge at the base of the artifact. When one starts to make Folsoms he, at first, gets many broken artifacts and this breakage is generally a result of improperly applied downward and outward pressure, as well as improperly supported tips.

The secret of successful fluting requires an ability to accurately compute the proper angles and the correct amount of forces, for the least deviation of your angle and outward and downward pressure will either snip off the tip of the artifact or will cause the fluting flake to break off short, or one may even crush the artifact.

SUMMARY

When one makes a summary of the manufacture of the Folsom, it is much easier to explain why they could not be made rather than to tell how they were fabricated. I believe there are some 21 different complexities that have to be next to perfect before one can remove the two fluting flakes of a Folsom.

The knowledge that Ancient Man had of producing these artifacts - and repeatedly doing so - is to be desired and particularly when one consideres at what period of history Folsom Man inhabited this part of the World. As a flintknapper, I continually wonder why the Folsom Point ever disappeared and why the Plains Indians changed their style of artifacts and flaking. As a fabricator, I consider the Folsom to be the most practical of all artifacts in spite of the difficult method of fluting. This artifact was adaptable for serrations, it is easier to haft than the regular lancelot point. By having the flutes on both sides of the projectile point, it

would give the shaft clearance for deep penetration. It could be made, as it is, for easy withdrawal or it could be adapted for barbs. It has beautiful balance and it has great strength for its size. It is durable and would withstand much rough handling and it could be projected without breaking the fragile tip.

DANGERS OF KNAPPING

A flintknapper must have considerable muscular development and a coordination of the muscles and a knowledge of leverage to produce a Folsom. He must develop a style of holding that is characteristic to this type of work, He must figure out the leverage and the methods of holding. He also must endure the hazards that are a part of flint-knapping. Some of these are:

The cutting of the hands - flakes penetrating the flesh and the danger of silicosis acquired from the dust from the stone. When one is chipping, if he will look towards the rays of the Sun, he can easily see a powdery dust arising from the chipping process and this sometimes produces a cough from inhaling this dust.

Another danger is to the eyes. The flakes tend to fly in all directions and many of the chips will lodge in or on the eyeball. According to Prof. Gifford, even Ishi had this trouble and learned to remove these chips by leaning his head forward and then striking himself sharply on the back of the skull and the chip would pop out of the eye immediately. I, of course, use glasses which provides some protection. However, over the years, I have learned to tilt my head sideways and down and cry out of either eye - towards the bridge of the nose - which acts as an eyewash and helps remove the chips.

Fortunately, the flakes usually light on the flat surface when they hit the eye and do not generally strike with the sharp edge. If one does not blink, and keeps the eyelid open, the flake will move towards the nose and then one can wash it out. However, this is a serious hazard, and must be kept in mind at all times. When one is doing percussion work, unless he pauses - on the backstroke, between the time that each flake is dislodged, as he brings his percussion tool back up, he may hit the flake like a baseball bat and thereby throw

it into his face, which may cause a severe and very deep cut.

One wonders, too, how the Indian children, usually barefoot, avoided stepping on sharp flakes and thereby cutting their feet, as they walked or played around the camp or where the Father was doing his knapping.

Do not cross bare legs when doing percussion work.

ANALYSIS

One very often sees in archaeology papers a reference made to the quality of workmanship in various artifacts. I do not like this relationship, as I do not feel we can talk quality of workmanship when we are comparing different types of points and even material from different groups of peoples and different areas. I always wonder if the writers are making an evaluation of the quality of application of a particular set of flintknapping techniques or are they making valued judgements about wholly different sets of techniques. Are they considering one set of techniques better than the other? Are these things relative or do they deal with the actual working problems that

Primitive Man encountered.

The relationship of the quality of workmanship is dependant on the quality of material for this plays a great part in what the final outcome of the workmanship produced. Also, we must consider as to what perfection was the preform made before the final flaking or retouching was done. We can only set our values by the retouching, for the flake scars are all that remain when we find our artifacts. The preliminary preparation, of course, has disappeared with the removed flakes. So, if a knapper had made a very excellant preform, he is far ahead of one who is not able to produce a good preform.

Then we must consider the regularity of the flakes. Not only the regularity, but the graduation in size. At the very tip they might be extremely small but would become larger and larger as they graduate to the basal portion of the artifact. The man who can control the exact size of these flakes and taper them, or cause a graduation in these flakes,

would certainly be considered as having a better touch than one who produced flakes of all the same size on his artifact. On theother hand, those who can produce a series of flakes exactly the same size and width must also be considered to be a very skilled knapper. The man who can produce long and narrow flakes shows even more skill in his work - for the longer and narrower they are, the more difficult to produce and control. This man would rate higher in the estimation of a knapper than one who could produce a series of short flakes.

Another type of knapping is the ability to curve flakes entirely over the surface and stop them on the other side before they have sheared off the opposite side. A repitition of this sort of ripple flaking is indicative of a high degree of skill. Again, we have a workman who can feather the flakes out at the center, or the median line of the artifact, thereby forming a ridge down the center. If a man can do this, without them curling over and showing irregularity, he, too, has a high degree of skill.

There are many, many techniques and one must consider this when he is talking about quality of workmanship. In evaluating these techniqu3s, one must take many factors into consideration. In fact, some techniques can hardly be compared with another.

For instance, ripple flaking and sharp ridging down the center cannot be compared with any other techniques, as each requires entirely different workmanship and techniques. Each would require the same amount of skill, but would produce entirely different types of artifacts. The man who can deeply knotch his artifacts for hafting, having very narrow entrances in order to insert his tool to flake these narrow notchings, would show a higher degree of skill than the man who would produce a big, wide notch that would take a fairly coarse tool. Also, this would illustrate whether he could take out a single large flake or whether he had to take out numerous small flakes in order to produce notching. One must also consider serrations. There are many types of serrations. Some serrations are done from just one

side and some are serrated from both sides. Some serrations are very deep and some are very narrow and close together. Others will serrate by taking off a flake on one side and then one on another which will produce a saw effect, and some of this is extremely fine work.

~~23~~ 46

~~and some of this is extremely fine work.~~

Here I am will endeavor to illustbate some of the different sets of pressure flaking techniques that I use. In the course of replicating various types of artifacts, I found that different techniques resulted in different appearances to the finished surface of the artifact. This might be thought to be an example of variable skill on the part of the prehistoric knapper. But, is, in fact, only the result of using different techniques. Some techniques are more complex than others, and the application of any given set of techniques can vary with the skill of the individual doing the work. However, it should be make clear as to which kind of judgement is being made in the literature. Furthermore, there seems to be some confusion between as to the differences in percussion and pressure and shearing techniques. For example, some early artifacts are described as percussion flaked, when, in fact, they appear to have been pressure flaked. It would seem that the ~~xirx~~ writer is considering the size of the flakes removed and, thereby, deducing that the work was done by percussion. Sometimes I find edges of an artifact described as having been pressure flaked, when, in fact, they have been sheared. This confusion is easily understandable since shearing produces a finished surface not unlike certain types of pressure flaking.

I will attempt to illustrate some of the different types of flaking techniques some of the most ~~know types that are~~ familiar prototypes known to those of us in the West. These can be replicated and a study made of the various techniques and methods of holding and why certain styles and types of flakes are produced. By a study, such as this, one may be able to greater evaluate the skill of the prehistoric knapper.

CC.30.8.2.31

Many of these examples are going to be a little difficult explain in words. By illustration and or demonstration I could more easily teach methods. Some of these blanks - even in the photographs do not clearly show the detail. Actually they should be studied with a magnifying glass which would clearly show all of the pressure marks, the direction of the applied pressure which would indicate the manner in which it was held. Much is shown in the charachter of the flaking and the flake scars of the various artifacts. By using this series of sawn blanks they will not detract from form that a regular artifact will bear. However, certain forms forms are adaptable to certain artifacts so that certain types of flaking may be done For instance, on a triangular point the same type of flakingwould be quite different if done on a long lanceolate point.

In the past 35 years I have been attempting to replicate the various flintworking techniques of the primitive peoples in order to understand their methods of flake removal and how they produced all of the different styles and types of artifacts from a stone harder than steel. I have always felt that this might be important to archaeology and that some day it would be used for interpreting the cultures of the past. In 1938 Prof. Gifford at the Univ. of Calif insisted that I keep notes and carry on this work and it wasn't until recently in 1958 that Dr. Earl Swanson and B. Robert Butler of I.S.U endorsed this work. These two men at a typeology conference held in Pocatello in 1958 have been the first to realize the importance of the techniques of flintworking to the final classification of artifacts. I do hope that, with their cooperation, these important human behavior patterns can demonstrate their value to archaeology

by being able to more sharply define the type of artifact. In other words, form is much more variable than the methods by which they were manufactured.

To outline a few of the methods by which the artifacts were made, and which would remain fairly constant are.

1. The way the platforms are prepared
2. Manner in which the artifact was held.
3. The manner in which pressure was applied.
4. The style of platform preparation.
5. Rhythm ~~xxxxxxxx~~h of flake removal
6. Style of removed flakes
7. Character of the edges
8. Regularity of the surface
9. Type of hafting methods
10. Choice of materials
10 THINNESS OF THE ARTIFACT

Dr. Swanson and B.Robert Butler have considered these items and realize they may have much importance as form in ~~xxxxx~~ the typeology of artifacts.

We are attempting to compile all the information that I have gathered from my experiments in the past and up to date. These are incomplete and there is much yet to be done in research of the techniques of Primitive Man and his working of of stone for manufacturing his tools.

An Example of what information must still be compiled regarding flint knapping is that the Brandon flint knappers had to work seven years to become proficient in the use of your flints - using the same material and detaching Blades yet only one or two paragraphs have seemed to cover the seven years apprenticeship we have missed something

CC. 30.8.2.33