You and I might have been born into the era of flight and the beginning of the Space Age, but for many of us, our hearts and souls yearn for a simpler time. For a time when survival and accomplishment depended on our own effort and skill, on our mastery of the world around us and the resources which it offers to us.

**Rooted Deep In Our Ancient Past**

One way this deep desire manifests itself in our lives is this interest and obsession with making stone tools and weapons ... just like our ancestors did all over the world, for thousands of all-too-often forgotten generations.

Maybe that's why we gotta break rock! I say “Go for it!”

**Let’s Master Flint Knapping**

Let’s learn to master this ancient craft and art which we call “Flint Knapping”.

Enjoy your new-found ability to turn rock and stone into useful tools and hunting weapons!

Rebuild your link with the creative and resourceful human beings who have gone before us all.

That’s why I wrote “FLINT KNAPPING 20.12” ... to help us all make those connections to our history and to our past.

So, welcome to “FLINT KNAPPING 20.12”!

This is where you will get on that “Fast Track” to learn the ancient and honorable art and craft of creating tools and hunting weapons out of stone ... “Flint Knapping”.

I appreciate the opportunity to share this craft with intelligent and curious people, such as yourself, from around the world, who are interested in make their own effort to preserve one of the important skills of the past and to enjoy the beauty of the natural stone materials utilized by our ancestors for many thousands of years in all corners of the world.

**A Debt Of Gratitude Expressed**

A word of thanks and a debt of gratitude is also due to several knappers from whom I have learned much over the years, as mentors and friends; chief among them are Craig Ratzat and Greg Nunn. Both are masters of their craft and outstanding teachers.

**Let’s Look At Methods & Then We’ll Set Some Goals**

In this first lesson if “FLINT KNAPPING 20.12”, I’ll show you several aspects of flint knapping and work with you to set some “Arrowhead Making” goals for you to complete in the next few weeks and months. Let’s get started.
A large blade made from “Novaculite”, a water-deposited flint-like material from Arkansas. This is the fine-grained, “porcelain” Novaculite. Coarser grained material also knaps well. Much Novaculite requires heat treatment prior to knapping. This piece was made by soft hammer percussion, with a little pressure flaking trim.

A large blade made from “Obsidian”, a volcanic glass from eastern Oregon. This piece was a ground pre-form, finished with parallel oblique pressure flaking. It is in a stylized form of a large Midwestern style “Dalton” or Western/Great Basin style “Humboldt” spear or lance point.

“FLINT KNAPPING 20.12” Will Show You Basic & Advanced Percussion And Pressure Flaking For Reduction & Finishing.
We Will Explore The Methods & Tools For Working With Common & Readily Available Types Of Stone For Knapping.

Before we can make finished hunting weapon projectile points such as arrowheads, we need to learn how to produce small pieces of workable stone in the right form and size for the tool we want.

Then we will learn to modify those small pieces of stone into the specific shape we want. Plus, we’ll learn how to prepare the shaped stone to bind it to its intended shaft or handle for use.

It’s First Things First

However, to get to those ultimate finishing steps, we must first learn how to break large pieces of stone most effectively into useful smaller pieces.

Only then will we be prepared to concern ourselves with actually shaping the small pieces.

Therefore, we will practice the effective use of special “hammer stones” to reduce a large chunk of the proper kind of rock.

Which means we will need to consider how the choice of tool making stone is so important to the success of our rock breaking work.

Controlled Fracturing

Not only do we need rock which can break with a sharp edge, but the way the stone breaks makes a difference. The best stone for knapping breaks in a “conchoidal” style of fracture. We will learn what kinds of stone have this important and reliable characteristic which makes flint knapping possible.

Oh, and then, “FLINT KNAPPING 20.12” will introduce you to “soft hammers”!

This is a “Quartzite” Hammerstone found by the author in the west Texas Panhandle north of Amarillo near the Canadian River in 1989. You can see the wear around the edge, caused by using this hammerstone to chip the “Alibates Chert” which was quarried in that region since the Clovis cultural period. Alibates Chert was traded across much of the midwest.
“FLINT KNAPPING 20.12” Will Teach You To Make Preforms From Larger Pieces Of Stone, Ready To Finish As Desired.

The initial phase of our Flint Knapping process will begin with a chunk of stone. It can be a large lump of rock as it is found on the ground, or it could be a fair sized piece broken from a large chunk.

In “FLINT KNAPPING 20.12” you will learn how to break a useable size piece of stone from a large chunk. This piece is often called a “spall”. You will learn how to use a heavy hammerstone or large “soft hammer” tool to properly strike a large chunk in the best places and angles to break off “spalls” to work with.

ALWAYS USE THE SAFETY EQUIPMENT

In conjunction with this specialized step in the knapping process, you will also be reminded of the vital and important protective use of gloves, leather pads and safety glasses.

As you learn how to continue the percussion process with a hammer stone or a “soft hammer”, you will remove medium and small size chips from the “spall” or chunk.

Preliminary Tool Forms ... Called “Pre-Forms”

This process will provide you with the opportunity to pre-plan what you want to make out of the stone. And it supplies many chips which can be made into small tools or projectile points. The main piece of the spall which remains is considered a “core” since it is a source for those smaller, useful chips.

This “core” can now be further shaped by percussion into the preliminary shape for a large tool or blade or projectile ... known as a “pre-form”.

“Scott makes some of the smoothest percussion pre-forms I’ve ever seen” – Craig Ratzat, 2007 Glass Buttes Knappers’ Workshop. Here is a 6-1/2” Dacite pre-form. The percussion “debitage” provides many chips used to make smaller arrow points.
From Beginning The Cortex Removal On This Texas Flint Nodule To Finishing This Knife: 1 Hour 20 Minutes.

“I Guarantee It!”

If, after 180 days (six months ~ 12 issues) of “FLINT KNAPPING 20.12” you can not use the recommended methods and tools to make stone arrowheads you are proud to show your friends, just send an e-mail to me, (fscottcrawford@aol.com), the author, and I will refund every penny of your subscription paid to that point in time. Keep the personalized notebook and lessons you have received as my gift to you. No questions. No problems. Period. That's my “Chiseled in Granite & Chipped in Flint Guarantee!” to you ~ it's tougher than any old Bronze, Iron or even Space Age refined sugar warranty.

F. Scott Crawford, Carrollton, Texas
email:  fscottcrawford@aol.com
Many of us who are interested in “flint knapping” got our start on this journey when we found an arrowhead at some time in our lives. That was what first inspired us to wonder: “How was this stone arrowhead created?” and “Who made it?”

The next step for each of us was: “I wonder if I can make an arrowhead?”

Now, it’s your turn.

“FLINT KNAPPING 20.12” will help you accomplish this objective in a confident and fulfilling manner. With study and practice, you will learn to succeed at making stone arrowheads. This will be a satisfying achievement.

HERE’S YOUR FIRST HOMEWORK ASSIGNMENT

If you have an arrowhead collection or access to the collection of a friend, spend some time examining the arrowheads which you like. See if there is a particular shape or style of projectile point which you would really like to be able to make for yourself.

YOUR MISSION, SHOULD YOU CHOOSE TO ACCEPT IT: MAKE AN ARROWHEAD LIKE IT

Make a photograph of the arrowhead if you can, or a drawing. Both sides if possible. Hold it, get a feel for its weight and size. What kind of stone is it?

Note the shape of the base notches or the tang which was attached to the arrow shaft. Imagine the diameter of the shaft, and consider how the arrow point was secured in place.

Now, examine the tip or the barbs. Is there damage, perhaps created by impact when the arrow was used?

With all of these details in mind, perhaps you would be thrilled to make an arrowhead like that one.

YOUR INSPIRATION!

Harness this example as your inspiration! We will refer back to this special personal goal in future lessons of “FLINT KNAPPING 20.12”.

Here is a modern-made arrowhead, knapped in the style of the “Gunther Barbed” points above, made from a slice of Chalcedony/Agate.
In "FLINT KNAPPING 20.12" We’ll Study Examples Of Ancient Points To Select Patterns To Model In Your Work.

By examining ancient arrowheads we will see different styles of form and design, as well as different methods and sequences of work used in the knapping process.

When we look at the surface of a finished projectile point, we can often discover evidence of the original "chip" or "blade" from which the point was manufactured. This can give us a clue to the method of creating the original small piece.

**A CHIP OFF THE OLD BLOCK**

Two basic ways were used to make the small pieces. One was to break a small “chip” off of the face or side of a larger piece. This was more of a random process, and resulted in a relatively wide, fairly flat surfaced, thin piece.

**A PREPARED CORE**

The other method utilized greater planning and controlled application of force to a prepared surface on one side or end of the source stone, the core. This method created relatively longer, more uniform "blades". Either direct or indirect percussion was used to apply the force of the strike.

Close examination of an ancient arrow or dart point sometimes shows the original form or type of piece.

**BLADES HAVE A FULL LENGTH RIDGE**

If one side or surface is essentially flat, and the other has a more pronounced midline ridge along the full length of the other face, the original piece may have been a "blade". Blades are usually flat on one side with a ridge line along the length of the other face. They tend to be straighter for a greater portion of their length; and narrow. This leads to a long, narrow arrow point.

Points made from “chips” tend to be relatively wider and flat on both faces of the finished projectile point.

Here is an obsidian core, with some blades which were removed from the core by percussion on a single striking surface at one end of the core (inset). The core is standing on the striking surface.
A Popular Arrowhead Style Which We Will Make Is A Smaller Version Of The Ancient "Northern Side Notch" Dart Point.

Once you have learned to make useful chips and blades from a core piece of stone, we will move on to preparing the initial stages of a small projectile point. Progress at last!

You will learn to visualize your arrowhead when you look at a "chip" or "blade". Then you’ll plan the multiple steps used to accomplish your intended creation.

You’ll produce the pre-form of your point.

Next, you will prepare the edges of the pre-form to make possible the thinning flake removals to create the delicate but deadly form of the finished arrowhead.

And you will master notching ... after you break your fair share of points in the process.

**A WORTHY OBJECTIVE FOR YOU**

One projectile point project which we will accomplish together is to produce your own side notched arrowheads like these.

*This side notched arrowhead is made from colorful Picture Jasper from Oregon. The style is similar to those arrowheads made by “Ishii”, a Yahi Indian from northern California, while he lived the last few years of his life at the University of California from 1911, when he, as the last of his people, wandered into a small rural town and out of the “Stone Age”.*
You’ll Learn To Create Stone Tools From Natural Rock And Even Master Exotic Forms Of Man-Made Glass & Crystal.

The natural world has many kinds of stone which can be made into useful tools and hunting weapons. The primary characteristic of useful knapping stone is the way it breaks. This fracturing needs to be controllable and repeatable. From a practical standpoint, the ideal stone will break in any direction (this makes for better control), and it will be able to hold a sharp edge (this makes it useful).

So, what helps us identify these materials?

**UNIFORMITY**

An internal structure which is smoothly uniform enables a stone to be broken in any direction. This can be either a non-crystalline or micro-crystalline structure. For instance, “Flint” is a crystalline form of water deposited quartz, but the crystals are microscopic in size, and thus it allows forced fracturing in any direction. *Chert, Novaculite, Hornstone, Jasper, Agate, some Petrified Woods* and fine grained *Quartzite* fall into this category. Some of these materials benefit from initial heat treatment.

The other major category is non-crystalline, glassy material, primarily volcanic in origin. This includes *Obsidian, Dacite, Rhyolite* and man-made *Glass* produced from high silica content material. These have already been heat treated! They’re born ready.

These Dalton style dart points are made from quartz crystal, created for the telecommunications industry. It did not pass their Quality Control, but it works fine for knapping. Quartz crystal is a challenge because of the natural fracture planes of its molecular structure. Pressure flaking creates a uniquely rippled scar, a key to identifying crystal as opposed to glass.
What Tools Will You Need To Begin “Flint Knapping”? Where Can You Get Them? I Use & Recommend These:

Fine or Medium Grit Carborundum Grindstone, to prepare edges of isolated platforms on knapped stone before percussion or pressure flaking. $5.00 each. 5” x 2” x 1/2”. Native sandstone, quartzite, or other gritty stone can be used for the same purpose.

6” x 3/4” wooden handled 3/16” copper-rod tipped Pressure Flaking Tool. $3.00 each. Hammer the tip to resharpen.

Deer antler tines for pressure flakers. $3.00 each.

2-1/2” x 5” Cowhide leather Hand Pad, for use with pressure flaking held in the hand or on a bench. Can be made from larger pieces such as the Lap Pad, or ordered separately at $7.00 each.

Hand Pads are also available in 3” x 5” Buffalo Hide, in single layer or double layer hand pads.

Single Layer Buffalo Hand Pad, $4.50.
Double Layer Buffalo Hand Pad, $9.00.

10” x 10” Cowhide Leather Lap Pad, draped over thigh during percussion work. $2.50 each.

6” by 7/8” Nylon or Dalron handled Robust Pressure Flaker, drilled for a 3/16” copper flaking tool. For heavy duty pressure flaking. Adjusted with 1/8” Allen wrench. Set comes with 3 extra 4” by 3/16” copper nails for flaking tool and Allen wrench. Hammer the tip to resharpen. Touch up form with a file. $16.95 for the Robust Pressure Flaker with 3/16” copper tool Set.

Also available drilled for 1/8” copper tip for pressure flaking use on small points or as a notching tool. Set comes with 3 extra 3” by 1/8” copper nails and Allen wrench. $14.95 for the Robust Pressure Flaker with 1/8” copper tip Set.

Your “FLINT KNAPPER’S PRESSURE FLAKING & PERCUSSION TOOL REQUISITION” for any of these tools is included with this Lesson. Send your requisition, with check or money order, to:
F. Scott Crawford, 3661 Stockton Drive, Carrollton, Texas 75010

Wooden handled, lead-filled copper cap percussion tools, known as “copper boppers” for fine percussion work. SMALL, 1” diameter, 4-1/2” long, $7.00 each. LARGE, 1-1/4” diameter, 4-3/4” long, $9.00 each.
Twice each month “FLINT KNAPPING 20.12” brings to you another in a 24-issue series of fully-illustrated, comprehensive lessons about an important aspect of creating tools and hunting weapons from stone.

These give you the methods and techniques. How much you accomplish with it all is up to you. Prepare, practice and produce!

Here is the list of topics prepared for your complete series of lessons in “FLINT KNAPPING 20.12”.

- Mastering The Stone (THIS ISSUE)
- Hammer Stone Percussion (NEXT)
- Soft Hammer Percussion
- Spalls Of Stone
- Chips Off The Old Block
- Heat Treatment
- Percussion Cores
- Chips & Blades
- Indirect Percussion
- Pressure Flaking
- Edge Preparation
- Platform Preparation
- Perfecting A Practice Piece
- Percussion Pre-Forms
- Preforms & Slabs ~ Ready To Finish Now
- The Secret To More Powerful Pressure Flaking
- Notch Your Stuff & Better Notching Tools
- Small Point Pressure Flaking
- Working With Core & Blades
- Completing A Percussion-Only Project
- Gunther Style Arrowhead ~ Northwest
- Cahokia Style Arrowhead ~ Midwest
- Dalton & Humboldt ~ Early Archaic Period
- Necessity Is The Mother Of Invention
- Stone Sources In The Space Age & Stone By Mail
- Clovis & Agate Basin ~ Paleo Period*
- Ishi Arrow Points ~ End Of The Stoneage*
- Folsom & Cumberland ~ Indirect Percussion*

*Bonus Editions

Read, study and practice what you learn in each edition. Do this and you will indeed be on the ‘Fast Track’ to learn, enjoy and master the challenging art and craft of flint knapping.

You Will Learn The Secrets To Build A Solid Foundation In The Essential Aspects Of The Ancient “Flint Knapping” Craft.

FLINT KNAPPING 20.12