



FIELDWORK COMPANION

A Guide for Passport in Time Volunteers

Produced by The PIT Clearinghouse

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FIELD GUIDE #1a – FLAKED STONE

In discussing lithic analyses, we focus on stone tools and their manufacture. But, as with all artifacts, we need to define **attributes**: those qualities of an object such as the type of stone used to create the tool or remnant, its size, weight, overall surface features, and so on. And, with lithics, we want to identify traits that are or can be **diagnostic** of an archaeologically defined “culture;” the process of **reduction** (i.e., taking a bigger rock of **source-stone** (think of this as either a piece of raw stone not yet shaped, or a larger piece of stone that has been roughly shaped to produce a smaller object or objects) and turning it into a smaller rock or tool); and the creation of **debitage** (the debris left over from reduction of source-stone).

This introductory guide presents how you might go about actually *recognizing* stone tools. In other words, those qualities that distinguish a tool or a flake and other debitage – something human-made or altered – from other rocks or broken bits of stone. Firstly, however, let’s break stone tools down into two types: **flaked stone** and **ground stone**.

Flaked stone, which is what we will focus in this guide (don’t worry – there will be another on ground stone), is just that: stone that has had portions removed from it via flaking techniques, or is a portion of stone removed from another to form a flake. Ground stone, as the name implies, is stone that has been ground into a specific and desired shape by human hands, or is an object upon which another has been ground. These differences, however simple-sounding can get confusing in the field, but we promise all will become clearer as we move along!

So, what constitutes flaked stone: what does it look like, and how can we identify it in the field? What does a flake look like, and what features and attributes might you see on an object that has been reduced by the processes of flaking? Well, first, let’s talk about flakes themselves.

In flaked stone tools and remnants, we generally observe that they have been formed from a type of source-stone that lends itself easily to fracture, and a resultant formation of exceedingly sharp edges. Examples include **cryptocrystalline** (dense and non-porous, with crystalline structures so fine they cannot be seen under a microscope) stone such as chalcedony, chert (flint), and volcanic glass (obsidian); and even more porous, yet still quite dense, material such as basalt and limestone.



Types of chalcedony

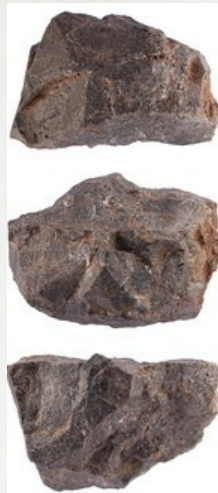


Types of flint (chert)

As we’ve suggested, a flake can be just a remnant of the overall process of reduction from its source-stone; a piece of debitage without further purpose. Conversely, however, sometimes it can be the flake that was the desired outcome, and it was or could have been used expediently for tasks such as cutting, or it may have or could have been a part of a more complex object, such as an inset for a “knife” or projectile. Whatever its use or possible



Obsidian

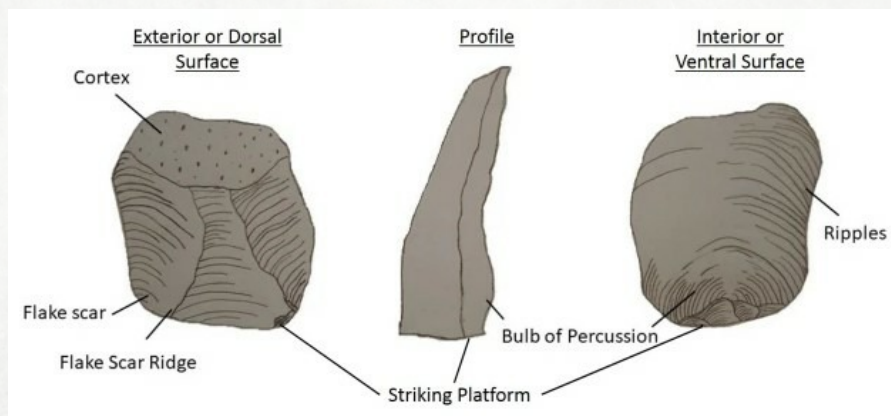


Limestone



Basalt

intention, and whatever other characteristics it may possess on its surface or its overall shape and size, a flake will almost always have three distinct attributes in common: a **striking platform**, a **bulb of percussion**, and distinct “**feathering**.” These attributes also define the exterior (dorsal) and interior (ventral) surfaces of a flake – the bulb of percussion and the feathering are on the *inside* (i.e., toward the stone from which it is removed) of the flake, and the rough, raw, or angular **cortex** forms the outer surface.



Flakes can be formed by using a **hammer stone** – usually a dense, somewhat rounded stone of different material than the source-stone, and that would fit comfortably in the hand – or by using a hammering or “pushing” tool made from, say, antler or bone. A striking surface is chosen – often even prepared – to create a desired edge or overall shape, and the hammer stone or other tool is used to reduce the object. The force travels through the stone in a (hopefully) predictable manner, and a flake is removed. At this point of striking, a platform is formed, distinguishable by a “flattening” and crushing at the head of the flake, and making it slightly rough to the touch.

The force traveling through the stone to create fracture will always concentrate right below the **striking platform** and, on the interior, will cause the **bulb of percussion** to form. You can identify this attribute by both visual and tactile observation; it will appear as a slightly bulging and rounded formation near the head of the flake.



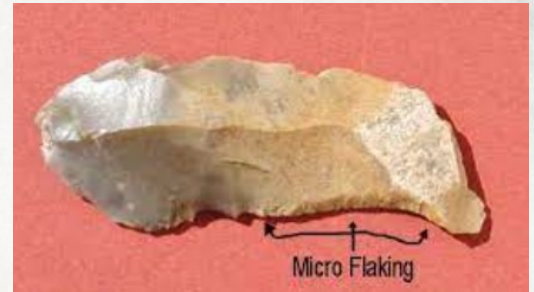
A hammerstone

Feathering, as the word implies, gives the overall, feather-like shape to the flake, and determines its edges. You will always be able to tell the interior of a flake by its feathering, as ‘U’-shaped ripple lines are formed and appear on this surface, and these lines point back toward the bulb of percussion and the striking platform. So, if

you cannot, at first, discern a striking platform or bulb of percussion, or if you are examining a broken flake that has neither, always follow the feathering lines toward the point of striking – they will guide and inform you!

In similar manner, you can determine where flakes were *removed* from a stone object. Rippling or “feathering” lines will also appear on the surface, and will show from which direction a flake was removed, but will appear as a **flake scar** – a sort of ‘negative image’ – between **scar ridges**. These ‘negatives’ will give insight not only in regard to the direction or even the methods of flaking, but may also give clues as to what type of tool the makers intended to produce. Some are quite obvious. For example, it doesn’t take archaeological training to identify a projectile point, a “knife” blade, and so on, even ones that are broken – the intended, end purpose is clear. However, there are other tool types whose uses or potential uses are not so intuitive, so closer examination is often warranted.

Some tools are formed by a concentration of flaking along at least one edge. The concentration usually consists of very small removals of flakes – a process known as **microflaking** – to ensure a greater overall cutting, chopping, scraping, sawing, or other tool surface along the working edge(s). Depending on the task, sometimes a thicker, more durable edge is desirable over one that is long and single. Tools such as side- and end-scrapers (believed to be used to scrape hide, to shape or prepare shafts, remove the interior of seed pods, etc.) are examples of these thicker and more durable, human-made objects.



From Top:
endscraper;
sidescraper

Upon even closer examination – usually with a loop or other type of magnifying glass – it is possible to discern whether or not an object has been used and whether or not it fits the purpose an observer has assumed it was intended. Identifying lines of use wear and impact patterns called **striae** can aid in supporting an hypothesis regarding what purpose the object served, and additional flaking patterns may indicate resharpening. Similarly, the observer can potentially infer that an artifact was tossed away if an edge or edges are completely blunted and, therefore, no longer useful.

Finally, you may observe flake **cores** while in the field or in the laboratory. Typically, cores are the remnants of stone from which flakes or larger pieces such as preforms or “blanks” (objects in more of a raw form, but roughly resembling the end product for which they are intended) are removed, then cast aside. Cores can appear very differently from site to site, from assemblage to assemblage, and within sites and assemblages, depending, of course, upon the makers’ intentions. They may be quite raw – containing cortical remains on the surface, like exterior stone, or a type of rind from earlier exposure – or they may have been completely exposed during processing. Flake cores, especially **blade cores** (cores with very angular surfaces, used for removing a particular type of flake with multiple edges and overall shape) will exhibit multiple, and somewhat uniform removals, and may indicate specificity in both their manufacture and in their purpose.



Flake core



Blade core