F.VIIB

Some of the terms that I am going to use in the following article on flintworking and flintworking techniques will be outlined alphabetically and we will start with the angle of impact that will be the angle made at the point of striking by the path of the percussion tool with the surface s truck. That could be by a billett or a club, a small stick of wood used as a percussion tool for the detaching of flakes from the objective piece. The resulting flake will have what is known as a bulb of percussion, the bulb-like protrusion appearing on the inner surface of the flake at the point of impact. That will produce what is called a concoidal fracture or a shell-like fracture having elevations or depressions,similar to those appearing in the half of a bivalve shell,applied principally to the surface produced by fracture. The resulting piece,or the nuclei is called a core. The core is more or less rounded and is a dressed block of flint with a striking platform from which flakes may be readily removed by percussion and pressure. The material is called cryptocrystalline, a rock whose structure, tho crystalline, is so fine that no distinctive particles are recognizable, except under the microscope. There is a direct or free hand method of flaking by percussion in which the objective piece is held in the unsupported hand, the blow being supplied directly by a tool held in the other hand. The other method is a direct rest, the percussion flaking technique in which the objective piece is held on an object at a rest and struck directly with a tool.

The flake is a thick chip-like or scale-like layer of flint detached by the applied force. Flint is a generic term used to include such closely allied varieties of cryptocrystalline quartz, chirt and hornstone, jasper silex, touchstone, chalcedony and multiple other names. Fluting channels or grooves in flint is caused by the removal of the flake as from the core or a Folsom point. Freehand, any technique in which the objective piece is held in the unsupported hand.

A hinge fracture - a fracture more or less at right angles to the plane of the flakes being removed. The flake termination instead of being tapered and thin is blunt and rounded or broken off flat.

Impulsive pressure - the sudden and driving force applied on a crutch for pressure chipping.

Inclusion - a foreign body, gaseous or liquid or solid, usually of a minute size, enclosed in the mass of mineral.

Nodular flint - a rounded flint mass or node of irregular shape and occurring naturally.

Percussion flaking - A forceable conclusion of a tool with the objective piece, or an intermediate tool which results in the detaching of flakes from the flint.

Clevage plane - the plane of clevage is the structure possessed by a rock by virtue of which it breaks more readily and more persistently in one plane or in certain planes than the other.

Pressure flaking - This is the application of force by pressure with a tool placed on an objective piece for the purpose of removing a flake.

Retouching - This is the work of shaping the tool for sharpness or reworking in order to improve the edge of the objective piece and straighte

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the edges by pressure, usually done after percussion flaking.

Serrating - This is the notching of the edge of an objective piece by the application of pressure, resulting in a sawtooth effect.

Spalls - A portion of flint somewhat larger and thicker than a flake and removed from a core by percussion.

Striking platforms - This is the table or the flat surface, either natural or prepared on which the work is applied. The working edge is the thin edge of a spall or flake which may be worked by percussion or pressure.

I would like to go into the prismatic flaking that the Aztecs and the Mayans and the Toltecs used in Central America and in Southern Mexico. They have found numerous cores and flakes that have been done by a certain method that is not known by anyone today. No one has been able to duplicate this method by either pressure or percussion. These tribes were able to detach from the core a long thin prism or a flake. This resulting flake had tapered edges with a flat top, not a triangle shape of the cross section, but this piece was removed in one blow with no ripple such as the regular concoidal fracture. This was razor-edged and it was carried from the point of applied pressure at the top of the piece of stone and, in most cases, their working stone was obsidian. This was removed the full length of the stone, or the core, and sometimes flakes as much as from 8 to 11 inches long were removed and were one and one-fourth inches across. Now the amount of pressure that it took to remove a piece a stone such as that would be in the thousands of pounds of pressure. When this pressure is applied at the top, or percussion, whichever method is used, the angle that the pressure is applied at the top must be within a degree of being correct, otherwise the flake will hinge back into the core or it will go out as a short concoidal fracture. How to support the weight or the pressure at such a small point at the top of this core to keep it from crushing is another one of the mysteries as to just how the Aztec, Toltecs and Mayans were able to accomplish this particular phase of flintworking. The flakes removed from these cores were used for performing surgery and for inserting in wooden swords. They would groove the wood out, break these long flakes off into uniform sections and place them in the groove with pitch and cement and with these swords history tells us that the Indians were able to leave a head standing in mid air because they were as sharp as a razor and with the weight of the wooden sword they had a very formidable weapon. Another use of this type of a blade was for doing the trefining which the modern surgeon feels is a very difficult operation. They were able to cut circular holes in the skull an inch and a half in diameter and remove the bone and the individual would heal up and survive the operation. And they know that this is true because skulls have been found which have shown as many as seven operations each one in different stages of healing and on some the bone had healed over entirely from the original operation. They don't know exactly why this was performed other than originally, perhaps, an individual was hit on the head with a club and the hit caused pressure on the brain and when the particles of bones were removed he regained consciousness and was normal again. Other times it could have been from a tumor on the brain and when the pressure was released the person was normal again. When you have as many as seven operations, one after the other, at dfferent times, apparently the person was neveral normal.

Regardless of what they were used for, and their many uses of cutting implements, whether for cutting fabrics, leather or any uses, it was a very important phase of their welfare. The sharpness and durability of these tools indicates the high state of culture of these people. There have been many thousands of cores made at the sites where the obsidian was found and apparently by some simple manner. Now how these cores were held and supported while this weight and pressure was applied is another mystery that we do not understand and which I am going to try to interpret and discover in what particular manner this particular phase of working obsidian was done. It can be proven why it cannot be done much easier than why it can be done and because of this my interest has developed as to what they were able to do for a utilitarian purpose that some some of us should at least be able to copy it. The materials that are worked, such as obsidian and flint, are of a brittle glass-like nature, and there is a certain amount of flexibility in them. From a sharp blow they will shatter and break to pieces. Yet with the proper guidance and the proper techniques they were able to remove these long slender flakes. Not just one, but they would go around and around the core and throw away their discard when it became too small. This core resembles a facet-cut bead. The flakes were started at the top and when one was removed they would move over whatever width of flake they wanted and detach another one and they would go clear around the core. This leaves a beautiful specimen of this shiny, sometimes iridescent, obsidian. These cores are much prized now and it is almost impossible to obtain one at the present time. In the past years I guess there were many of these cores available, but they have been ground up,and used for stone settings, and for various objects for the modern people for use in making jewelry. Their shape was good for the stone cutters that would make these little obsidian heads and art objects for jewelry of which we see a good deal in Mexico. Unless they are excavated, it is almost impossible to obtain one at this time. I did a great deal of searching of shops in Mexico and around the pyramids and none of the natives even knew what I was referring to when I asked for a Mayan core. I finally went to the Museum at the Pyramids outside of Mexico City and there I learned that the Mexican people referred to these as neculi or neculosis. When I then visited a shop close to the pyramid of the Sun and asked for the core by its proper name, an elderly Mexican man understood what I wanted and from beneath his counter he brought out a dust covered box containing jade beads, pieces of pottery and little figurines and finally, to my great happiness, he found 16 of my much wanted and prized obsidian cores. All of the objects looked like they had been recovered perhaps from some archaeological excavation. I now have these 16 cores for study and I am going to try to work out all of the terminology of these cores and see if I can make a replica of this type of flaking. It has not been done to date by white man, but this is one of the phases and the only phase of flint-working that I have not been able to accomplish. For all of this nomenclature that I have been giving those will be the terms that I will use as we progress with this particular phase of working obsidian.

The first thing that I am going to do is use the diamond saw to make uniform blocks of stone so that they will be exactly the same shape. When an error is made, I will continue on and make the same error twice or three times to see if the same pressures, the same platform was used and to see if the stone was the same and there were not inclusions in the stone or some fracture that I was not able to see. From looking at these

cores with a magnifying glass I would find the top where the pressure was applied and some apparent grinding effect. They would flatten the top of the core and they would abraid it, apparently with some coarse sand or some other abrasive. Maybe it was natural emory. This would have the effect of scoring it on the surface such as we do when we take a glass cutter and score a piece of glass before we break it. It forms a medium in which the glass will part on the flint-like material. So when a pressure is applied to the stone it has a certain guiding line that will cause the stone to pull down rather than having a polished effect on the top like, say the edge of our tumblers or our drinking glasses have been fire polished, and it gives the edge a lot more strength where it is a smooth polished surface. Now when this is abraided and scratched all over the surface, it will probably break down a little easier without a great amount of pressure like it would take if it had been left in its original condition. Again we can go into the methods of levers and pressures and how these stones were held and that I am going to try to classify and carry on a little further.