1st Film --- The Flintworker

2min. 1. Introduction: For nearly 2 million years man's efforts to work stone by flaking glassy rocks have resulted in tools, such as simple flakes with sharp cutting edges, scrapers, knives, choppers and points. The most common raw materials, such as flint and obsidian, were sometimes quarried from exposed outcrops and sometimes recovered from ancient streambeds. The earliest stone tools were relatively simple, as prehistoric men learned to break glassy rocks by striking a blow against the right kind of surface or platform. When a blow was struck a cone took shape inside the rock. Early in human history men learned to use this cone or bulb of force to make rocks into tools.

35 sec

10sec. 3a. A glassy river cobble is pock-marked by cones which tell us that here is a rock that can be flaked.

43sec. 3b. A river reduces a rock by battering as the rock rolls and bounces along the stream bed.

10sec. 3c. Overlapping cones form as a result of the battering so that bits and pieces fall away, reducing the surface.

27sec. 4. Groved maul: Direct percussion can produce intersecting cones which dislodge bits and pieces of material to make a groved maul. This simple technique was widely used by prehistoric man.

52sec. 5. American Falls:

45 sec

Ideal split cone --- A prehistoric cone shows a split cone, compression rings, and other marks of man's work.

ANIMATION

5a-k: When a flintworker strikes a blow a cone or bulb of force is formed and then carried away as the flake, leaving a negative scar on the surface of the core or nucleus. The blow which forms the cone sends shock waves through the glassy rock which behaves as an elastic material. The result is that compression rings or ripple marks form and fissures radiate

Vitreous material has elastic qualities, so when force is applied it forms a cone

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from the point of impact
on the underside of the flake and on the core ~~from the point of impact~~ on the platform.

6sec. 6a. Near Peking, China, tools were made from large cortex flakes.

6sec. 6b. A replica can be made by striking a blow in from the margin of the platform.

38sec. 6c. The large flake can be blunted and backed by percussion flaking on both faces along one edge. Short flakes are removed at a steep angle resulting in a broad blunt — or backed · edge with the result that a broad blunt edge -- or back is produced.

13sec. 7. Glass Butes: ~~This~~ The cone was formed in an anvil stone set in the ground ~~when~~ when ~~some~~ early man broke a rock against ~~it~~ from an obsidian quarry in eastern Oregon.

17sec. 8a. When an object strikes a ~~glassy~~ vitreous rock and the blow is perpendicular to the surface, a truncated cone of percussion is formed inside the block.

6sec. 8b. The size of the cone is determined by the amount of force ~~used~~ applied and the ~~quality & texture of the stone receiving the impact.~~ ~~kind of glassy rock being struck.~~ In toolmaking, the amount of force applied ~~used~~ depends on the flintworker's ~~purpose and experience in selecting~~ intent, ~~and using a hammer.~~

1:28sec. 8c. Because the cone is contained inside the block it can only be examined by removing flakes from around the point of impact. This frees the cone for study. ~~On the other hand~~, if a blow is struck near an edge the cone ~~which forms~~ will ~~is~~ removed as ~~part of~~ a flake. ~~But using this cone principle~~ A core tool can be shaped ~~in this way~~ and the ~~flake itself~~ detached can also be made into ~~a~~ tools.

40 sec

6sec. 9. Pressure, ~~like~~ Both percussion will compress glassy rock, ~~& emphasize~~ the material's elasticity

19sec. 10. Examination of fracture flake: This flake broke because it was compressed beyond the elastic limites of the material. ~~It was a common event in prehistoric tool making, and shows that every core is different from every other core.~~

DON - 40 sec

DON TO REWRITE

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the size & texture of the ~~H~~, the velocity of the blow the workers ~~intent~~ & proficency

13sec. 11a. BB's: Whole cones may be driven from glassy material by a perpendicular blow on a flat surface.

30sec. 11b. ~~The~~ Cones are driven from the base of the glass plate because the applied force ~~which created them~~ exceeds the elastic limits of the glass. The flat appex of each cone is flattened by the blow which forms it.

15sec. 13. This technique of producing whole cones was sometimes used to perforate stone.

18sec. 14a. ~~Some prehistoric beads were made by~~ partly drilling a partial hole in the stone ~~and then by seating a punch in the hole and driving a whole cone from the opposite~~ side of the bead, perforating it for use.

37sec. 14b. examination:

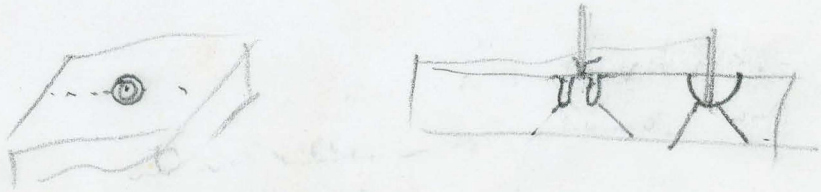
DONS HOLE BEAD

30 sec DON

32sec. 15. If a punch is seated above a right angle edge it is possible to make a cone with a rapidly expanding flake whose width is greater than its length. ~~This~~ So called side-struck flake is preferred to other curved flakes ~~especially good for making pointed tools~~ because due ~~it has a long straight ridge and greater strength than a point produced by~~ to its strength created by ~~retouching other kinds of flakes. The indirect percussion technique leaves distinctive half cone scars on the core.~~

45sec. 15a. ~~Striking a blow at a punch is called indirect percussion. The key to rapid expansion is in the perpendicular position of the punch and the amount of force used near a right angle edge.~~ When the punch is seated applied This technique is useful ~~in~~ when flaking tabular material ~~where it~~ the removal of a flake leaves a ~~series of~~ half cone scars along the edge.

18sec. 15b. The result is material with a ~~and edge~~ beveled edge on one face. This edge can be used "as is" ~~offering~~ platforms for further work ~~or an edge ready for use.~~



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6sec. 16a. Cones can be struck from alternate faces.

40sec. 16b. Flakes taken from alternate faces leave projections which can be used as striking platforms for further thinning. In this case some part of each half cone scar serves as the platform for removing the next flake from the opposite face. This kind of flaking produces the edge on the median line of the core.

18sec. 16c. A yielding support such as the flintworker's thigh is yielding & helps to reduce the shock to the stone during removal of the 90 degree edge of a tabular piece of siltstone without reducing the width of the core.

13sec. 17. In a LARGE tabular piece, the alternate flake scars leave a sinuous cutting edge, suitable for use as a saw. WITH MULTIPLE PLATFORMS.

10sec. 18. The funnel shows the angle at which force was applied to remove a flake.

30sec. 19b. A block of stone may be broken by STRIKING it down at least on an anvil provided the anvil is adequate in weight & size. A cone forms and is sheared along a face where an support of the anvil ends.

30sec. 19a. An archaeological specimen shows a sheared cone and the flat face which results. DOU'S VOICE 20 sec 20 sec Such faces make excellent platforms for further work so that cone shearing may have been an important technique in the handling of large river cobbles whose round surfaces can be difficult to flake.

21sec. 19c. The effect may be replicated by direct percussion on a core supported by an anvil so that shear takes place on a plane between two opposing forces.

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1:30sec. 20. The flintworker ~~may use his knowledge of the cone, the flake it forms and the face of the core to predict where his flake will be~~ the cone principle to detach a flake of predetermined size shape thickness from a specific part of the core face. removed and what its size and shape will be. This control permitted prehistoric men to select ~~from a number of possibilities as they went along.~~ with accuracy where a fracture would occur ~~This can be done because~~ of the design of the tool desired, can intentionally ~~the flintworker knows now as in the past that the flake is a distorted cone.~~ distort the cone Part of the face of the cone is lined up with the face of the core so that it becomes the dorsal ~~face~~ side of the flake. ~~A perfect cone cannot form, because part of the force is deflected by the mass of the core.~~ when ~~Knowing this the flintworker controls the shape and size of the flake by the way he prepares the core.~~ The Flintworker ~~As a result he~~ can predict what will happen.

2 sec

1:15sec. 21a. Expert use of the cone is an old human talent. It can be seen in the manufacture of the paleolithic cleaver found in archaeological sites in Europe, Africa and Western Asia. The cleaver is a handaxe with a transverse cutting edge rather than a point. To ~~get that~~ and extreme show perfect the cutting edge requires ~~careful use~~ skillful control of the cone to in making and removing ~~the right kind of flake.~~ a tabular ~~That kind of flake is~~ called a tranchet flake. As with most other flaked stone tools, the work starts with percussion preforming of either a core or a large flint like material ~~a flake of glassy rock.~~

34sec. 21b. Two angles must be calculated to get the proper bevel on a cutting edge at right angles to the long axis of the object. The direction of the tranchet blow must be tangent to the cutting edge desired and the angle of the cone must permit the flake to carry clear across the face of the object.

1:10sec. 21c. Once mastered, this technique permitted the consistant regular production of heavy, sharp edged tools. The modern, like the prehistoric cleaver, has a ~~good~~ sharp straight cutting edge and ~~must of been used on many different~~ could be used for occasions. device cutting needs. The cleaver has another great advantage. When its edge is

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15 sec dulled by use it can be resharpened by another tranchet blow. + don 15

33sec: 22. Handaxe: The making of a tool by direct percussion illustrates
1:00sec the way in which a prehistoric flintworker made one of the most
41sec common tools in human history, called a handaxe. It was probably used for cutting wood, digging, skinning and butchering animals and perhaps for killing game. The technique appears simple because it is the work of a master craftsman.

1:45 + Don 1:45

1:32sec. 23. Recap:

The principles of tool making are reflected in:

5 sec - the cone of percussion,
5 " the direction of force,
4 " the use of pressure,
6 " exceeding elastic limits,
7 " whole cones,
5 " making beads,
4 " ~~preforming~~, Reduction of a lava cobble
7 + 5 sec. the cutting edge of prehistoric tools,
4 " prediction, of prismatic flakes
5 ~~6666~~ percussion flaking
7 a New world hand ax (4)
8, 7 + 3 ~~many kinds of prehistoric tools~~, a ~~modern~~ core, replica, and a prehistoric core,

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