

BULLETIN OF PRIMITIVE TECHNOLOGY



VOL.1, NO.1 SOCIETY OF PRIMITIVE TECHNOLOGY Spring 1991



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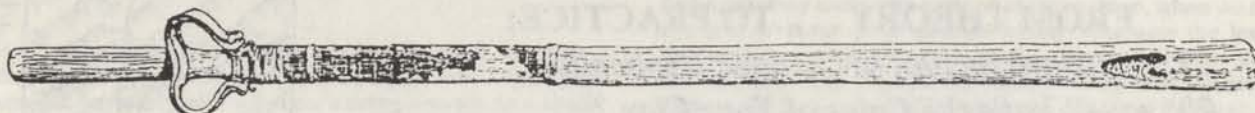
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The purpose of the Society of Primitive Technology is: (1) to promote the practice and teaching of aboriginal skills; (2) to foster communication between teachers and practitioners; and (3) to set standards for authenticity, ethics, and quality. This Bulletin is to serve as a means of accomplishing these goals.

It is our hope that we may serve technologists including, but not restricted to many of the following fields:

Flintknapping	Hafting Technologies	Rabbitsticks and Boomerangs
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ABOUT OUR LOGO: Our logo was designed by David Callahan, using his and Jack Cresson's sketches, with suggestions from the board. The skull of our common ancestor, Neanderthal, becomes a cavern into which we peer to see a campfire swirling about, symbolizing the spirit of our movement. The ancient technologies, long forgotten, await our rediscovery, to unite us all.

(Cover photo) Accoutrements made
by practicing primitives from across
the U.S. Photo by McPherson



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Leona Cave, Texas

(Jan Welton, 1976)

THE FIRE WATCHERS

By David Wescott, Editor

In the introduction to his book, *Ever Expanding Horizons: The Dual Informational Sources of Human Evolution*, Carl Swanson notes: "The linkage between biological and cultural evolution is an arena entered only at some considerable risk because it is middle ground". This is the same feeling I get when I think about the efforts of this newly formed society; we are attempting to reach middle ground.

Coming to a balanced consensus between scientists, teachers, practitioners and experiential learners is no simple task. And now to open what has taken place within our existing network, on a small scale, to a forum such as this society is a venture that has not been done without considerable anxiety.

"Ideas are the cultural analogue of DNA, that is, that ideas are the source of cultural information as well as the basic units of cultural evolution." (V.R. Porter, *SCIENCE*, 1964).

Porters thinking on how we have grown and learn as humans led Swanson to coin the term "**sociogene**", identifying those ideas that mature into shared concepts and interact with the expressed information encoded in DNA. Pretty heady stuff for something that I think most of us have been aware of for a long time. Take for example the words of English essayist E.V. Lucas:

"The smoke of the open fire is charged with memory. One whiff of it, and for a swift moment we are in sympathy with our remotest ancestors, and all that is elemental and primitive in us is awakened." (*Fireside and Sunshine*)

SOCIOGENES ? Or how about contemporary thinker Joseph Campbell:

"Neither in body nor in mind do we inhabit the world of those hunting races of the paleolithic millenia, to whose lives and ways we nevertheless owe the very forms of our bodies and the structures of our minds. Memories of the animal envoys still must sleep, somehow, within us; for they wake a little and stir when we venture into wilderness. They wake in terror to thunder. And again they wake with a sense of recognition, when we enter any one of those great painted caves. Whatever the inward darkness may have been to which the shamans of those caves descended in their trances, the same must lie within ourselves nightly visited in sleep". (*The Way of the Animal Powers*)

Tarzan, Straight Arrow, Howard Hill, Don Crabtree, Horace Kephardt; mythic or real, envoys all. When you first picked up a rock and broke it into pieces to better learn its characteristics, or when you released your first arrow from a homemade bow and watched it soar to its target, how did you feel? What has brought you to join us on this journey of rediscovery? You recognized something deep within, and when you met others who thought the same they were easy to recognize as brothers, regardless of their recent heritage (Sounds like Close Encounters of the Third Kind!).

"It is not the primitive of tooth and claw, the fear of animals in the night, but the primitive of dream and reverie and close companionship. The warmth of a good fire is remarkably like the warmth of love, and sitting around fires at night makes us think about our connections with nature. It is in the pursuit of subtle and elusive things, rather than in the satisfaction of hunger, that staring into fires made man self-conscious and thoughtful, and thus set him apart from the rest of creation." (Peter Steinhart, *The Primal Lure of Firelight*)

LETTERS

"... this sounds like a very interesting development which should have wide participation and encourage more fundamentally sound research. I'm tired of reading about half-baked 'experiments' ..."

John Coles
Department of Archaeology (retired)
Cambridge, England

Dr Coles is the author of Archaeology By Experiment (1973, Scribner's) and Experimental Archaeology (1979, Academic Press). These landmark works summarize who's doing what around the world, and gave respectability in the academic world to "experimental archaeology".

"Hopefully, one day a society at large will accept the idea that practical knowledge is also something important to support. Today the museums are collecting objects, but tomorrow it will be technology. It'll then be necessary to take a new approach, for you can't save practical knowledge by putting it in a museum storeroom. You must pass it on. The day will come."

Tomas Johansson
Sweden

Thomas Johansson is the founder of the Institute for Prehistoric Technology, in Sweden. He coordinated all efforts until stepping down last year to have more time for projects. His many duties have been taken up by Dr. Hans-Oke Nordstrom, chairman of their Society of Prehistoric Technology; Lotta Rahme, chairman of their Institute for Prehistoric Technology; Lars Bengtsson, editor of their semi-annual publication, FORNTIDA TEKNIK (Ancient Technology). Each issue (in Swedish) features a single topic such as flintknapping, bronze and copper work, Viking boat construction, etc. We are exploring ways in which our groups might actively work together. The institute boasts a membership of 600 in a nation of only 8 million.

"You [have] assembled a wonderful group of folks—just the perfect mix of different orientations, skills, and objectives to create a good "idea soup" from which a viable society could be formed ... I see the Society of Primitive Technology providing not only a network for information exchange among practitioners but also an incredible resource base for scholars, educators, and museum personnel ... Primitive Technologies could focus on a number of important areas not currently addressed by the existing societies. Quite selfishly, I also see such a Society as a wonderful resource that can (hopefully) lead to an increased interaction between practitioners and archaeologists."

Ann Tippet
Schiele Museum of Natural History

"An event for interested people either on a national or regional scale is a long-time item on my wish list. Since our members would be spread from coast to coast an option that has worked for other national organizations is to have regional events or East and West events yearly and have a centrally located national event every three years."

Jim Hamm
Azle, Texas

"I have an engineering background and am very interested in the scientific principles which are behind a lot of these things: Why do some woods work and some not for lighting a fire by friction? What does a weight on an atlatl do? (I have already taken some strobe photos of an atlatl in use but haven't had the time to analyze them thoroughly yet.) What's the difference between pressure, indirect percussion and direct percussion? What's the best way to do woodworking with stone tools?"

Dick Baugh
Palo Alto, CA

"It is certainly time for a nationwide organization though I seem to run into more "Abo" fans every day on an informal basis. Classes and overall interest in "Old Ways" is booming ... What other new and wonderful things are you guys working on?"

Pegg Mathewson
Dept. of Anthropology
University of California at Berkeley

"Your idea of a society seems to me to be a good plan. The society however, should under no circumstances be run by academics. Why? Because they are disorganized and inefficient. They have to scramble all day for tenure! No time to type up membership lists. Non-academics, usually inspired by interest and enthusiasm, make better organizers and managers.

Despite some legends to the contrary academics are afraid of "amateurs." Why? Because the monothematic guys (who are interested in say survival in the woods to the exclusion of everything else, archaeology included) are sometimes contemptuous of academics because they can't suck the brains out of a frog, or something like this. I've been on both sides of the fence as I think you have and have seen the potential for hostility towards academics who are sometimes nincompoops.) This society could tap the great potentials the potential that share a great deal, and learn from each other.

I would like to see some good discussions about how to study the role of prehistoric technology in archaeological interpretation and how to learn something from the new disciplines like history of technology. Using technology in teaching and in reaching the public to add support to education and to archaeology also seem like good topics."

Curtis Runnels, PhD
Instructor of Primitive Technology
Boston University

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A PAUSE FOR THOUGHT

by Errett Callahan

In the December 31, 1989, issue of *PARADE MAGAZINE* (p. 16), may be found Lloyd Shearer's Intelligence Report article entitled, "SOME MEN NEVER GROW UP". Here he reports on a group of Frenchmen headed by "Big Chief Standing Horse: (Michel Adjiman) who are being kicked out of the Var Forest in France where they have lived for some years dressing up and, in effect, "playing Indian." (Before that Adjiman worked in the Paris theater.) And, according to the forest ranger, they're creating fire hazard. The Big Chief has appealed to the Bigger Chief, President Mitterand, for a reconsideration. And there it stands.

What bothers me is the title, "SOME MEN NEVER GROW UP." I am concerned that we, the Society, that is our members, may become the target of similar attacks. In an effort at forestalling this before it happens, let me pass along my personal views on this matter. (Yes, I realize other members may disagree with me on this.) For years I have crusaded against the misconception that we, as primitive technologists, are merely "playing Indian." I see red when, during a talk or demonstration, I overhear some snide remark to this effect. But at the same time, such comments have made me think twice about what I am doing and why? Am I doing this for the applause? Am I guilty of performing instead of testing? Or is it merely therapy (as with the Frenchmen?) Or only nostalgia instead of honest curiosity about the past? Or simulation instead of replication? Or is it folklorismo, farbfest, fakelore, or kitsch? (See Anderson 1984 for a full treatment of these terms and the different levels of living history and Dorfler 1970 for the world of kitsch. And my own forthcoming book for all the above.)

Somehow it seems to me to cheapen the whole endeavor when, in demonstrating the hand drill fire, for instance, the demonstrator dons the loin cloth. It puts the demonstration in a whole different category which somehow offends me.

What's so important about the loin cloth to the fire?

Geoffrey Bibby says of the early days at the Lejre Research Center in Denmark: For the experimenters, "subjectivity" was a constant and insidious trap--the belief that "living back," the feelings engendered by carrying out prehistoric activities with prehistoric implements in prehistoric surroundings, somehow had objective validity and could be treated as experimental data. It is perhaps for this reason that "dressing for the part" has as far as possible been avoided. . . (The experimenters) wear the same overalls, sweater, and rubber boots as farmers and factory workers anywhere else--to the disappointment of visitors. . . Apparent authenticity is not the aim of the experimenter (1970:100).

I liked that when I first read it 20 years ago, and I like it now. It rings true to what I believe in and wish to get across. And I have sought to adhere to it in principle ever since. I have come to feel that the best way to impress upon our observers, and ourselves, the seriousness of our intent is to forgo the theatrics and stick to the technologies. Technology is universal and worldwide. That's enough for me. What we do in private is our own business, but what we do in public becomes everybody's business. Like it or not. By voluntarily restricting ourselves in public to technology and foregoing the theatrics we show that we have at last "grown up." That is, we have risen above the element of play as an end in and of itself.

Let's each do some hard thinking and ask ourselves how we will handle that reporter when he comes around to do a story on these weirdos who suck the brains out of frogs and who seem to them to be doing nothing more than "playing Indian."

Our actions, more than our words, will either encourage or discourage the impression that we have at last grown up.

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Is this a position you agree with? Let us know how you feel. On the next page is one response from board member, John McPherson. It is not the intent of the board to stimulate controversy in these pages, but constructively address issues and thoughts that should be reviewed in order to help strengthen the field and to help form an idea as to our identity. The insights we derive from frank discussions are timely. We have a number of issues we need to address in the Bulletin.

ANOTHER THOUGHT

by John McPherson

A group of men who had "lived for some years" in a forest, especially if what they were "dressing up" in were clothes of their own manufacture (we don't know this), would seem to me to be people living life to the fullest, eliminating the middle man and practicing just what we are herein preaching.

There is a lot here that we don't know. Did they "live" in the forest only on weekends? . . . make daily trips to town for ice and beer? . . . Most likely even the "journalist" who wrote the referred-to article doesn't know. . . and most likely doesn't care. . . he got his story.

Playing Indian. That seems to be the main thorn in Errett's side. Yes, many people today take a lot of time and go to a lot of expense to "play Indian". The large numbers of people who attend the many mountain man rendezvous around the nation. . . and join and support their various "Societies" are just one such group. We are speaking of thousands of people here. Some of these people are just vacationing. . . yes, maybe playing Indian. Most are recreating. . . many doing reenactments for and with museums and National Historic sites. . . and also movies. We have many friends among this group and lots of them have played parts in and acted as technical advisors to such movies as "The Mountain Men", "Windwalker", "Glory" and most recently "Dances with Wolves". Playing? . . . maybe lifestyle applies better for some.

What does a loin cloth have to do with making a hand drill fire. Absolutely nothing. But. . . as seems apparent, I'm pro-loin cloth. . . in it's place. I don't really give a hoot for how they

present their programs in Denmark. . . but when I attend any living history program (let's stick here with the caveman) and find a primitive shelter/baskets/pots/skins/pelts/weapons/traps/etc. . . and most importantly here, all placed in a "primitive" setting, well, I then expect any interpreters to be dressed accordingly. . . and in this case it means in a loin cloth or other primitive dress.

I will concede that there is its place. Geri and I just put on primitive demonstrations within the last month for both the Kansas and Nebraska State Muzzleloaders Conventions and a third for a group of grade school children. The two conventions were held at Holidomes. At all three demonstrations others were also present doing whatever it was that they were doing. . . and most of them were in "period" dress. Geri and I wore blue jeans. Put us in an outdoor setting with all the accoutrements and we'll be there in 'skins.

How will I handle a reporter who comes and asks just why I'm "playing Indian"? Well, the answer is really pretty simple. . . and should be also to any who is serious about making "primitive" a part of his life. . . not just a way of making a living. (there could be a difference) My answer? . . . by learning to live in direct contact with the earth, eliminating any middlemen, being able to provide not only what I need to survive but also all of the conveniences I require to live quite comfortably, I free myself from any and all dependency upon other man. I can choose to what extent that I want to live within the confinements of society. I am free.





Founders and friends gather by the Schiele Museum Wigwam upon the occasion of founding the Society, Nov 11 & 12 1989. From left to right, back row: Jack Cresson, Tony Williamson, Scott Silsby, Errett Callahan, Maria-Louise Sidoroff, Steve Watts. Front row: Geri McPherson, John McPherson, Susan Eirich-Dehne, Linda Abbey (Callahan's wife holding their newborn daughter, Melody), David Wescott.

THE SOCIETY OF PRIMITIVE TECHNOLOGY ORGANIZED

By Steve Watts

"Being a part of my race's genetic memory wasn't good enough. I wanted it as part of my own conscious memory, reliving in a small way every minute of man's ascent: foraging like a beast in the meadow, cracking two stones together at the dawn of history, preparing for the hunt atop in Ice Age flint mine, planting the first corn and seeds of civilization, building a boat of birch to carry me against a river that defied time. Each man alive--red, white or otherwise--is what he is because of these things."

Jim Dina *The Voyage of the Ant* 1989

During the weekend of November 11-12, 1989, ten leaders in the field of experiential primitive skills gathered around the fire at the Schiele Museum's Center for Southeastern Native American Studies in Gastonia, North Carolina to organize a new national organization -- The Society of Primitive Technology.

Conceived by Dr. Errett Callahan, pioneering reconstructive archaeologist and director of Piltown Productions in Lynchburg, Virginia; the society seeks to promote the practice and teaching of aboriginal skills, foster communication between teachers and practitioners and set standards for authenticity, ethics and quality.

Founding members present represented a variety of special interests within the field of primitive technology. The weekend's discussions explored the society's goals and pur-

poses from many points of view; audience (abos, academics, educators, interpreters, the "man on the street", etc.), ethical and environmental concerns, public relations, education/outreach, archaeological responsibility, special events, craftsmanship, workshops and access to resources--to name a few. "This is an historic occasion" said Callahan, "the beginnings of a national network".

Plans have been made to hold the annual meetings at a variety of locations in the coming years. Two issues of the Society newsletter are planned for 1991, and an on-going system of communication between charter members was established to share information, answer questions, and conduct society business. For all involved in the study and practice of primitive skills, this marks the birth of an exciting new era.



THE SOCIETY AS CAMPFIRE

by Errett Callahan

From deep within the caverns of time, like-minded prehistorians have felt an irresistible urge to come together around the campfire and share ideas. This urge to share has reverberated throughout the centuries and set mankind apart from our fellow beasts. It is the fulfilling of this primal urge which prompts the formation of the **Society of Primitive Technology**.

Though I had been subconsciously aware of this urge for years, it did not stumble into consciousness until during the 1988 Cliffside Workshop in Primitive Technology (October 10 - 14). For this event, I was fortunate to have assembled a corps of participants who made the workshop a veritable summit conference of the country's leading prehistorians. (Participants included David Wescott, Steve Watts, and Susan Eirich-Dehne). At our evening discussions around the campfire, we realized that we had no less than a movement on our hands. With this in mind, we found ourselves discussing what kinds of action would be needed to put like-minded prehistorians better in touch with one another. We considered an annual event, a seminar, a location, and a publication as possibilities. David Wescott's Rabbit Stick event, wherein similar discussions were held in September, seemed an excellent model for the event, but the other elements needed some, as yet undecided, factor to gel the movement into a coherent whole.

This gel was set during a seminar, "Walking Lightly on the Land", held at the Manitoba Nature Center in New York, masterminded by Susan Eirich-Dehne. On November 5, 1988 throughout a long, cold, rainy Saturday night, eight participants sat around the campfire within the warm and cozy Manitoba wigwam and hashed out more ideas. (Participants included Maria-Louise Sidoroff, Susan Eirich-Dehne, and this writer; among others.) To make a long story short, during the course of discussion, we witnessed the birth of an all-encompassing idea which could no longer be held back (i.e., we rubbed the lamp and the genie appeared). This idea was the need for a national organization. We proposed that this organization be called the Society of Prehistoric Technology.

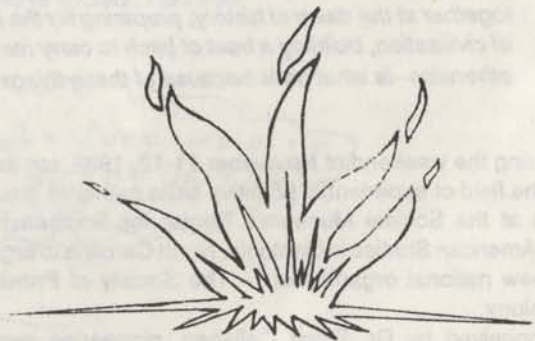
Within a few days, I drafted up a proposal, sent out 130 copies and scheduled an organizational meeting for the following year. (I wanted to give people plenty of time to think about this.)

Unbeknownst to us, on that very same day, November 5, the Cahokia Museum torched the Cahokia Pit House reconstruction which I had built in 1983, prematurely ending what has been called "the world's finest house reconstruction project". (This project is the topic of my forthcoming book on the subject, being intended to serve as a principle guide book for doing aboriginal reconstructions of any kind.)

Sad as the event may have been it served, perhaps, to release the "genie" who appeared to us that rainy night by the campfire within the Manitoba wigwam.

It is my hope that, with the organization of the Society of Primitive Technology, as it came to be called, the torch will nevermore be allowed to go out or to be used for destructive purposes.

N.B.: In our logo we've tried to capture the spirit of our movement. The campfire eddies about in our mind, becoming in itself a cavern into which we look for answers to the past.



"Prehistorian - anyone involved, in either a personal or professional way, with interpreting the prehistoric past, either experimentally, experientially, or vicariously." (Callahan, 1989 MS:86. The Cahokia Pit House Project: A Case Study in Reconstructive Archeology.)

VIEW FROM THE CAMPFIRES LIGHT

Let us introduce the Board Members. This is why we organized and how we plan to be of service to you. Please bear in mind that most of the Board Members are not restricted to one area of expertise, but are talented in many fields of primitive technology. It is the intent of these statements to give you an idea as to where we hope the Society to go. In the future, this will become a question and answer column. Direct your inquiries to the specialist of your choice.

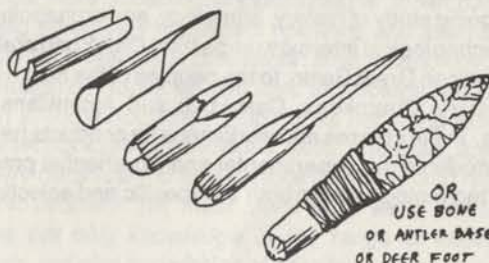
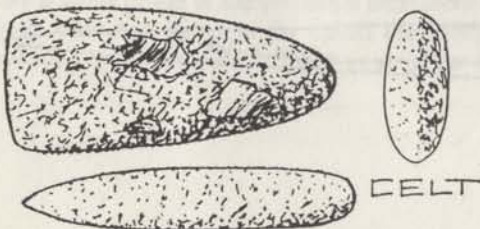
When this society was first conceived, it was proposed that it embrace a wide spectrum of practitioners rather than any one special interest group. It was also evident that practitioners might be largely a group of die-hard individuals, who prefer, or are forced by isolation, to "reinvent the wheel" for themselves. Such individuals are the "Tarzans" who would pit themselves single-handedly against the jungle. So it was with me. Accordingly, I fully realize the therapeutic value of rugged individualism; I'm not the one to knock it. (Many of us, I suspect, have our roots in Edgar Rice Burroughs and his lost worlds.)

Yet at the same time, it was realized that there are a host of others out there who are thirsting for information. This other group consists of such individuals as survival school instructors, naturalists, public and private school educators, interpretive center personnel, specialized craftsmen, hobbyist, perhaps a few of the "Tarzans" and "Abos", plus environmentalist, archeologists, and various researchers within or beyond academia. Accordingly I sought to include among our board members, representatives of these widely divergent fields of interest.

It is not our purpose to recruit and convert those who wish to remain in isolation. Ours is to be a service organization. We are here if you need us. Go ahead and reinvent the wheel if you wish. But if you get stuck and need to know where to find raw materials, you can come to us. If you're looking for books, films, videos, or other reference materials, ask us. If you're looking for workshops, courses, or seminars on primitive technology, check us out. If you'd like to get in touch with others who may be working in your specialty, others who may already have worked out the bugs and who may be way ahead of you, we're here to help you. There's much we can learn from you as well.

In short, I can but echo the words of Steve Watts in his news release announcing the formation of our society: "The society seeks to promote the practice and teaching of aboriginal skills, foster communication between teachers and practitioners, and set standards for authenticity, ethics, and quality."

Errett Callahan, PhD



PILTDOWN PRODUCTIONS

Board Member Representing Science, Errett Callahan, PhD - Owner Piltdown Productions and Cliffside Primitive Technology Workshops

Errett has been involved with one primitive technology or another since age 5, when he made his first bow. Though his interest in primitive archery is alive and kicking today, flintknapping has, since 1956, been his principal interest. While earning his Masters in Fine Arts in the early 1970's, he taught university students (VCU & CUA) how to make and use stone tools, build and test functional shelters, make pottery, baskets, cord, fire, etc. This led to a series of "Living Archeology" field schools resulting in detailed technological research reports. In the early 1980's he completed a PhD based upon his reconstruction of an authentic pre-Columbian Indian Village on the Pamunkey Indian Reservation in Virginia. Errett has been a pioneer in the field of reconstructive archeology, having built over 50 prehistoric houses (with stone tools), culminating in the current scientific reconstruction of a 60 foot log-built Neolithic longhouse for the National Museum of Antiquities in Sweden.

On his own since 1981, he runs Piltdown Productions, which specializes in classic obsidian knives for the Abo, collector, or surgeon, knapping supplies, and access information. With his wife, Linda Abbey (and daughter Melody, born with obsidian scalpels in 1989), he now teaches workshops in flintknapping, archery, and primitive technology out of his Virginia home, Cliffside (Students have included most Board Members). He has written over 150 research articles and is working on his sixth book (mostly on primitive technology), and edited **FLINTKNAPPERS' EXCHANGE** which he founded in the mid-1970's. His principal focus in flintknapping for the past 12 years has been the challenging and complex Neolithic flint daggers of Denmark and obsidian knives of the future.



**Board Member Representing Museums,
Steve Watts - Director, Southeastern
Native American Studies
Program, Schiele Museum.
Owner, Old Bearskins Productions**

Steve's lifelong interest in aboriginal peoples and skills has led to an on-going study of history, ethnology, and archaeology. His special technological interests range from Old World prehistory, to the American Great Basin, to the peoples of the South Pacific, to the historic Cherokees, Catawbas and Algonkians of the Carolinas. In the classes and workshops he conducts he shares with his students the experimental and experiential practice of primitive technologies from both the specific and eclectic points of view.

Steve directs the Southeastern Native American Studies Program at the Schiele Museum of Natural History in Gastonia, NC, an innovative program that provides experiential learning to youth and adult groups. He also travels the country teaching a variety of aboriginal skills workshops and replicating prehistoric tools, weapons and other items for use in exhibits and experimental archaeology programs. His work is now on display in over a dozen museums in the Southeast and Gulf region.

Steve is a graduate of Appalachian State University and earned a masters degree from Duke University.

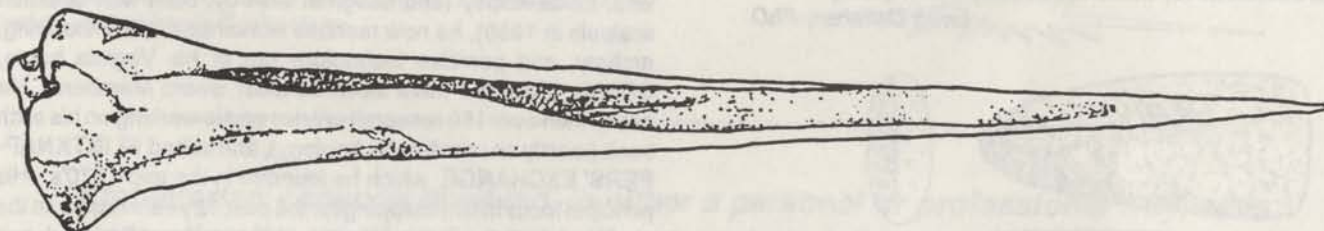
The learning and practice of aboriginal skills can help us all get in touch with our own roots-- no matter what our particular heritage may be (American Indian, European, African, Asian, etc.) Here in North America we look to the Indian peoples and the ancestors of these people to teach us the skills that are "native" to this place. Yet, if we go back far enough into our own pasts, we discover that we are all aboriginal peoples at some time, in some place. The "stone age" is the great common denominator of humanness. "Primitive" ("first") skills are our shared inheritance. It is my hope that the Society of Primitive Technology can lead the way in helping individuals rediscover these old skills anew.

**Board Member Representing Naturalists,
Scott Silsby - Owner, Flintworks -
Instruction and Replication**

Scott is the former Director of Gulf Branch Nature Center and North District Parks Manager with the Arlington County, VA government. Under these auspices he sponsored the Experimental Archeology Workshops for twelve years. He is also a co-founder of the Mid-Atlantic Lithic Workshop and Symposium (see Technology News). He is a past president of the North Virginia Chapter, Archeology Society of Virginia. He served five years in the U.S. Army with various air and armored cavalry units where he trained troops to survive in desert, mountain and jungle environments. His specialty was Indigenous Survival Techniques.

His business, FLINTWORKS, provides instruction in many primitive crafts/skills as well as offering replication services.

INTERPRETERS-NATURALISTS-PROGRAM SPECIALISTS-ECO-WARRIORS AND WOODS RANGERS OF ALL PATHS AND TITLES - *Our society is your flintmine of information about man's intimate relationship with nature. Through our Bulletin, periodic publications and sanctioned events you are afforded direct contact with those of us who are seeking an understanding of all aspects of Primitive Technology. Here you will find information on the "state of the art" Stone Age. What grasses, fibers, and such, work in various tasks? Who gives courses in primitive crafts? What publications are available? Where can one obtain a valid replica for exhibits and programs? How can one support and influence the teaching and practice of an ethical approach towards harvesting "primitive" raw materials? By joining the society you will support original research in primitive technology being conducted today by many of the country's leading experts. Many are highly educated, in the formal sense, with decades of teaching under their hides. Others are relics of the past who are living today a way of life best described not as close to nature but as nature. They are all dedicated to sharing their experience with you and need only your support through subscription to start the symbiosis. Of course this implies we're seeking your input as well. So start thumbing through your field notes, join, contribute and get the word out.*



**Board Member Representing Archeologists,
Jack Cresson, Archeologist/Flintknapper
Owner, Primitive Industries-
Natural Materials and Technology**

Jack has been involved in archeological research since 1964; and as a professional since 1974. His interest in prehistoric lithic technology has led to numerous experimental research projects targeting Eastern Woodland prehistoric cultures. As a practicing field archeologist he continually employs experimental techniques to enhance and enlighten the interpretation of prehistory. In 1981, as a founding member of the Mid-Atlantic Experimental Lithic Workshop and Symposium, he helped foster an organization of experimenters instrumental in dealing with a variety of problems in regional lithic technology. Cresson has also helped decipher many of the lithic technologies found in his home state of New Jersey. He has reported on specialized hammerstone production technologies as well as bi-polar and micro tool technologies. Recently he published a work on "Broadspear Technologies" highlighting the systematic and planned aspects of production/reduction technologies. As a lithic analyst he has a tremendous interest in the way lithic tools fracture. This has led to a variety of on-going experiments to study hafting technologies and ultimately their cause and effect to fracture morphologies.

Experimental approaches have been ingrained in archaeological pursuits for a long, long time and have slowly gained acceptance as a viable method to record, analyze and interpret past human behaviors. If we are to further benefit, to continue making inroads and insights to the past, a much more active and rigorous stance adopting experiential and experimental practices in prehistoric lifeways should be taken by the archaeological community.

The crux of this issue lies in three areas: (1) the Society of Primitive Technology and its ability to demonstrate a viable need in the scientific community. (2) the Society must promote its acceptance as a valuable and important tool to learning about the past, and (3) to support and encourage the practice and use of past skills, crafts and technologies in order to help define, illuminate or explain ancient cultural systems. As a practicing archaeologist and one who regularly applies experimental approaches toward the understanding of past cultures I can't stress enough the importance of an organization such as the Society of Primitive Technology.

As an example, here in the mid-Atlantic area for the past 8 years a small group of experimental lithic technologists comprised what has come to be called the Mid-Atlantic Lithic Workshop and Symposium. Each year since 1981 we have

collectively engaged a specific research problem attributed to prehistoric stone working/processing enormous practical experience and empirical knowledge along with a well developed approach toward scientific experimentation. Through these endeavors, we have accomplished both personal satisfaction and collectively meaningful contributions to archaeology by providing some very significant solutions and alternative solutions to real problems in prehistoric lithic technology. Of note, even though our focus was on lithic technology, we have come to learn all too quickly that (stone does not stand alone) a host of other technologies, techniques, skills, materials, applications, etc., were necessary to fully explore the range and realm of any one lithic problem. (ie, most stone tools were hafted!!) This requires not only knowledge of the range of known hafting materials, but also knowledge of possible or probable materials that could be utilized. Both empirical and experimental applications come into play. This takes into account the varieties of wood, the use of bone, horn or antler adhesives, wrapping, water-proofing and perhaps elements of design and decoration.

In the above example, the point is by using all the available empirical data (ethnographic, archaeological and analytical) coupled with experimental approaches, a more accurate, insightful solution to interpreting the past is possible. This is how I envision the scope of the Society of Primitive Technology, to not only foster and promote experience into ancient lifeways but to provide an experienced and seasoned body of researchers and research, experimenters and experiments all working in concert, within and alongside the scientific technologies. "The traces of technology provides archaeology with a much richer, multi-dimensional approach to viewing past activities of man, that can incorporate time, space and function with ever increasing accuracy. . . . When and where things are made, used, reused, repaired and discarded help reveal the patterns to the human adaptive process."



**Board Member Representing Schools and Workshops, David Wescott-
Owner, Boulder Outdoor Survival School
Convener, Rabbit Stick Rendezvous**

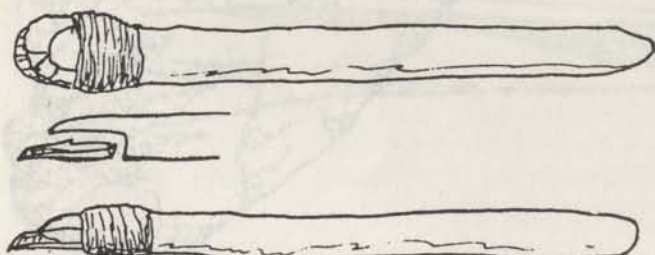
Dave started teaching primitive skills in 1970 under the tutelage of Larry Dean Olsen, noted author of *OUTDOOR SURVIVAL SKILLS*. He took the skills he was taught into the field, sought out other teachers, and now runs the Boulder Outdoor Survival School, Inc. BOSS is the oldest school of its type, using primitive skills for the development of the individual. The new series of skill courses being offered is widely accepted and is attracting some of the top teachers in the field. *BOSS is dedicated to the preservation and instruction of primitive survival arts, and the development of people through experiences with the natural world and aboriginal tradition.*

The Rabbit Stick Rendezvous, begun in the mid-70's was begun anew in 1988 in order to gather together active teachers, practioners, and researchers of primitive technology, survival arts, and wilderness living skills. It was so well received that it now boasts a teaching staff of over 50 specialists, and a clan of international students. Rabbit Stick is a fine example of traditional teaching methods and recognition of the values gained from cultural preservation.

Dave earned a Masters Degree in Experiential Education from the University of Colorado at Boulder. He taught on the university level from 1977 to 1985, then moved into the private sector as the Owner/Director of BOSS.

One purpose of this society is to bring together the rapidly growing number of schools, workshops, gatherings and events that are dedicated to the teaching of primitive living skills and technology. Teachers and leaders may range from those conducting reconstructive archeology workshops to those who live the aboriginal lifestyle and share it with others through instructional programs. Pandemic skills and knowledge are being taught to bring the "family of man" to a new understanding of world cultural heritage.

Only once before have I seen such a proliferation of interesting topics taught in such a variety of places. However, at that time the market was so limited, and the tactic for survival was "protect your own turf", that the momentum was stalled by competition rather than perpetuated through the current trend of cooperation.



With the efforts we've seen through a simple network such as the Rabbit Stick Rendezvous and the new Society for Primitive Technology, those involved have been able to see a marked increase in the numbers of people drawn to the field, and the process of referrals that help fill everyones classes.

As leaders in the field we all need to actively support a strong networking philosophy, and spread the word about what's taking place. Everyday we come in contact with a new venture working to expose our modern society to the "primitive way". Whether their efforts are to convert people to an alternative lifestyle or simply expose them to an exciting new "hobby", we need to support them in such an endeavor.

**Board Member Representing Pottery & Education
Maria-Louise Sidoroff
Owner, Archeological Ceramic Replication
Author, Guide to Ceramic Replication**

Maria began ceramic replication studies in her home state at the Minisink site excavation under the direction of Dr. Herbert Kraft fifteen years ago. After participating in the Pamunkey Project with Errett Callahan in 1977 she made a commitment to the study of hand-built unglazed earthenware fired without a kiln and has traveled in the USA, South America, Europe and the Middle East to pursue her quest. She is a full time art teacher in New Jersey, and in the summer coordinates a Teachers' Seminar at the Tel Hadar Archaeological Site in Israel.

Maria has a BS in Anthropology from Columbia University and an MA in Art Education from Montclair College.

In 1986 I prepared a survey of experimental archaeology projects in the USA for an international conference in France. I became aware of the serious need for an organization to coordinate and exchange information among Americans working in prehistoric technology. The newly formed Society of Primitive Technology intends to promote education, communication and research for a wide variety of individuals but I would like to focus on some specific benefits for experimental potters. Among the goals of the Society is a compilation of an American Who's Who of Potters working with "pre-technological" methods, to review the technical, theoretical and ethnographic literature pertaining to primitive pottery, to give notice of courses and workshops for the perfection of ceramic techniques, to assist individuals in locating communities where ceramic studies may be undertaken and to suggest guidelines for scientific experiments to interpret the archaeological record.

**Board Members Representing Outdoorsmen,
John & Geri McPherson
Authors, The Prairie Wolf Series
Practitioners, Teachers, and Replicators**

John has been full time writing/teaching/doing primitive skills since the early 80's. . . dabbling seriously in them since the early 70's (after an eight year stint as a paratrooper), and like most people in this field he has been interested and playing at it since childhood.

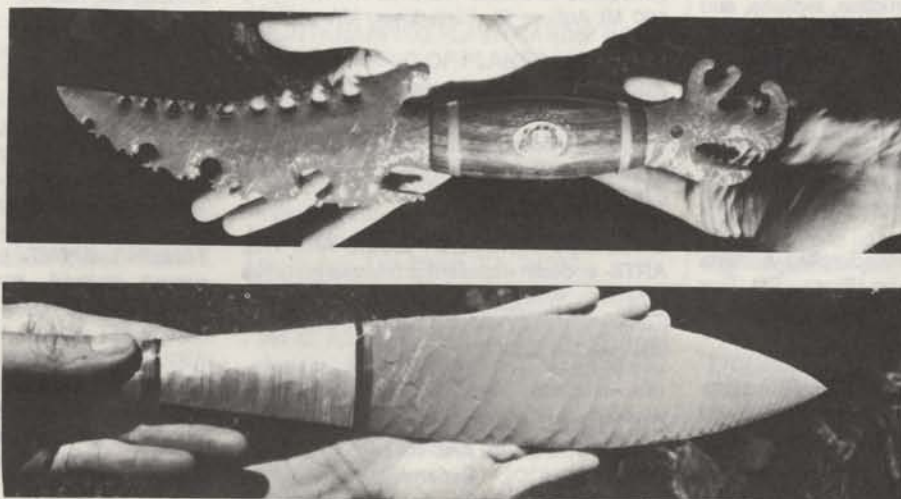
Geri, with a similar lifetime interest, joined John permanently in June '87 to form a team. John and Geri travel extensively each year (30,000 miles in 1990) doing workshops and demonstrations on primitive skills throughout the country. When home in Kansas they continue their practice, research and writing on primitive technology. They regularly take in students as well as run an intensive two/three week course each spring covering all aspects of primitive living. They believe that a major part in preserving the Earth lies in making others aware of the natural part they play in the order of things. They are nearing the finish of a series of books and videos on primitive skills. . . eight books completed to date with four more projected.

**Advisor Representing Flintknappers,
Mike Stafford - Owner, The Prehistoric Edge**

Editorial Note: Due to an injury (severe tendinitis), founding member Tony Williamson will not be able to serve as an active member of our Editorial Board at this time. Our Regrets, Tony. We have enlisted, therefore, the services of renowned flintknapper/knifemaker, Mike Stafford, to substitute for Tony. As an editorial advisor Mike will answer your mail concerning flintknapping and keep you posted on the flintknapping scene. (EC)

Since the dawn of his species, man has faced many of his survival tasks in groups. Each craft must have been performed with experienced ones leading the way and novices taking notes. Nowadays, many people who practice primitive technologies work in isolated situations--with each craftsman "reinventing the wheel".

One of the very practical purposes of the Society of Primitive Technology is to help the isolated craftsmen find out where they can gather information, learn new skills or share their discoveries. The network of information can also lead to sources for supplies--materials and tools--and, as the craft is perfected, to appreciative outlets for the finished pieces. Conversely, those wishing to find high quality representation of primitive technology--from the highest art form to the day to day tool--can be in touch with the world's leading technicians in respective fields (TW)



Errett Callahan Knives

RESOURCE DIRECTORY

A listing in the Resource Directory is not necessarily an endorsement by the S.P.T.

MATERIALS

BOW WOODS FIVE- Natural bow woods and arrow shafts. Bob Beane, 1821 Redwing St, San Marcos, CA 92069. 619-744-9797.

VISION MAKER- Indian Artifact Reproductions and supplies. John Tuttle, 116 Mt Carmel Dr, Natchez, MS 39120. 601-442-4467.

RIVER FARM- Workshops, raw materials (including linen fibers), special events for the spinner and weaver. Rt1 Box 401, Timberville, VA 22853. 800-USA-WOOL.

NATIVE WAY- Stone, Preforms, and Books. Wilkie Collins, PO Box 159, Washington, MS 39190.

EIDNES FURS- Fur, Bone, Antler, Teeth, Claws and other animal parts. Rt4 Box 14, St. Maries, ID 83861. 208-245-4753.

NATIVE SEEDS /SEARCH- Conserving and distributing indigenous food plants from primarily the southwest. Seeds, foods, tools, and texts. 2509 N Campbell Ave. #325 Tucson, AZ 85719.

SERVICES

OLD BEARSKINS PRODUCTIONS- Primitive skills instruction, replicas, and reproductions. Steve Watts, 207 W 4th Ave, Gastonia, NC 28052. 704-861-1698.

BIG FORK CANOE TRAILS- Authentic aboriginal birch bark canoe reproductions. Jack Minehardt, 3016 Neola St, Cedar Falls, IA 50613. 319-266-8939.

ABO-RIGINALS- Handcrafted artifacts and replications. Jim Riggs, Rt1 Box 44E, Wallowa, OR 97885. 503-437-1895.

THE PREHISTORIC EDGE- Fine stone knives from Mike Stafford, 3109 Todd Lane, Madison, IW 53713.

Steve Allely- Artist and Native American Replications., PO Box 1648, Sisters, OR 97759. 503-549-7311.

FLINTWORKS- Instruction and Reproductions. Scott Silsby, Rt1 Box 2426, Front Royal, VA 22630. 703-636-4824.

LITHIC CASTING LAB- Specialist in the casting of prehistoric stone artifacts. Peter Bostrom, RT1 Box 102, Troy, IL 62294. 618-667-2447.

PRIMITIVE PROCESS POTTERY- Southwest style reproductions in primitive processes. Wayne Brian, 824 W Kiva, Mesa, AZ 85210. 602-831-5621.

WYOMING WILDCRAFTERS- Suppliers of natural tinctures, herbs, tonics, teas, and liniments. Clarissa Smith, PO Box 874, Wilson, WY 83014. 307-733-6731.

PRIMITIVE INDUSTRIES- Natural Materials and Technologies. Demonstrations, workshops and displays. Jack Cresson, 40 E 2nd St, Moorsetown, NJ 08057. 609-234-3286.

BITTERROOT BOWS, ARROWS, & QUIVERS- Traditional, original, & custom designs of Native American archery equipment. Robert S. Parks Rt1 box 138 Troy, ID 83871. 208-835-8810.

SOUTH-EASTERN POTTERY- Reproduction and experimentation. Tamara Beane, 822 Brummel Ave, Bridgeport, AL 35740.

INSTRUCTIONAL PROGRAMS

EARTHWATCH EXPEDITIONS- International digs and archeological experiences for the amateur and experienced. Catalog and periodicals available from: EARTHWATCH, 680 Mt Auburn St, Watertown, MA 02272-9990.

CROW CANYON ARCHEOLOGICAL CENTER- Adult, Student and Teachers Workshops in Archeological procedures. Bruce Bradley, 23390 County Road K, Cortez, CO 81321. 800-422-8975.

IDYLLWILD SCHOOL OF MUSIC AND THE ARTS- In-depth experiential courses in Native American Weaving, Carving, Basketry, and Pottery taught by native artisans. PO Box 38, Idyllwild, CA 92349.

CULTURAL HERITAGE COUNCIL ARCHEOLOGICAL AND NATIVE CULTURE FIELD SCHOOL- Experiential projects in archeology and Native American traditional skills for youth. Workshops, digs, field methods, etc. CHC PO Box 3217, Clearlake, CA 95422. 707-994-4421.

OLDWAYS- The World of the California Indian- Hunting Tools, Games and Toys, Basketry, Musical Instruments, Flintknapping,

Tracking, etc. Santa Cruz Mountains Natural History Association 101 N. Big Trees Park Road, Felton, CA 95018. 408-335-3174.

NATURE KNOWLEDGE- International survival expert. Experience with wilderness living skills from indigenous tribes. Mel DeWeese, 1825 Linden St, Grand Junction, CO 81503. 303-242-8507.

WANASI- Early ways seminars. Brian Smith, PO Box 2281, Paradise, CA 95967. 916-877-5581.

EVENTS

GLASS BUTTES KANP-IN- March 18-22, 1991, Glass Buttes, OR. Contact Jim Riggs for information. 503-437-1895.

RIVERCANE RENDEZVOUS- Spring Earthskills Gathering, April 16-21, 1991. Unicoi state Park, Helen, GA. Contact Bob Slack. 404-878-2201, ext. 282.

WORLD OPEN ATLATL CHAMPIONSHIPS This and other contest info. from the World Atlatl Association, 8800 State Hiway 133, Carbondale, CO 81623.

INTERCONTINENTAL PREHISTORIC WEAPONS GAMES- 1992 contests held in Bratislava, Czech. Contact Dr Jacques Wangermes, 1 place Bardineau - 33000 Bordeaux - C.C.P. 3592.85 Bx, France.

VIDEOS

BILLETS TO BOWS-bv Glenn St. Charles. \$85.00 from Northwest Archery Company Inc. 19807 First Ave South, Seattle, WA 98148-2493. 206-878-7300.

TANNING SPIRIT- brain tanning wet scrape method. \$25.00 PPd. from Melvin Beattie, 1936 Townsend Ave., Helena, MT 59601. 406-443-6452.

BOWS AND ARROWS- the inside track of primitive bows and arrows. \$29.95 plus \$2.00 p/h, from Jim Hamm, PO Box 233, Azle, TX 76020. 817-237-0829.

NEW PEOPLE - OLD WAYS: The Inuit Composite Bow Construction - entertaining and informative \$135.00. A well done video, but not a complete "how-to". Don Gardner 5831 Bow Crescent Dr. N.W., Calgary, Alberta T3b 2B6 Canada. 403-286-5814.

NAKED ONTO THE WILDERNESS, Part 1 - Brain Tan Buckskin, Fire & Cordage, Sinew Baked Bow and Arrows by John and Geri McPherson. \$55.00 includes books, \$50 w/o. from PRAIRIE WOLF, PO Box 96, Randolph, KS 66554. 913-293-5310.

FLINTKNAPPING- by Bruce Bradley. 45-min. tape illustrates fracture mechanics, reduction processes, archeological applications. \$29.95 + \$2 p/h from Primitive Technology Enterprises, PO Box 534, Cortez, CO 81321.

FROM NORTHWEST VIDEO PRODUCTIONS INC.

The Ancient Art of Tanning Buckskin - by Robert Earthworm. A no nonsense video teaching step by step how to brain tan buckskin. 2 hours \$49.95 + \$5 p/h. **Primitive Life Skills** - by Robert Earthworm. A day in the camp of primitive man. Fire, cooking, jerky, cordage, etc. 1 hour \$35.00 + \$5 p/h.

How To Pressure Flake Stone Arrowheads - by Brian James. Teaches how to flake a spall off of a large rock, then shows how to pressure flake the spall into a point or a knife. 36min \$29.95 + \$5 p/h. **Cordage From Plant Fibers** - by Jim Riggs. Several ways of making cord out of three different fiber plant stems. 1 hour \$29.95 + \$5 p/h.

Friction Fire - by Jim Riggs. How to build fire with a hand and bow drill. 1 hour \$29.95 + \$5 p/h. Available from BOSS Gear.

Edible Wild Plants - by Jim Meuninck & Dr Jim Duke. Video guide to 100 useful herbs. \$24.95. 24097 N Shore Dr, Edwardsburg, MI 49112.

TOOLS

KESTEL TOOLS- Superb craftsmanship and traditionally designed NW metal tools. Adzes, crooked knives, classes, and texts. Beautiful catalog \$2. Rt1 Box 1762, Lopez, WA 98261. 206-468-2103.

THE BOWSCRAPER from BEAVER-TOOTH TOOLS- a unique and simple tool for every bowyer. Easy to use and care for \$15-20.00. Richard Baugh, 490 Gary Ct, Palo Alto, CA 94306. 415-493-5125.

COLORADO BOOMERANGS- Jim Mayfield 409 North Colorado, Gunnison, CO 81230. 303-641-3539.

PUBLICATIONS

PRAIRIE WOLF SERIES - 1) Brain Tan Buckskin, 2) Primitive Fire and Cordage, 3) Makin' Meat 1, the Primitive Sinew-Backed Bow and Arrow 4) Makin' Meat 2, Traps/Atlatls/Jerky & Pemmican, 5) Primitive Wilderness Cooking Methods, 6) Deer-From Field to Freezer, 7) Containers-1, Baskets/bags/etc. 8) Containers-2, Primitive Pottery. \$3.00 each plus \$2 total p/h from :Prairie Wolf, PO Box 96, Randolph, KS 66554. 913-293-5310

BEST OF WOODSMOKE, & PRIMITIVE OUTDOOR SKILLS - selected article from the acclaimed Woodsmoke Magazine, by the editors, Linda and Richard Jamison. Available from BOSS Gear \$14.95 plus \$2.50 p/h. 208-356-7446.

BOWS AND ARROWS OF THE NATIVE AMERICAN - a complete step-by-step guide to wooden bows, sinew-backed bows, composite bows, strings, arrows, and quivers. \$14.95 plus \$2.00 p/h, from Jim Hamm, PO Box 233, Azle, TX 76020. 817-237-0829.

By Errett Callahan

PRIMITIVE TECHNOLOGY- practical guidelines for making stone tools, pottery, basketry, etc. the aboriginal way. 18 illustrated charts from selected rare and widely scattered publications. \$5.00 + \$1 p/h.

THE BASICS OF BIFACE FLINTKNAPPING IN THE EASTERN FLUTED POINT TRADITION - a manual for flintknappers and lithic analysts. Callahans 180 page MA Thesis reprinted from AENA #7. \$15.00 + \$1 p/h.

FLINTKNAPPING FLASH CARDS: PRESSURE FLAKING OF FLAKES - pack of 20 cards with specific and detailed practical information on how to pressure flake arrow points. \$5.00

BOWMAKING: Indian Archery - full-sized wall chart (11x17") illustrating the basics of indian bowmaking. Limited edition \$3.00. Available from Piltdown Productions 2 Freedom Ave, Lynchburg, VA 24503.

LAWN FOOD COOKBOOK (\$4), SURVIVAL ACRE (\$4), WILD CARDS1 (\$10 per deck) by Linda Runyon, noted expert on wild foods and self-sufficiency. Available with \$2.50 p/h from Wild Foods Inc., 3351 W Glendale Ave, #369, Phoenix, AZ 85051. 602-930-1067.

THE BOOK OF PRIMITIVE ARCHERY - bow building and shooting, brain tanning, clothing and gear, and knapping skills by Jay

Massey. \$18.95 + \$1.00 p/h from Bear Paw Publications PO Box 429 Girdwood, AK 99587.

SURVIVAL WITH ATLATL - the ultimate survival weapon, by Bill Tate. Only primer on the atlatl now that Laird's The Atlatl is out of print. \$5.95 + \$2 p/h from Tate Enterprises, PO Box 440003, Aurora, CO 80044.

VOYAGE OF THE ANT - by Jim Dina. An inspiring account of one mans' challenge of building his own birch bark canoe, using only stone tools, and then paddling the length of the Connecticut River, both ways. From the author for \$12.95 + p/h at 789 Main St. R2, South Windsor, CT 06074.

PERIODICALS

MAMMOTH HUNTER- Edited by Rob Bonnicksen. Subscription available. Center for the Study of Early Man, U of M, 495 College Ave, Orono, ME 04473.

BOWMANS BULLETIN- Edited by Susan Mclog & Louis Wilcox. Quarterly. PO Box 267, Harwinton, CT 06791. 203-482-4599.

BACKWOODSMAN - the magazine for the twentieth century frontiersman specializing in trapping, woodlore, survival, gardening, muzzleloading, and homesteading. Bi-monthly, or 1 year \$13.50, 2 years \$25.00. Charlie Richie, PO Box 627, Westcliffe, CO 81252.

THE ATLATL- publication of the WORLD ATLATL ASSOCIATION. Announcements, contests, professional papers, etc. \$10 for 1 year membership. WAA 8800 State Highway 13, Carbondale, CO 81623.

CULTURAL SURVIVAL QUARTERLY- Research and up to date news concerning indigenous people of the world. \$25. C.S., Inc. 11 Divinity Ave, Cambridge, MA 02138. 617-495-2562.

ENVIRONMENTARIAN NEWSLETTER- Edited by Linda Runyon, Wild Foods Co. \$25 membership. Good plant info. 3531 W Glendale Ave #369, Phoenix, AZ 85051. 602-930-1067.

FORNTIDA TEKNIK- A publication in Swedish that serves the primitive technologist in Sweden. Backedals folkhögskola 82900, Sveg. .0680/105 95.



THE HAND DRILL FIRE

by John McPherson

There are a great many artisan's who are turning out superb quality "primitive" products. . . bows and arrows, buckskin, pottery, stone tools, etc. But, we wonder, just how many of these craftspersons would be capable of turning out their products if placed in a completely primitive environment. No steel. No matches. Nothing but themselves and their knowledge.

Think of it for a minute. Place yourself, mentally, out there with nothing. Really primitive. What happens first?

Geri and I feel that there are five basic primitive skills that one must know to be proficient in the wilds. 1) Friction fire making. 2) Cordage making. 3) Traps. 4) Basic shelters and 5) Tool making, most importantly how to obtain a sharp edge to accomplish some of the before mentioned tasks. With these five basic skills one could be expected to do quite well if placed into a completely primitive situation. We can't forget that in primitive technology everything revolves around basic skills.

We'll begin with the hand drill because in a primitive situation it is often the easiest fire making method for which to gather components. We will need four things, two of which will be the working parts. 1) The hearth or fireboard and 2) the drill. Since what we will produce is not actually flame we will also need 3) tinder into which to place the coal and 4) some sort of cutting edge with which to prepare the hearth and drill.

The hearth and drill can be of the same material but in many cases will not be because of the nature in which things grow. Both need to be dry and dead. The hearth needs to be a somewhat solid board on which you can produce a flat surface larger than the diameter of the drill. The drill

needs to be from 18 to 30 inches long, straight and between 1/4 and 3/4 inch in diameter (fig. 1). It's not always easy to find both on the same plant (yucca being one exception that comes to mind). When we go into our backyard (thousands of acre's) what we most generally use is cottonwood or other soft wood for the hearth and the dried mullein stalk for the drill. (Tulip poplar, sycamore, and willow are others to look for as hearths. . . cattail, willow, sunflower and teasel make good drills.

Yucca, as mentioned before, will work as both.) What we want for both parts is a soft wood. Just make sure that the wood is not too rotted. . . there needs to be some fibrous quality on both parts to cause the necessary friction.

Make the drill as smooth as possible and leave the tip at the bottom (thick end) slightly rounded or even somewhat pointed so that it will have more of a tendency to stay set when you first begin drilling. We like the 1/2 inch diameter drill because it's large enough to be easily grasped in the hands yet small enough to produce the necessary number of RPM's as you twirl it.

Though sizes vary, a drill of approximately 1/2 inch diameter and a fireboard from a stick at least an inch thick is preferred. Split the hearth stick down the middle and if you wish you can square the edge (fig. 2). Make a slight indentation in the fireboard with a knife to hold the drill in place as you begin to drill.

Now assume a comfortable position from which to work. Note where Geri places her left foot on the board

(fig. 3) and runs her twirling hands down the inside of her legs. this is a pretty common position in hand drill fire making. One can put his/her body weight into their efforts more easily simply by leaning into their work. I've



Fig. 1. Cottonwood hearth and mullein drill ready for fire.

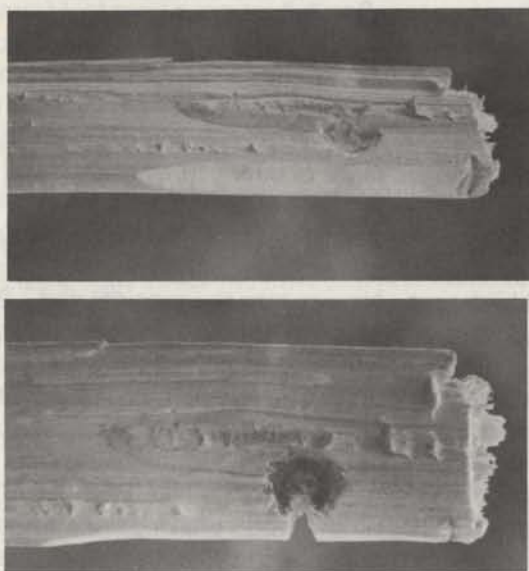


Fig. 2. Cottonwood fire board. Indentation made to begin drilling (top) and the hole begun and notch cut in (bottom).

got a sore back so this is somewhat uncomfortable for me and I use a couple variations. . .one where I sit on my right ankle and hold the hearth with the side of my left foot, but this way my arms end up doing most of the work. Another is to simply kneel on the hearth with my left knee and to work from directly above. What you need to do is find out what works the best for you.

Begin drilling. Go easy at first just to get yourself accustomed to the feel of things. Grasp the drill between your hands at a comfortable height (or the top of the drill) and rub both your hands back and forth. The combination of the speed of the drill and downward pressure applied is what will create the spark, with the downward pressure winning out slightly in importance. Your hand will slide down the drill as you go. . .sometimes it helps to moisten your hands slightly to help them "grip". . .spit on them. The motions that you are now involved in are all important. . .practice until everything operates smoothly. Begin spinning at the top of the drill applying downward pressure. . .your hands will slide down the shaft as you work. When you reach the bottom, grab the drill between the thumb and palm of one hand and transfer the other to the top, gripping it there in the same manner. Bring the bottom hand up and again begin spinning. Work at this until it becomes second nature to you. . every split second that the drill is not spinning the system is cooling off.



Fig. 3. There are other positions that work... find the one that works best for you.

We need first to begin a hole, large enough to hold the drill firmly in position. Cut a notch into the side of the board that reaches to the center of the hole. The dust that you will make as you spin the drill will collect in this notch. . .the hearth and drill will both disintegrate from the friction caused by your spinning the drill. This dust will collect until enough heat is generated to create a spark (fig. 4).



Fig. 4 The smoking pile of dust.



Fig. 5. Cedar Bark stripped from dead tree and shredded for tinder.

Tinder can be a variety of things. We want to make a "birds nest" of soft, fluffy, dry grass or bark into which we will place the coal that will be created and then blow it into flame (fig. 6). A knife can be steel or a sharp blade of stone or shell. Before you begin to drill, place a dry leaf or piece of bark under the notch in the fireboard so as to catch the pile of dust that you are about to make. . . this will enable you to more readily transfer the coal to the tinder.

This entire operation is a lot easier to describe than it is to accomplish. . . which you will soon find out. Your hands will blister. . . in time calluses will develop. Running your hands down the drill with all of your efforts (which are required) ten times is comparable to running several miles. . . or so it seems. Stamina and muscle development are by products of hand drill fire making. Sometimes the coal will develop with only three trips down the drill. . . often ten or twelve trips (or more) are required. The average lies somewhere in between. Having the right combination of drill and hearth will make all the difference in the world. . . some are just harder than others. Under supervision and with the right components we have found that many first timers are successful. Geri and I generally team up and work together. . . as one reaches the bottom the other begins at the top, not allowing the drill to stop spinning at all. And on some field trips we'll use three and sometimes four in tandem. . . especially on damp, wet days.

Once the coal is created, be careful not to get so excited that you knock the whole thing apart. . . it's easy to do. Catch your breath first of all. The coal will remain for some time depending on the size of the dust pile. Some coals have stayed alive for over three minutes. .

.take it easy now. Carefully remove your foot from the hearth, holding everything together with one hand as you do. Then gently separate/loosen the coal from the notch with a blade or twig. . . here is an easy time to lose it. Now you should have the glowing dust pile laying separately on the piece of bark. . . (in rain and wind you need to be especially careful during this transfer). (Note: the longer you let the ember burn, the spark becomes more dense and intense). Drop the coal into the prepared birdsnest. Now comes the magical part. Blow gently at first, directly onto the coal, folding the nest over the top. . . heat rises. It will begin to glow more. . . blow with a bit more force (just be careful not to blow so hard that the coal is blown away). . . like everything else, this takes some practice) manipulating the pile so it is surrounding the coal. . . until it bursts into flame (fig. 6).

Place this under fine wood shavings/tiny twigs/dry grasses/weeds. As this catches place larger and larger sticks on and you'll soon have a roaring blaze. If you have all materials at hand you can be sitting around the established fire in less than two minutes from the time that you begin to drill.

NOTE: Michael Kerwin is doing an in depth study on what is happening in friction fire making. . . how various materials react/types of dust made, etc. If you are interested in corresponding, write him at 512 Albert Street, Kingston, Ontario, Canada, K7K 4M4.

(Editors Note: Mastering skills calls for a high level of mastery of oneself and the available resource. Scott Kuipers, Southwest Outdoor School, has mastered the art of the hand-drill. He is the only person I have seen who can obtain a spark by drilling up the spindle, float his hands so he does not have to pause, or can go up and down the spindle without taking a break. Mike Clinchy is another hand-drill master, carrying a quiver of the most difficult wood combinations he can find, just to test himself.)



FIRE!

THE CIRCLE OF PRIMITIVE TECHNOLOGY

by John and Geri McPherson

We have five priorities. (1) Shelter, from whatever elements threaten us. (2) Fire, (3) Traps, to feed us, (4) Cordage, a thousand uses for a piece of string, (5) Tool making, how to obtain a cutting edge from natural materials at hand, most importantly stone. Without a cutting edge it becomes most difficult to make fire and many traps.

Now, especially in colder climates, clothing would become a major consideration. Large animals, deer and furbearers, can be trapped but the use of a weapon, most notable a bow and arrow, will increase one's odds of obtaining them. Stone working abilities will give us the tools necessary to make a bow. Cordage abilities will allow us to make the string. Fire will allow us to straighten the arrow which we can point with a stone arrowhead.

If things were to work out, in a week or two we just might be set. (If we were to fall into the creek in sub-zero weather with no fire and shelter, we could all chalk it up.) Fire. Shelter. A supply of cordage. A working line of a hundred or so traps. . . producing mostly mice, rats and such things for day to day needs, but maybe also a couple of furbearers such as racoon and coyotes (food, clothing, tools). A supply of stone knives and other working tools on hand. Maybe a deer. . . two? A bow or two and several arrows.

In summary: to be "completely" primitive, one must first be capable of living in nature. . . to survive the initial exposure. There is no sense in knowing how to tan a skin primitively (under the completely primitive scenario illustrated) if one is incapable of staying alive long enough to even get the skin. Under many circumstances one would want, if not require, a camp and fire first. And food (traps) to sustain him or her until the trap or weapon was made and got the deer. Which brings cordage back into the picture. . . and the tool making abilities. . .

It's the circle.

NOTE: This is not a condemnation of integrating the two technologies. Though we are capable of doing any of the above skills "completely" primitive, for over 90% of our projects we use modern tools to varying degrees.



.... COMES INSIGHT

UNDERSTANDING WOOD FIRE

by Mors Kochanski

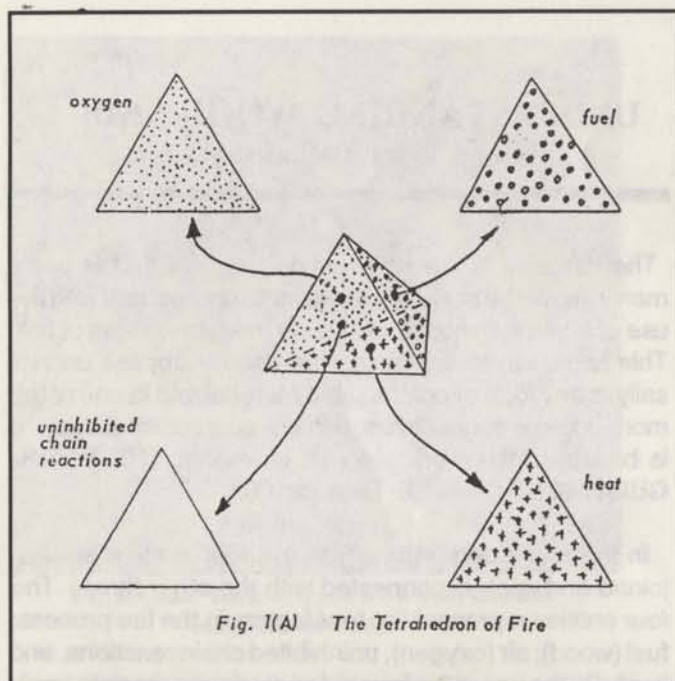
The diffusion flame combustion process that is commonly known as fire is made easier to understand with the use of a graphic model known as the tetrahedron of fire. This approach to explaining fire usually applies universally to any form of combustible material and is one of the more popular concepts used in fire suppression theory. It is based on the work of W.M. Haessler, **THE EXTINGUISHMENT OF FIRE**, Dayton 1962.

In the four-sided tetrahedron the four entities are adjoined and each is connected with the other three. The four entities represent the four factors in the fire process: fuel (wood); air (oxygen), uninhibited chain reactions, and heat. By the use of the four-sided model we mean to imply that each of the four factors are equally related and of exactly the same importance. If any one factor is removed the fire process is impossible.

The fire process goes something like this: When heat is applied to a fuel, which in this instance is wood, the rise in temperature starts a break-down process known as pyrolysis. Some components of the wood are changed into gases and vapors, amongst other things, and become increasingly agitated until they break up into very active particles known as free radicals which are very intent on finding something suitable to latch on to. The free radicals interact amongst each other and go into an uninhibited chain reaction which now involves its own heat source and becomes self-propagating and continues as long as there are properly sized and arranged pieces of fuel to maintain pyrolysis, radical formation, and feed-back heat.

FUEL - WOOD

Surface area or surface-to-mass ration: The ease of ignition and the promotion of combustion are strongly affected by the size of the wood used. The finer the wood, the more readily it will burn, and of course the faster it will burn. If a block of wood with a surface area of a square meter was split so that the resulting pieces would have a total surface area of ten square meters, these would burn up ten times as fast. The split pieces would burn with greater intensity to a higher temperature, but the amount of heat liberated would be the same for both, as this depends on the calorific value of the material. The way to



be assured a good start for a fire is to use adequate fine material to get the intensities of heat and higher temperatures to make the larger sticks burn. Twigs and wood feathers should be about the thickness of a match stick to start with.

FUEL SPACING AND ARRANGEMENT

It is not sufficient that the fuel be of the correct thinness but it has to be properly spaced in relation to the other pieces of fuel so that the desired heat concentration from the igniting source can be achieved, oxygen has access to the combustible gases that evolve, and when the fuel is burning the adjacent fuel is involved to extend the fire process. Experience will eventually determine that you can not squeeze your fuel too close together or have it spread too far apart.

In lighting a fire, if the kindling is too close together the mass of the material in the kindling absorbs too much of the match's heat before it can be effective, and it physically obstructs oxygen access so that the oxygen combustible vapor mixture is too lean to catch fire, producing only smoke.

It is also helpful to light your kindling well off the ground. The coolest air is near the ground and there is more obstruction to the flow of needed air.

The best fuels are ones that are high in carbon and

hydrogen content. The most common elements found in all living things are carbon, hydrogen, oxygen and nitrogen. Oxygen is not a fuel but it supports combustion. Nitrogen is not a fuel and neither does it support combustion; in fact it tends to interfere with oxygen. Combustion will cease when the atmospheric oxygen level drops below 15%.

THE COMPOSITION OF WOOD

Wood is composed of three major constituents: remicellulose, cellulose and lignin. Their molecular structure puts them in a class of chemicals known as polymers. A polymer is a relatively large molecule that is made up of a number of repeating (poly) smaller units called mers.

When wood burns the cellulose participates mostly in producing the visible flame and the lignin supports the major part of the glowing.

The cellulose is the main structural part of the cell wall of trees and plants. Wood has such an intricate structure, creating such an enormous surface area, that a cubic centimeter of wood spread out would cover an area of ten million square centimeters.

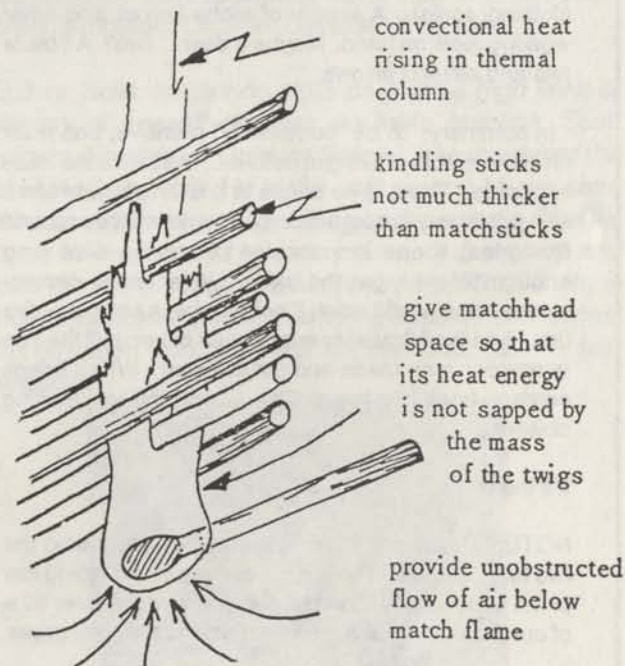


Fig. 2 Diagrammatic sketch of how a match should be used

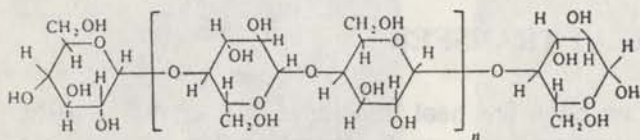


Fig. 3 The molecular structure of cellulose where it is in the order of 5,000

Wood heated up to 200 degrees Centigrade dries out, undergoes slow pyrolysis (break-down through being heated) evolving some carbon dioxide, formic acid and vinegar. Some heat is given off. At temperatures between 200 and 280 degrees Centigrade wood slowly undergoes pyrolysis with much the same evolution of gases as mentioned earlier and the wood is reduced to charcoal without flame. From 280 degrees up to 500 degrees Centigrade the mixture of gases are combustible and are readily ignited.

Wood will readily ignite from a flame at 380 degrees Centigrade. Spontaneous ignition occurs at about 545 degrees Centigrade towards the end of pyrolysis, as the emission of gas decreases and air can reach the hot charcoal. Above 500 degrees Centigrade carbon monoxide and hydrogen burn as a non-luminous flame and the charcoal burns until white ash is left.

Studies have shown that the average composition of the evolved volatiles remain constant throughout the pyrolysis. The calorific value was constant at about 4 Kcal per gram.

The yield of charcoal from wood is about 16 to 20 percent and the calorific value for charcoal is about 8 Kcal per gram.

Cellulose, which composes about 50% of wood, volatilizes rapidly around 340 degrees Centigrade and exhibits typical polymer characteristics by degrading into nearly two hundred different chemical compounds. The situation is rather complex as numerous simple molecules form and diffuse to the surface where mixing with oxygen occurs and subsequent ignitions take place if the temperature is at or above the ignition point. All woods have similar ignition temperatures despite appreciable variations in their ignitabilities. Cellulose products burn without melting to form a char.

Rapid heating produces little charcoal, much tar and highly inflammable gases. Some of the compounds evolved through pyrolysis are very toxic, probably accounting for the headaches one often gets by breathing smoke, especially from black spruce and pine. Some of

the compounds you are likely to find are:

carbon monoxide
hydrogen cyanide
carbon dioxide
formaldehyde

acetaldehyde
butraldehyde
nitrogen dioxide
acrolein

SMOKE

Smoke is mostly composed of unburned carbon particles that are less than one milimicron in diameter and can be suspended in a gas. Anything larger would be considered a dust particle. Smoke is composed of clouds of particles, which when taken individually would be invisible, but taken as a cloud scatter light and are opaque to visible light. Smoke results when carbonaceous materials (and hydrocarbons) are incompletely burned due to a lack of heat or a restriction in the oxygen supply, and unreacted carbon molecules form. Soot is formed when these molecules lump together. When other intermediate gaseous products form simultaneously with the carbon, they may condense on the particles to produce uniquely acrid, toxic or irritating smoke. In a confined space wood smoke alone can produce lung damage and be lethal long before the heat of the fire would have any effect.

When a fire is producing excessive smoke, it is likely due to the condition of the fuel. It may be too green or too wet and so much heat is being used up in drying that there is little left over for volatilization. The solution is to add good dry fuel on top of the smoky fuel and the products of incomplete combustion will be more completely burned in the improved fire.

OXYGEN

The atmosphere generally contains about 20.9% oxygen and about 79.1% nitrogen. In the presence of oxygen almost all matter undergoes a change which is often termed oxidation. Oxidation can be as slow as rusting or as rapid as an explosion. With an increase in temperature, the rate of oxidation also increases. For each 10 degrees Centigrade rise in temperature the activity of molecules doubles. This accounts for the ease which a fire may be made on a summer's day at 20 degrees Centigrade as compared to minus 20 degrees Centigrade on a winter's day.

If the temperature of a fuel is raised continuously it will eventually burst into flame (the production of heat and light), an indication of its rapid reaction with oxygen. This is termed combustion. The rate of combustion is dependent on the ability of the molecules of fuel and oxygen to mix

together in the appropriate proportions in spite of the interference from the nitrogen in the air.

In still air a fire will draw in surrounding oxygen through the circulation created by the hot convection currents (thermal column) rising above the fire. A fire suspended off the ground will burn better than one on the ground. For this reason a fire built on a mound will burn better than one in a hole.

A strong wind will force far more oxygen on a fire than convection draw could provide and thus make the fire more intense.

The thermal column formed above a flaming area establishes an airflow so that the oxygen is brought to where it is needed for mixing. The mixture thus formed has a flammable range within which it will burn. If the mixture is too lean in oxygen or too rich in oxygen for a certain concentration of fuel vapor, no combustion will result even if an open flame is present.

The too rich in oxygen phenomenon is often encountered in lighting a wood stove. When the door is open there is usually an imperceptible draw through the stove up the chimney. When the fine kindling is lit and the door kept open the fire does not seem to want to go. When the door is closed and the draft is reduced the kindling roars into flame.

It is interesting to note that when the oxygen supply, for any reason, drops from its 20.9% to about 15% combustion ceases due to the smothering action of the nitrogen in the air.

IGNITION CONTINUITY

Once combustion starts and is given ample oxygen, it becomes self-supporting:

- a) as the fuel burns it creates more heat.
- b) the increase in heat raises more fuel to its ignition temperature.
- c) additional oxygen is drawn in by the convective column of heat forming above the fire. In a raging conflagration a windstorm can be observed drawing air to the burning source.
- d) the oxygen increases the rate of burning and more fuel becomes involved.
- e) this chain reaction continues until the fuel has been consumed. This is known as a fuel-regulated fire. Outdoor campfires are fuel-regulated in that you make it big or small by adding or withholding the fuel. In a stove the fire is oxygen-regulated, in that you can vary the air supply to make the fire burn slower or faster.

HEAT TRANSFER

In an open fire heat transfer is carried out by either convection (flame created thermal column) or by radiation, with conduction generally being insignificant.

HEAT TRANSFER BY CONVECTION

Generally, heated air or other gases produced by the burning process, being lighter than the surroundings, flow upward to warm or to dry and fuel above or even bring it to a kindling temperature. This transfer of heat through a circulation medium is termed "heating by convection". It is important to realize that when fuel is wet or green it must be put on a fire so that this convective heat can dry it out in anticipation of when it is needed.

HEAT TRANSFER BY RADIATION

Any hot object sends out invisible infra-red waves that warm anything that intercepts these waves (if something is white hot it can emit ultraviolet rays that are even hotter, but this likely will never be encountered in a campfire situation). When you stand near a fire a wind may waft some convective heat your way but it is the radiant heat you should most benefit from. It is much like the warmth that we feel when the sun shines on our skin or on a dark item of clothing. Radiant energy can be blocked by a reflective material that bounces back these rays. A dark surface absorbs the rays and a light surface reflects them.

Excerpted and reprinted by permission of the author from WILDERNESS ARTS & RECREATION, Vol. 3 No. 4. Mors Kochanski is the author of NORTHERN BUSHCRAFT and is a master of the skills used to live in the Boreal North. His research into the basics of technology related to outdoor living, has provided a number of important insights.

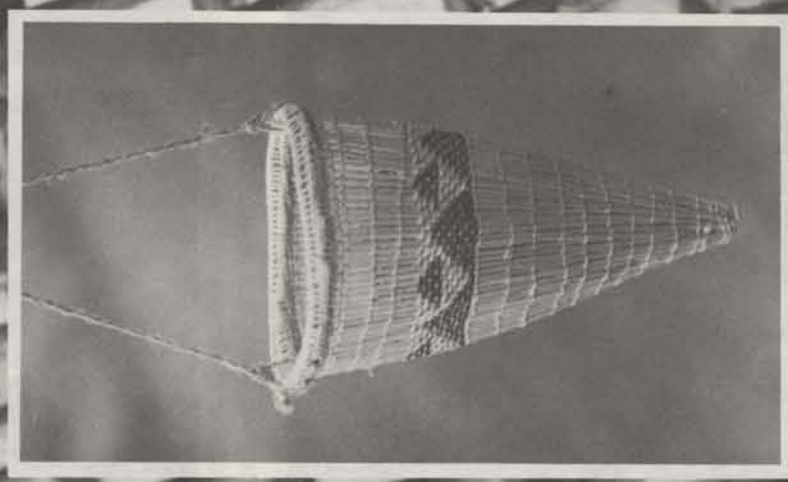
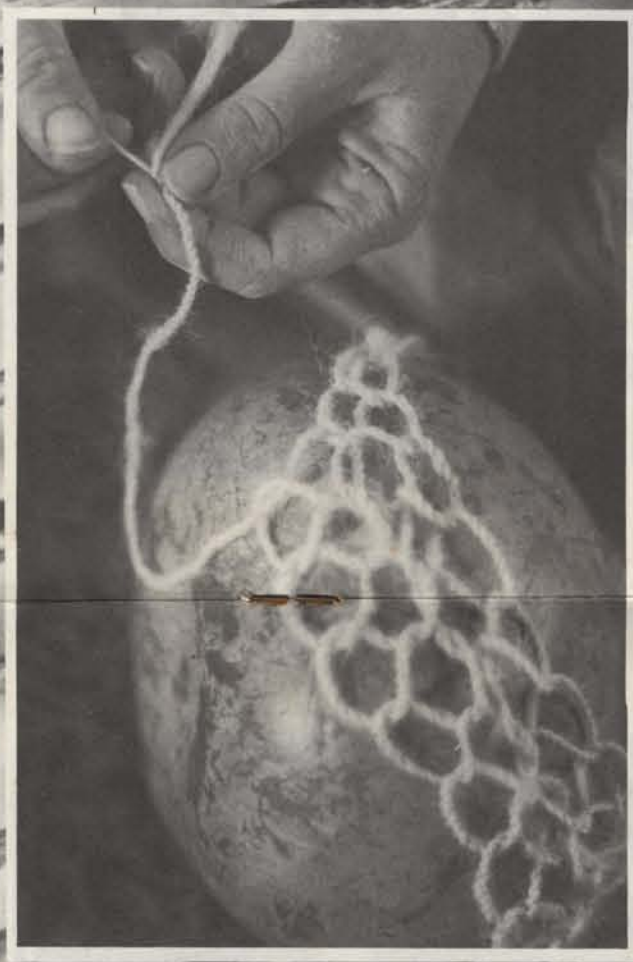
Pages 23-26

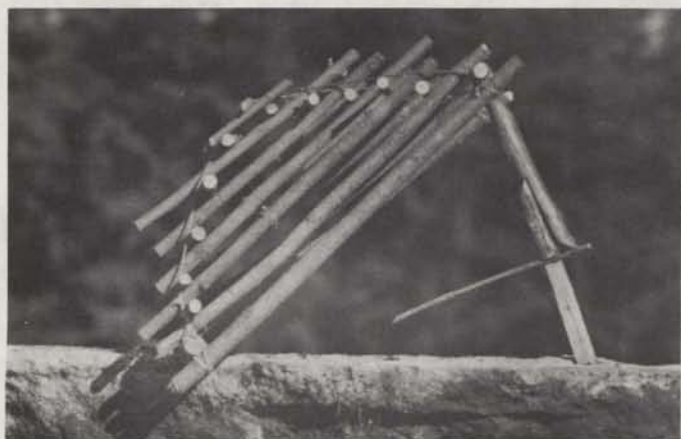
Background photo on pages 24-25 of twined basketry by Tim Baker

Photo of stone tools on page 26 by Tim Baker

All other photos and layout by John McPherson









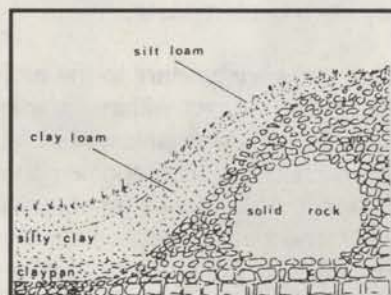
INTRODUCTION TO CERAMIC REPLICATION

by Maria Sidoroff

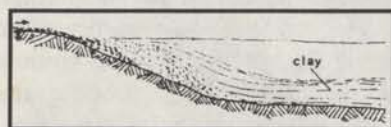
Archaeological ceramic replication, information must be obtained from many sources. Ceramic technometric procedures such as X-ray diffraction, spectrographic analysis, petrography, neutron activation, the use of binocular microscope, and the scanning electron microscope are some laboratory techniques that provide quantitative information about ceramic artifacts. This includes paste composition (clay and temper), as well as method of manufacture and decoration, atmosphere and temperature of the firing. Additional information can be obtained from the project report of the field archaeologist who evaluates the relative placement through time and space of the artifact. Typologies and assemblages of ceramics from the site are constructed, and relationships to material from other sites are evaluated. Ethnographic accounts of contemporary traditional potters can offer technological information about paste composition, construction techniques, firing methods, breakage patterns, and the trading and function of ceramics within a society.

The search for natural clay should be concentrated along cuts in the surface of the earth such as: rivers, streams, landscape or construction excavations, eroding hills and cliffs. After a good rain, the clay appears quite shiny in contrast to the duller surface of the larger grained soil. Clay is formed from the decomposition of igneous rock into tiny particles during ancient geologic times and naturally occurs in most parts of the world. **Primary clays** (Kaolin and Bentonite) remain at the place of origin and have larger particle size than **secondary clays** (earthenware and stoneware) which are transported by erosion. The smaller particles size of secondary clays and the minerals gathered in transport create conditions of greater workability. These clays are also the most abundant.

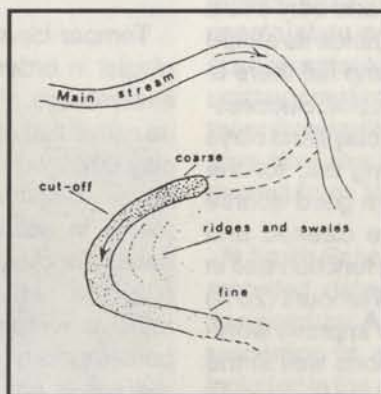
Excerpts from a paper presented by Maria on May 9, 1990 at William Patterson College, Wayne, NJ. Archeology Across the Curriculum Symposium.



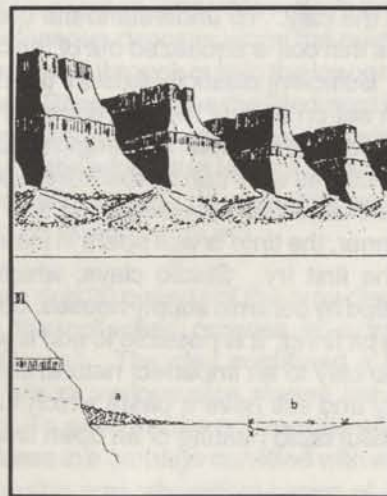
Humid area weathering profile.



Graduated lake bed deposition.



River Oxbow distribution.



Arid land alluvial fan and deposits.

Reprinted by permission from **NATIVE CLAYS AND GLAZES FOR NORTH AMERICAN POTTERS - A Manual For the Utilization of Local Clays and Glaze Materials**, by Ralph Mason. Timber Press, Portland, 1981

A hand ax or a shovel can be used to scrape away organic material mixed on the surface of the clay deposit, and to hack out chunks of the most pure clay. Sometimes, the clay is moist and needs only to be wedged (a type of kneading that re-aligns the clay particles and eliminates air pockets) and then used immediately. Other clays require blunging (to knead the clay in water to make it more workable). Exposed clay veins in an arid climate can be hard and dry but will soften quickly when set in water. Some clays function better if they are sun dried, ground into a fine powder and re-moistened. This procedure is common when a fine, thin walled pot is made and then decorated with a slurry of clay (sometimes mixed with mineral pigments) called slip.



A simple test in the field can determine the workability of the clay. To understand the quality of plasticity, a pencil thin coil is squeezed out of the clay and bent into a ring. Sufficient plasticity exists if the ring holds its shape when set on end; if the ring does not slump flat there is also good self supporting strength to build a pot. Successful functional ware can be made from poor clays and clays can be adjusted by weathering and aging but, for the beginner, the time is well spent in locating a good source for the first try. Studio clays, which are cleaned and blended by ceramic supply houses, do not function well in open pit firing. It is possible to add a small amount (20%) studio clay to an imperfect natural clay to improve workability and still have a paste which functions well in the stressful rapid heating of an open fire.

The next test at the source involves an egg size lump of clay formed into a small cup. The ease with which the walls are thinned and self-supporting strength of the cup can provide important information on the potential of the clay. After the cup is air dried, a test firing can be conducted in a campfire, home fireplace, or charcoal grill.

These are fires which typically have an oxydized atmosphere, that is, a free flow of oxygen and duplicates a firing atmosphere common among pre-industrial cultures for functional earthen ware. The pot will harden and turn buff or reddish according to the amount of iron in the clay) after a few hours in the fire. Often there will be dark smudges somewhere on the pot - "fire clouds" where carbon was absorbed into the clay. These smudges will not wash off and can only be removed by re-firing. Many potters value the placement and shape of these "fire clouds." In the completely oxydized atmosphere of an electric kiln these spots never occur. A reduced atmosphere in a smokey firing with dung, grass, peat, or sawdust for fuel, provides a black or grey pot - sometimes with a red "fire cloud" where a flash of oxygen occurred.

Usually, additions are made to the clay to create a paste for pottery fired in an open pit or simple kiln. Purposeful organic or mineral additions to the clay are called temper. Sometimes temper is naturally occurring, such as sand or fine volcanic ash, and no more need be added. The purpose of temper is to improve the workability of the paste, to prevent cracks in the pot while air-drying, and to counteract thermal shock to the pottery during firing and use. Technometric analysis can indicate the type of temper used in ancient pottery. There is a wide variety of documented temper ranging from organic materials such as blood, bone and goosedown among the Inuit to crushed quartz and shell among the Woodland Indians. Once a good source of clay has been located and tested, a large supply can be gathered. Temper is wedged into the moist clay in batches with proportion of about 1 part temper to 4 parts clay for workable paste.

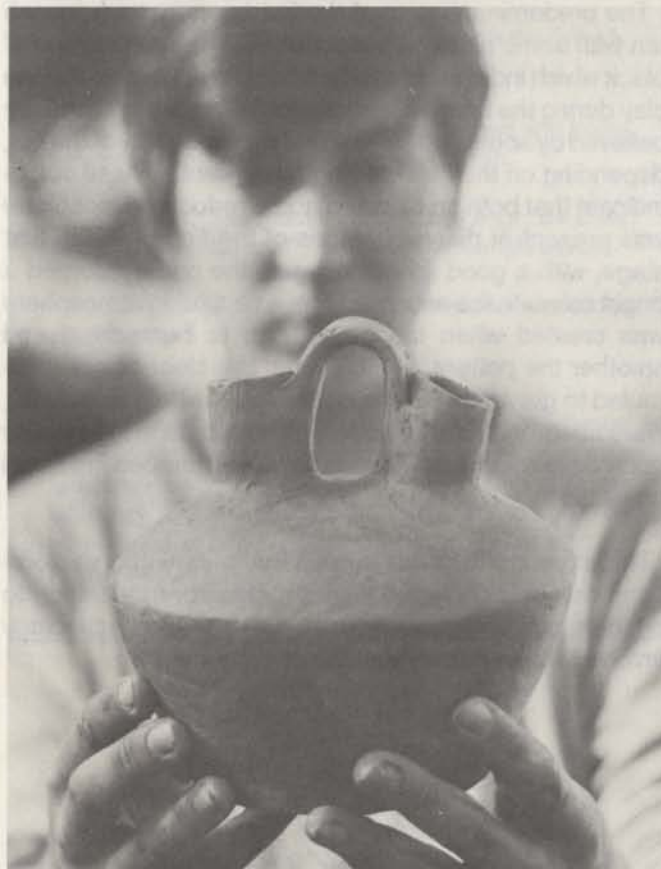
Temper identification can be important to the archaeologist in order to place the artifact within a particular assemblage. However, some fine organic material such as cattail fluff or milkweed fluff can decompose in the wet clay during aging and leave no evidence for chemical or physical evaluation to describe. For replication experiments in association with an archaeological site, the search for clay, temper and fuel should concentrate within a 2 mile radius of the excavation where the ceramic artifacts were retrieved. The conservative attitudes of contemporary traditional potters have been well documented in ethnographic accounts and while sources of raw materials are often kept secret among potting families they are known to continue to utilize these same resources for generations.

For successful replications of handbuilt earthenware, too little emphasis has been put on the importance of the pottery-making skills of the experimenter. An individual

with limited experience with clay will have a difficult task making the simplest pot. The ease with which an experienced potter can hand-build a pot comes with years of experience. One way to perfect technical skills of pot making is to take a ceramics course, attend sessions in a private studio or study with traditional potters in their own village.

A studio that concentrates on instruction on the potters wheel can provide the opportunity to understand the fundamental properties of clay. The instructor may be interested in hand building and open pit firing, but due to public interest, limits instruction to modern ceramic methods. Such a potter can be the greatest ally in the search for natural clay, preparation of a functional paste, learning technical skills, and providing support facilities.

Once we come to the most challenging phase of all - the application of intense heat to the air-dried pottery. Even the most experienced potter feels excitement, apprehension and anticipation at each firing. In my next article I will discuss types of fuel, causes of success or failure, what to do with broken pots and how to cook in great pots.



Primitive process success by Pegg Mathewson. Wedding vase was later painted and pit fired at Rabbit Stick Rendezvous. See Page 25

... COMES PRACTICE

WHAT'S THE COLOR OF YOUR CLAY ?

by Maria Sideroff

On a clear October morning at 5:30 a.m., a small group of sixth graders and their art teacher gather outside their school on a dirt road along the athletic field. The pre-dawn chill draws them close around a camp fire and unites them in a special purpose. Two weeks before, these students discovered clay on the school grounds in a trench excavated by workmen. Within a narrow area (3 feet wide, six feet deep and 20 feet long) three types of clay were uncovered, each a distinct color; one brown, one grey and the third was the blue-green color of a robin's egg. The students tested the clay types before digging large amounts. Small samples were kneaded, rolled into a coil the thickness of a finger, and carefully bent into a ring. The brown clay cracked and crumbled due to excessive sand, but the grey clay bent easily and held the ring shape. The beautiful blue-green clay, embedded within the grey, was the most workable of all, but as we tried to gather more the vein ran out.

According to an archaeologist familiar with the geology of New Jersey light blue, green, and yellow clays are frequently found in cretaceous deposits along the southern coastal plain, and exposed through cuts in the topography such as a stream bed. Ramsey lies on the Piedmont in the northern part of the state where cretaceous deposits are more frequently grey; therefore, the lens of blue-within-grey clay can be considered to be a slightly unusual deposit from 130 to 70 million years old.

At Smith School, we dug 20 pounds of the grey clay and recorded data on the collection process in a format designed by Ann Cordell. The clay contained a large proportion of grit (bits of various size stones naturally included in the clay). To separate the grit from the clay we hand-blunged the mass in a garbage can filled with water. This involved squeezing and smoothing lumps of compacted clay under water into a thick, creamy slurry. Allowed to remain in the container for a few days, the mixture settled into three distinct layers; water on top, clay particles in the middle, and grit on the bottom. After the water was poured off, the clay was scooped onto an

absorbent surface to air dry to a workable consistency. The grit was left on the bottom of the container. After the clay dried and stiffened slightly, it was wedged and stored in an airtight container.



During my seventeen years as Art Teacher at Eric Smith Middle School, I have worked with many clays from the immediate area and knew from previous experience that the grey clay, once cleaned, would need additional preparation to improve workability. The clay exhibits poor self-supporting qualities, and is very difficult for the students to use for coil built pottery. Long term aging was out of the question, due to the school schedule which demanded that the entire lesson be completed within a few weeks. In earlier experiments, I learned that low fire earthenware clay from a ceramic supply house blended well with the natural clay and a small amount greatly improved workability.

Each student was given one handful of studio clay to mix with three hands-ful of the cleaned grey clay to make their pot. Some crushed pottery and some mica were sifted into the mixture for temper. Each student made a pot,

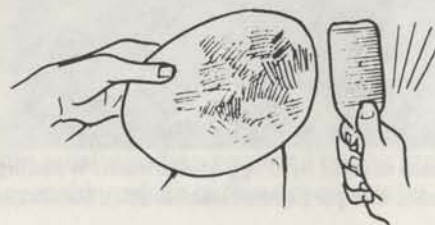
smoothed the coils with a mussel shell, and paddled the exterior with a flat stick wrapped in cedar bark cordage. Since the focus of the unit was New Jersey Native American pottery, the students analyzed typical Lene Lenape incised geometric designs. They decorated the collars of their pots with these designs using a sharp stick, stone, or shell. After drying indoors for one week, 37 pots were now set to warm around the campfire. One student was given a clipboard and pencil to record the stages of the firing.

.....

Evaluation of the firing: Out of 37 pots there were 35 completely well fired pots; one pot had a rim crack and another had a "spall" that popped off at the bottom. Spalls are usually disc shaped patches of clay that separate from the thicker sections of exterior walls of the pottery during firing. Upon examination, it was determined that steam had built up around a pocket of air from improperly wedged clay. A very rapid rise in the firing temperature can also produce spalls. All of the pottery is quite functional in spite of the spall that blistered off since the hole has not gone all the way through the wall.

The predominant color of the fired pottery was greyish tan with some black "fire clouds". These are patches of black which indicate where carbon was absorbed into the clay during the firing. They cannot be washed off and are believed by some potters to enhance the beauty of the pot, depending on their shape and placement. These colors indicate that both an oxidized and a reduced atmosphere was present at different stages of the firing. In the first stage, with a good flow of oxygen, the pottery burned a bright color. In the second stage, a reduction atmosphere was created when the fuel began to burn down and smother the pottery. At this time, the clear colors were muted to greys, and some carbon deposits, "fire clouds", were absorbed into the pottery. The robin's egg blue clay pot fired to a light tan with one large egg shaped fire cloud on its side.

This experiment demonstrates that meaningful explorations can be conducted within a classroom situation to deepen our understanding of the art and technology involved in the pottery making of early man.



6:30 A.M. The first fire has burned down, hot coals are raked into a 30" wide circle around the original campfire area, the heated pottery is placed on the warm earth where the original fire had been.

6:40 A.M. Fresh fuel is placed on top of the hot coals and a circle of fire blazes around the little pots crowded in the center.

6:45 A.M. The morning sky brightens, many more students arrive; scouts are sent into the nearby woods to gather more fuel for the full blaze of the firing.

7:25 A.M. The circle of fire has smoked* more moisture from the pottery in the center. Now we build a teepee of the wood on top of the pots. We push the burning logs from the outer circle of the fire inward to the edges of the pile of wood in the middle that covers the pottery. The edges begin to catch fire almost immediately.

7:40 A.M. The fire on top of the pottery is in full blaze. Now we relax, have a cup of cocoa and peer into the flames to catch a glimpse of a pot glowing bright orange from the heat.

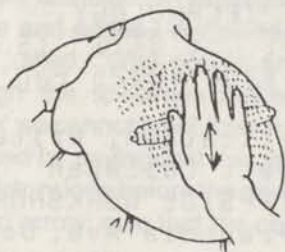
8:00 A.M. Probable temperature within the firing is 800 F to 1000 F at this time.

8:15 A.M. Most of the fuel has burned and some pots are exposed through a blanket of ash.

8:19 A.M. The morning school bell rings, we enter the building; reluctantly we leave the campfire area.

9:30 A.M. One class returns to the site to remove the cool pottery.

* Clay contains two types of water; capillary bound water that partially evaporates during air drying and continues to be released through the first phase of firing (water smoking), and chemically bound water that is drawn off by the heat of firing at temperatures above 600 C (1100 F)



The wide range of color in raw clays is due to organic and mineral inclusions, especially the oxidized iron compounds which impart red and brown colors to the unfired clay. White clay is relatively free of impurities, and the color of grey/black clays are influenced by decomposed organic matter. If tested in a laboratory, the robin's egg blue clay would probably contain the typical impurities of grey clay - that is some iron along with organic matter. The unique combination of these is what determines a particular color.

It is both the impurities and the atmosphere in the firing that determine the appearance of fired pottery. The color of the clay alone is not a reliable prediction of the color of the finished pottery, but must be considered in combination with an understanding of the difference between an **oxidized firing** or a **reduction firing**. Fully oxidized pots will have a bright clear color that results from a free flow of oxygen that completely burns the fuel, consumes the organic matter in the clay or soot from the fuel, and intensifies the redish colors of the iron oxides. In a reduction firing, the flow of air is restricted by smothering the fire with organic materials such as grass, pine needles, or dried manure to create reducing gases, soot and smoke. The organic material in the clay does not burn out, carbon is absorbed into the clay and the finished pottery is grey or black. Some simple generalizations developed by Anna O. Shepard can be made to indicate the relationships among colors of fired pottery and raw clays.

Pottery	Clay
White	White Neutral grey Black
Buff	Cream Yellow Neutral grey Black Grey-brown (rare) Brown (rare)
Red & Brown	Yellow Red Brown Greys Black
Dark Grey & Black	All Colors

(Ceramics for the Archaeologist, 1966, p.17)

CLIFFSIDE WORKSHOPS

In an effort at serving the growing army of prehistorians seeking hands-on instruction in various primitive technologies, we have created Cliffside Workshops. As of 1990, we are offering a total of five sessions. Two sessions are in flintknapping, two are in primitive technology (which includes flintknapping and archery), and one is in traditional archery. Callahan has taught one of these topics or the other every year since 1971.

Basic Flintknapping is a weekend course designed to cover basic knapping strategy. For both beginners and knappers of limited experience or anyone with limited time.

Flintknapping Master Class is an intensive, week-long course for students of some experience. Not only are the basics covered in depth but extensive one-on-one instruction and personal consultation is offered in specialized topics. Not restricted to masters, of course, but for those who'd like to work toward master status in time.

Primitive Technology is a week-long course in which students may choose one of a variety of topics and follow it through to completion. Topics include Indian bowmaking, arrow-making, pottery, fiber technology, stone axe making, or flintknapping (other topics by special request). Because of the breadth of this course, students will be able to look over their shoulders and observe the several other topics under way and so pick up knowledge they may later investigate on their own. In fact, in any session, during "down time," participants may practice any skill of their choosing, with the instructor or T.A. helping such as they can.

Traditional archery is a weekend course covering both Classic Traditional and Native American archery. Dr. Callahan's 45 years experience with the bow guarantees intensive sessions in the making of self-wood bows, precision wooden arrows, or bowstrings of Flemish linen or natural fiber. A 32 stake archery range is available free. OFFICIALLY SPONSORED BY THE SOCIETY OF TRADITIONAL BOWMEN. (Members receive rebate from STB)

In every session, each participant works at his own pace and level of accomplishment. Competition is shunned. The instruction may be dead-serious but the overall tone is fun for all concerned.

About 1/4 to 1/3 of our students are repeaters, returning for a refresher course or to investigate different topics. We can't be all bad.

All instruction takes place in or around Callahan's personal wooded home, Cliffside. His wife, Linda Abbey, handles meals, registration, and keeping the wheels running smoothly. During the evenings, after the cookouts, students have the opportunity for campfire discussions or the viewing of slides, films, or videos of relevant technologies. Students are encouraged to take advantage of Cliffside's large library and numerous recreational facilities.

Though each student is of equal importance to us, our workshops have been enriched by including such notables as Jim Riggs, leading aboriginal skills teacher, and two of his own teaching assistants, Brian James and Marie Cuillerier (Ayla); by David Wescott, Director of the Boulder Outdoor Survival School, and a number of his instructors and students; by Steve Watts, Director of the S.E. Native American Studies Program and a number of his students; by numerous students of Tom Brown; and by instructors from the Jamestown Indian Village, and numerous nature centers, universities, and museums from coast to coast. And lots and lots of just plain folks. Our T.A.'s have included Brian James, Mike Stafford, and Brian Ludwig. And a growing number of my students are doing the knife shows: Tony Williamson, Mike Stafford, Greg Nunn, Craig Ratzat, and Brian James to date.

1991 SCHEDULE

TRADITIONAL ARCHERY

Session 1: May 25-27 (Sat-Mon)

3 days-\$150 + \$25 reg'n fee.

Session 2: May 28-31 (Tues-Fri)

4 days-\$200 + \$25 reg'n fee.

Session 3: May 25-31 (Sat-Fri)

7 days-\$350 + \$25 reg'n fee.

BASIC FLINTKNAPPING

Session 4: Jun 15-16 (Sat-Sun)

2 days=\$100 + \$25 reg'n fee.

ADVANCED FLINTKNAPPING

Session 5: Jun 17-21 (Mon-Fri)

5 days-\$250 + \$25 reg'n fee.

BASIC & ADVANCED FLINTKNAPPING

Session 6: Jun 15-21 (Sat-Fri)

7 days-\$350 + \$25 reg'n fee.

PRIMITIVE TECHNOLOGY

Session 7: Oct 6-11 (Sun-Fri)

6 days-\$300 + \$25 reg'n fee.

For application, write to:

Errett Callahan
CLIFFSIDE WORKSHOPS
2 Fredonia Ave. Dept. PT
Lynchburg VA 24503



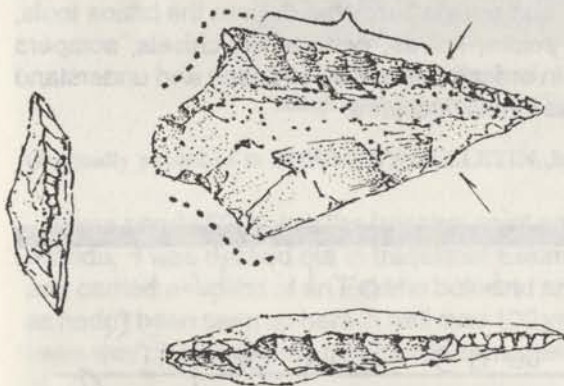
INSIGHTS

Comments from the Board

ARROWHEADS, TOOLS, FUNCTION AND INTERPRETATION

By Jack Cresson

Child and adult alike invariably exclaim, when seeing ancient stone relics, no matter their size or shape, "look 'arrowheads' "!! The term 'arrowhead', magic, exciting, synonymous with what has come to be known as 'stone tools', and the object of every school boy wish, has been all too abused through the ages provoking confusion and misinformation.



resharpening patterns suggesting its use as a cutting or perforating tool and not as a projectile, therefore it couldn't be an 'arrowhead'. Arrowheads are projectiles. This implement was either a knife or drill or both. It was also a biface tool, an implement shaped on both sides or faces, hence biface. A term much better suited to embrace the wider array of functions known to occur in prehistory. Even earlier in prehistory more and more evidence indicated that 'knives' are the dominate chipped stone tools, serving as a wide variety of cutting and piercing tools, ultimately to be recycled into projectiles. I further explained, by using the knowledge and experience of the past and the information provided by archaeology a much more detailed story of the history of artifacts and men is possible. The lesson of that day to one twelve year old boy, about the meaning of artifacts and the stories they can tell continues still as reminders that things are not always what they seem.

The importance to understanding prehistory lies in the way we can more accurately interpret its parts. Many parts include the climate, landscape, soil, vegetation, wetlands and mineral deposits, but most of all man's effect upon them. Other important parts comprise cultural

On a days outing with my young nephew, exploring along a creek terrace, enjoying all the wonders of the natural surroundings of southern NJ we came upon an eroded stream bank. There lying on a sandy patch recently washed from the bank was a wonderful surprise to both of us, a fine quartzite stemmed point. My nephew immediately pronounced it an 'arrowhead'! I said, "Lets look and see." After a closer examination to diagnose the style and read its shape and edges I corrected my nephews assessment. He asked, "Why not an arrowhead?" I explained, although the specimen looked like others called 'arrowheads' we cannot label it such until we know for sure. I continued by saying that this implement was from a time in prehistory long before the development and use of the bow and arrow; also that the object exhibited



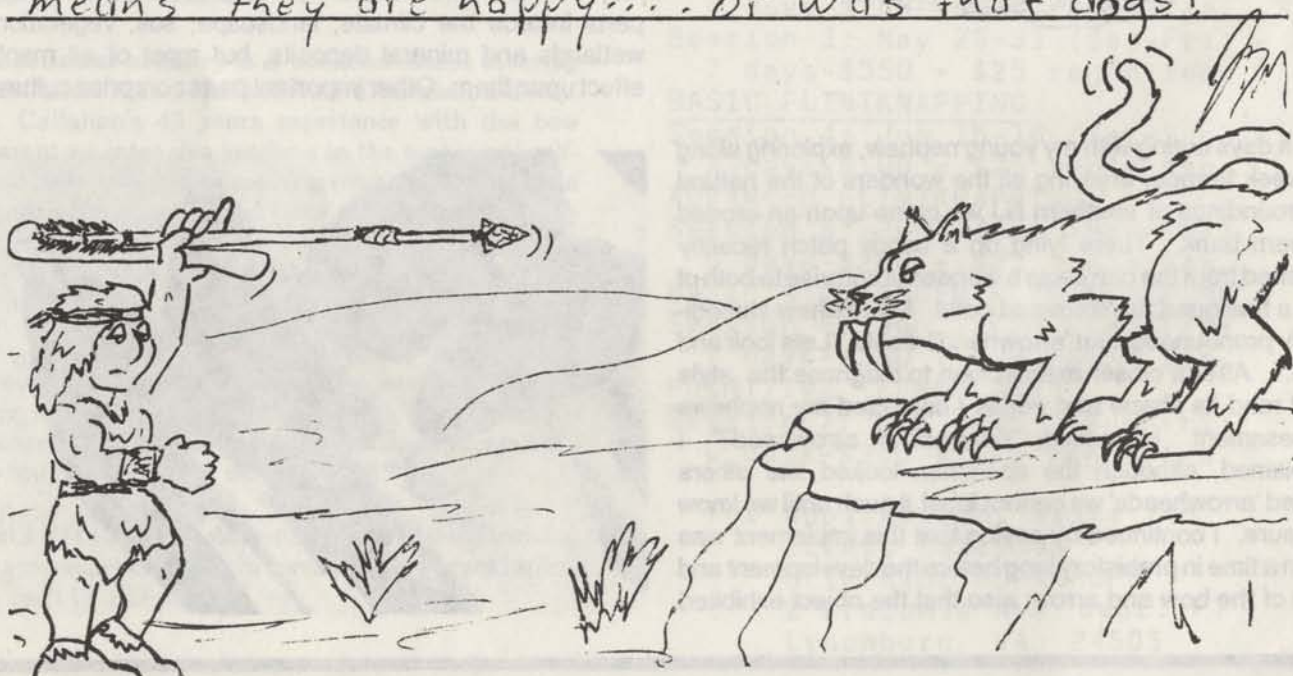
hardware and debris; the products, by-products, recycled items, and waste from cultural activities. These comprise the artifacts of the past, fashioned from stone, wood, horn, shell, fiber and clay. Yet the bulk of the past is shaped by artifacts of stone. Stone tools and implements have since the beginning of Man's study of his past, played an all important and increasing role to understanding and interpreting that past.

However, to this day our perceptions, ideas and understanding of the use and function of stone tools has been and continues to be biased by both scholars and laymen alike. The identification and interpretation of stone tools based only on typology, characteristics of size, shape, symmetry and raw comparison to extinct and extant stone age cultures sometimes reflects a distorted view of the stone age. Under this system of analysis most pointed, chipped stone objects with noticable hafting features are labeled projectiles. . . this is manifest in countless articles, site reports and point typologies in print today. Given the tremendous quantity and variety of pointed, chipped stone implements found in North America and throughout the world these implications only suggest that stone age peoples were either hunting or making war. A truly ridiculous analogy and the weighted duality of conjectured lifestyle is totally erroneous based on an improper

assessment of the use of pointed stone tools.

What is missing in this scenario is 'function', a category that has more recently been applied to the interpretation of these cultural items. By analyzing artifacts using a functional approach a clearer, more distinct picture of the use-life of an object is possible. The use-wear left behind on the edges and surfaces of artifacts often exhibits many episodes of use, as well as sometimes very special functions and provides a more accurate, insightful interpretation to examining the past. Questions concerning how stone tools were processed and maintained; What substances were used with them?, What substances were they used on?, How many functions did they perform?, How long did they last?, Why did they break and when were they discarded?, all emerge as viable lessons to be learned from looking more closely at stone tools. If we are to push the limits of knowledge in stone-age prehistory, a much finer analysis of stone tools is necessary employing both typological and analytical approaches. But first we need to change our concepts and attitudes about how we perceive 'stone tools'; to transform and realign 'arrowheads' into the biface tools, projectile points, knives, perforators, chisels, scrapers and such in order to more fully embrace and understand the past as it really occurred.

"Let's see now.... when they wag the tail that means they are happy.... or was that dogs?"





ARCHERY IN THE ARCTIC

BY Errett Callahan, PhD



Fig. 1. Test shooting the final product at -50 C in front of an igloo at Sanikiluaq, built for the village cultural program. Temperatures affected shooting technique only minimally.

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It was nearly 50 below the freezing point as I stepped outside. I was decked out in traditional Eskimo clothing and carried a replica of an Eskimo bow and arrows such as hadn't been seen up here in well over 100 years. Here I was way up in the Arctic trying to do some test shooting.

Why am I doing this to myself, I ask, as the 10-15 mile-an-hour winds create a wind-chill close to 70 below freezing, and the air I suck into my lungs turns from ice crystals to ice water? I, a Southern boy from Virginia, who had rarely felt cold much below freezing, suddenly found myself on a lonely, ice-locked island just under the North Star. I felt very far away and completely out of my environment. It seemed as if I had been beamed up to a distant planet, a world devoid of any color except white. Yet I was exhilarated, not alienated, as I crunched my way across the hollow-sounding but tightly wind-packed snow. I walked past the igloo (Figure 1), where I had slept so warmly the night before, past the equally efficient, ancient sod-house and skin tent reconstructions which were insulated well within 6-8' snow drifts. I wandered out over the low hills to a meadow of white for some long-awaited bow shooting.

Preparations for this event had been in the works for over a year. This was part and parcel of a teachers' conference on aboriginal skills put together for selected Baffin Island area school teachers of Canada's Northwest Territories. This conference was masterminded by John Jamieson, principal of Nuiyak School at Sanikiluaq, a community of 200 or so Inuit (Eskimos) on the Belcher Islands in the Hudson Bay. Jamieson, with unprecedented support from the Baffin Division Board of Education was having resounding success at incorporating age-old cultural skills into the schools, this at a time when modern technology, lifestyles and "values" are, within a single generation undermining ancient traditional ways. Not only was Jamieson having the elders brought into the schools as paid consultants to show the youngsters how to make seal skin kayaks, traditional clothing, snow-block igloos and other crafts and skills of Arctic survival and cultural environment but he was actually studying the ancient skills himself. Now he had brought in specialists from the outside for this landmark conference.

My assignment, besides talking on reconstructive archeology and the "abo" movement sweeping our country (USA), was to demonstrate the long-neglected abo-

original skills of flintknapping and bowmaking. Stone tool-making was one of the first skills to be lost in the Arctic as soon as the whaling ships brought an abundance of metal knives in the 1700s. Archery, however, not only survived but flourished, in part due to the use of these metal tools, for another 200 years until around the turn of the present century.

Hoping to reinstate an interest in archery among the Inuit, Jamieson had the idea of holding an aboriginal hunt during the conference. For this event I had been commissioned not only to be the hunter but to re-create a bow such as had been used during the heyday of Arctic "bowhunting" in the 1800s. (I put "bowhunting" in quotes here because the Inuit did not hunt for "sport" or trophies, as the term implies; they hunted to survive.

The first thing I did upon arrival at Sanikiluaq, in fact within an hour or so of getting off the plane, was to give an archery exhibition to the community (Figure 2). Jamieson had arranged for the entire settlement to be gathered in the school gym to meet us. He explained to them (in Inuit) why we were here and what we could be doing during the forthcoming week. Then some speeches were given, poems read and awards presented. I was, in fact presented with a pair of seal skin boots and liners made by Silatik Meeko, an elder who immediately claimed me as her "husband", since women only give boots to their mates. (She was a widow.) I wondered why everyone



Shortly after the conclusion of this conference, John Jamieson was hired to teach in another area and departed Sanikiluaq. I was able to stay at his home and hunt seal with the locals for a week. We ate raw caribou and arctic char, and savored the liver of a freshly killed seal while it cooled on the ice flow. The experiences I was able to share with the Inuit in the short time that I was in the north, made it very exciting when I was once again contacted by John to help him with another project in the Northwest Territories. The Canadian government has taken an affirmative action to not only protect, but tangibly support the recovery and preservation of indigenous people of the north. The Inuit and Dene have a superb opportunity to regain and/or halt the degradation of their traditional ways. Our Canadian members are growing in number and many are interested in Boreal and Arctic skills. Meeting Don Gardner and Mors Kochanski in Alberta this winter was great. Their replications and pursuit of technical preservation is what the SPT is all about.
The Editor.

was roaring with laughter, till it was translated. For a moment I had thought it was serious. . . This was my first introduction to the marvelous and incessant humor of the Eskimo.

To close out the program, I showed them how the bow worked. I wanted them to see that their ancestors' bows were no mere toys but could shoot an arrow with speeds that meant business. I passed around the bow and some arrows while Jamieson explained that not only was this a pure Eskimo bow, but that the sinew braid had been made by their beloved, Caroline Kudlarick, who had died just a few months prior.

Jamieson had suspended a burlap "caribou" at one end of the gym. Starting at about 10 yards away, I drew, in classic Howard Hill style but slowly, so they could take it all in, and sent a rubber blunt whop into the kill area. (Note: The "Howard Hill style" with Mediterranean release has been used in the Arctic for eons. See photo in Clairborne 1973: 108. Also see photo in Jenness 1922: 145.)

Then I took a step back and repeated a shot and so on to the full length of the gym (Figure 2). Not only was this done for a dramatic effect, but I wanted to drive home the impression that this bow could really deliver a punch, that this was a real hunting bow and that a good archer could

keep all the arrows in the kill area anywhere within the gym distance. Then the men in the Hunters and Trappers Association, who control all the hunts, might allow bowhunting to creep back into their culture from which it sprang. Not just for our hunt but for their own people in the future.

During the forthcoming week the seed bore its first fruit as Inuit hunters and youth joined me from time to time when I was out roving for practice (Figure 4). Once they spent about an hour at -10 shooting a lumps of snow they propped up at about 20-25 yards. It simply amazed me how quickly they fell into the proper form and shot with accuracy. And bare-handed too, when our hands were numb without heavy gloves or mittens.

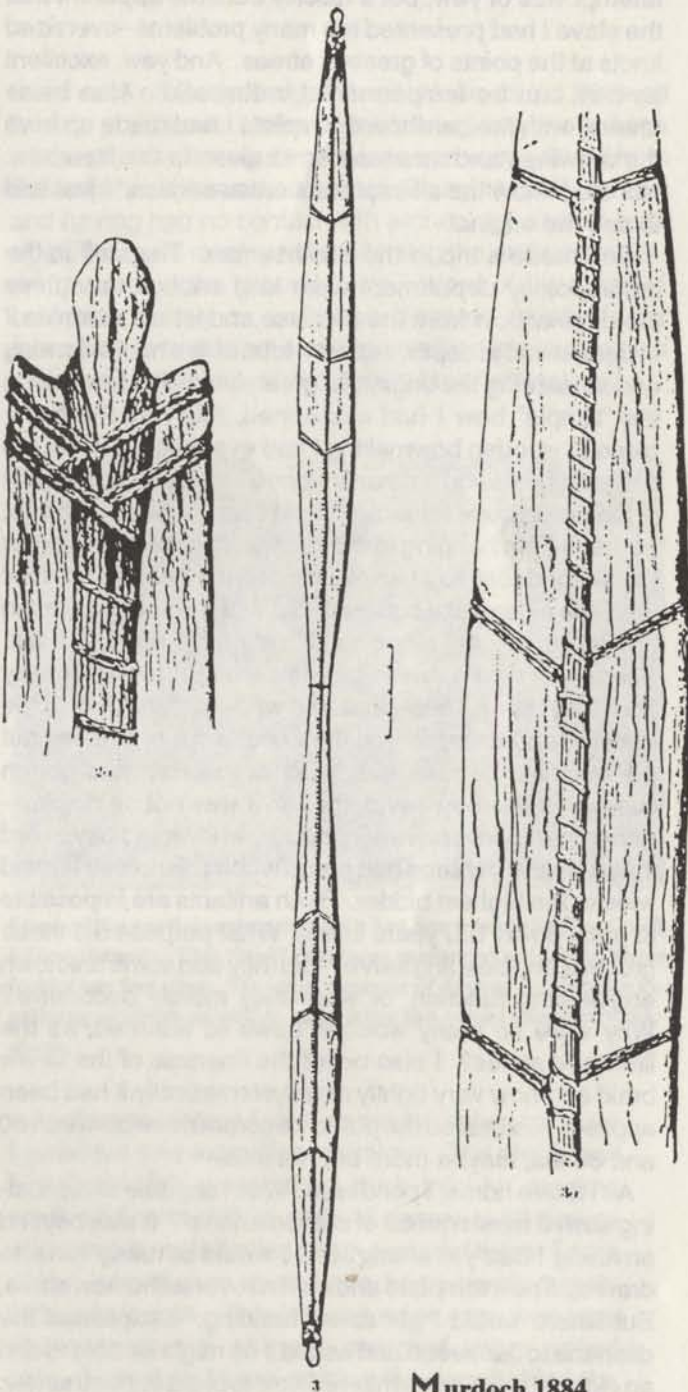
Finding a model for such a bow replica was no easy task. It seems that all the early bows had been hauled off to museums a century ago and that no one in the Baffin Island area today remembers how to make one. A few elders were said to recall seeing bows in their youth, but even these were for children. So I had to start at ground zero and do my own research.

For starters I got out my copies of O.T. Mason (1893), Murdoch (1884), Jenness (1922 & 1946), Clairborne (1973) and Hamilton (1982). I studied these references in depth and quickly came to the realization that although I had been making self wood bows for half a century, the Eskimo bows are in a class of their own. No bent sticks these, Eskimo bows are some of the most intricate wooden bows to be found anywhere on earth (Figures 3). These are classic flat bows with wide limbs and narrow thickened handle. The handles are non-static, meaning that they contribute to the snap when shot and so must be coordinated with the bend of the limbs--unlike the handles of contemporary bows which do not flex. This feature alone requires skilled acrobatics in tillering. To such immaculately worked staves, the Eskimo added a cable of braided sinew, wound from nock to nock along the back. This cable shifted the tension stress beyond the back of the wood into the cable itself, somewhat as modern fiberglass laminations act upon the wood core. The sinew cable, which is not glued in place as are Western Indian sinew backed bows, also allowed the use of almost whatever kind of driftwood happened ashore to be used for bowstaves. However, the Eskimo usually seemed to have sought out flawless driftwood.

Other types of Eskimo bows are made with drastically recurved ends, akin to the Siberian bows of Asia. A third type is made of spliced and bound (not glued) caribou antler. The sinew cabling along the back of most of these bows is complicated far beyond my understanding. So I chose the simpler "Southern" type of all-wood bow with

less complex cabling.

Another thing that hampered me was that most of the bows collected for museums are from the Western Arctic, although the same three types were found all across the North. Within that range the simpler wooden bows were found to the south, and the more complex caribou antler bows were found to the north where, naturally, less wood washed ashore.



Murdoch 1884

The bow I selected for replication was about the simplest kind known--the Smithsonian's #72408, shown in Murdoch's figure 3 and Mason's plate LXVI (Figure 3). The writers say that the bows they depicted were "quite old" at the time of their writings, which are now a good 100 years old. So my bow model could well be 140-150 or so years old or from the early to mid 1800s.

It took three tries to get a successful replica. The first attempt was of yew, but it quickly became apparent that the stave I had presented too many problems--oversized knots at the points of greatest stress. And yew, excellent as it is, can be temperamental in the cold. Also I was uneasy with the cardboard template I had made up from the drawings and measurements given in the literature. Nor did I know the all-important cross-section. I just had to see the original.

So I made a trip to the Smithsonian. The staff in the anthropology department were kind enough to retrieve the original bow from the archives and let me examine it in person and in depth. I spent a total of five hours drawing and measuring the original in great detail. Far from being the "simple" bow I had envisioned, this was the finest piece of wooden bowmaking I had ever encountered, old or new. The wood was an immaculate stave, apparently of black spruce or tamarack. It was almost black with age, perhaps from hanging in the rafters of a smokey summer house for decades. I was surprised to note that not only were the sides quite squared, but that a fluted groove ran the entire length along each side from nock to nock. There was also a raised bead which ran down the belly from tip to tip. These features were not apparent in the drawing and underscored the importance of seeking out the original. (Thank goodness a museum had gotten custody of the bow--even though it was not on display--rather than some private collector, who would have died long ago and perhaps had his collection dispersed far and wide to the highest bidder. Such artifacts are impossible to track down 100 years later.) What purpose did these grooves and beading serve? Did they add some unknown engineering function, or were they merely decorative? Why were so many wooden bows so adorned, as the literature states? I also noted the fineness of the sinew braid and how very tightly and systematically it had been applied. I estimated the pull to be somewhere between 60 and 80 lbs, maybe more but not less.

As I drove home, I pondered. Was I capable of replicating such a masterpiece of craftsmanship? It was beyond anything I had yet attempted. I would certainly have to draw up a new template and start all over with a new stave. But where would I get sinew braiding? I explained the dilemma to Jamieson and asked if he might be able to find an elder who still remembered how to braid caribou sinew.



He said he'd try. I might be able to braid a little, but I only had enough sinew to make 8 feet of cord. The literature says from 100 to 300 feet are needed for such bows.

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Next issue, Part 2. Dimensions, diagrams, photos, and replication details on making a western arctic corded bow.

TECHNOLOGY NEWS

National and International

MID-ATLANTIC LITHIC WORKSHOPS

by Scott Silsby

For over ten years a number of persons interested in prehistoric lithic technology have been holding an annual workshop-symposium where the lofty goals of the group are to "crack the manufacturing system" of a particular prehistoric lithic problem. Most of the key participants, have many years of first hand experience working in the technology at hand. The workshops, although informal, serve as a catalyst to bring all the elements together and produce a new compound of understanding.



Jack Cresson demonstrates for Univ. of PA students, taking a sounding with his billet. If it rings true, proceed.

Some of the workshops have been held with minimal research available to participants, in bad weather and with only a handful of people involved, others have been fully organized with a legion of archeology students assisting with the full sponsorship of prominent archeological entities. Results have ranged from simple confirmation of accepted theories, thru joint acceptance of the fact that we're still not sure, to rewarding discoveries of a heretofore undiscovered system of in-block core/biface extraction system.

One of the many unsolved archeological problems in the Mid-Atlantic area was the Middle Woodland Fox Creek biface production system (fig. 2). Much was known of the culture itself but not it's lithic system. Ron Balteley had retired and taken up woodcutting in his beloved moun-

tains east of Gettysburg, PA where he found the well known prehistoric Native American quarry-workshops where abundant metarhyolite outcrops were utilized from Eastern Paleo times thru contact. Being naturally curious and having had no contact with archeology and it's principals he spent many years collecting the artifacts that literally covered the ground there. Word of his massive collection, heavy in workshop discards of all stages prompted us to contact him and provided impetus to plan a workshop involving this culture's lithic technology.



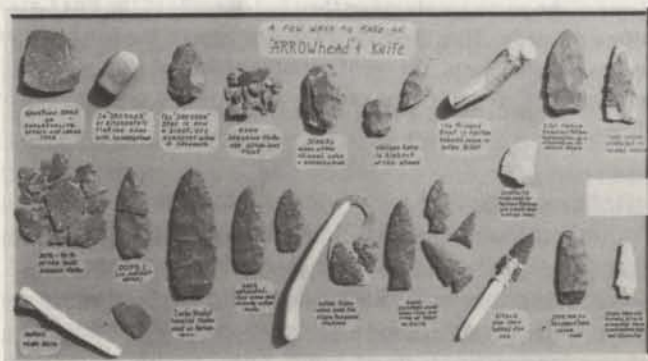
Some of the participants going thru but one pile of the Fox Creek biface discards. This "bed" of bifaces measured ten feet by three feet by one foot deep. We spent a couple of days at Ron's place examining artifacts as well as examining the actual quarries/workshops.

Another auditory factor came into play once we figured out their extraction technique. The prehistoric Fox Creek folk were taking thick freshly cracked spalls and cores with roughly 45 degree to 80 degree edge angles and bifacing just the edge of them. Some of the longer ones must have been nearly twenty inches in length. This bifaced edge core was very strong compared with an unworked sharp edged core. Now they began striking the core behind the bifaced edge but far enough in so that they could

extract a long, not too wide flake. This was apparently not done with one decisive blow as rhyolite has one favorable attribute flint lacks: flexibility. We discovered that a series of well placed medium strength blows delivered in an ever spreading pattern beginning in the center, allowed us to draw off a reasonably well controlled elongated spall with the remarkable feature of having both faces of one edge already formed! We also observed that the opening of the fracture front was accompanied by a very discernable drop in tonal range and that by monitoring the tonal drop as one kept hammering we could get positive feed back during the period of time the fracture started until it finished. Sort of like splitting firewood. Cognitive, acoustical knapping!



Our non-abo quarrying technique to obtain raw material for the workshop. Here we had driven a couple of miles away from the prehistoric workshops and located some boulders dislodged thru road building. These were cracked into very large cores weighing up to sixty pounds which we transported to our worksites.



Scott's well traveled exhibit of metarhyolite stages of manufacture including tools, replicas and originals. Exhibit measures 37" x 21".

THE FLATEN PROJECT

by Errett Callahan

One of the most energetic of all recent scientific housebuilding projects, the "Flaten Project", is now underway in Sweden (Knutsson 1989). Funded by a substantial donation from Sweden's largest newspaper, DAGENS NYHETER, the prestigious National Museum of Antiquities in Stockholm has generated a massive, interdisciplinary experimental endeavor, pooling together four of Sweden's five universities, several of its most distinguished museums, and outside consultants from home and abroad. Besides a strong research-oriented academic thrust, the project is enabling museum interpreters to instill new life into the educational presentations to the public. The project is directed by Dr. Kjel Knutsson of Uppsala University, who hopes to keep it going for many years.

The overall project, of which housebuilding is only a part, focuses on the Early Neolithic period of Middle Sweden. Over a dozen experimental research endeavors are being embraced by the overall project. These include studies of material culture such as greenstone axe production and use, quartz and flint technologies, microware analysis, and ceramic production, use, and breakage patterns, plus soil science experiments, incipient agriculture, paleo-ethnobotany, faunal analysis, and water navigation.

It is the log-built longhouse, however, which is the focal point of the entire project. Following the exact same floor plan as was used at the Skane Djurpark, house 13, from the Fossie site excavations (Bjornhem and Safvestad 1987), the huge 14.90 x 6.50m (48.9 x 21.3 ft) dwelling is being reinterpreted for a Middle Sweden setting. Thus this house will have a sod roof instead of the thatch used at Hoor, massive support posts, and will bear evidence of as much carpentry as may be done with replicas of diabase axes and adzes. It is interesting to note that trees (pines) of up to 12 in (30 cm) in diameter, the largest trees ever felled with experimental axes of stone (as opposed to flint) were being downed in only 15 minutes (as documented on national television). The "secret" to this feat lay in the length of the handles (28-32 in; 71-81 cm) and overall weight (3-4 lbs; 1.4-1.8 kg) and the two man felling operation (personal observation 1990).

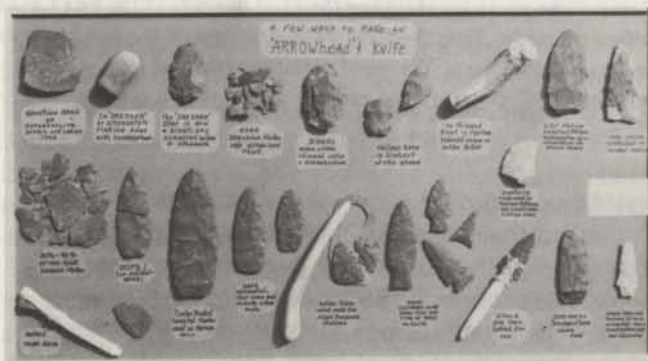
The house itself is being prefabricated in the museum courtyard, starting in 1990, with a series of modular wall panel units, which may be disassembled and moved to a final destination once one is located (ostensibly in the Lake Flaten Nature Area). There is, accordingly, no rush to complete the house, the emphasis being upon quality assembly with maximum public observation and interaction.

Errett is privilege to have been commissioned to oversee the planning and the execution of the house, assisted by architectural draftsman David Callahan, as well as to make the axes and to train Swedish researchers in making, using, and interpreting any and all tools required for the overall project.

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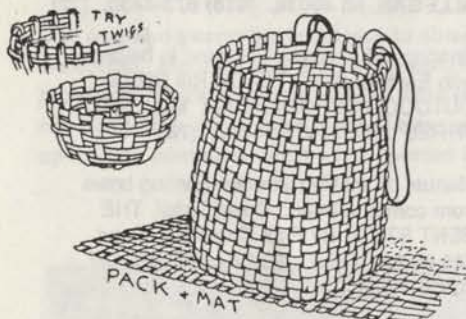
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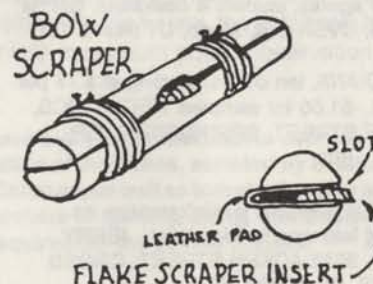
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Interested in primitive technology and would like to meet others. Write ERIC VALDES, 680 S. LASHLEY LANE, #113, BOULDER, CO 80303. (358)

LIBERTY II presents "Simple Survival" Humorous illustrated pamphlets detailing emergency survival. Send \$8 M.O., RT 3, BOX 257, RUPERT, IDAHO 83350. (359)

Knots, ropes and related topics, interested in all information about rituals, symbols, technology. Wish to exchange research, etc. EMAIL: CHISNAL R @ QUCDN, CHISNALL, 148 PINE ST., APT. 17, KINGSTON, ONT. K7K-1W8, CANADA. (363)

Walking backwards: Steps towards simpler lifestyles-a spiritual/physical approach. LARRY & JOYCE JACOBS, RR#3, BOX 344, PITTSBURG, KS. 66762. (316) 231-1185. (365)

Would like to find anyone interested in CHUMASH STYE WILLOW BOW AND CANE ARROWS who builds and/or shoots same. (714) 750-6034. (366)

Learn wilderness living skills. BILL CRYMBLE, BOX 741, CARBONDALE, CO 81623. (303) 945-1202. (371)

Wanted: Sorghum Press, WAYNE STRODTMAN, RT. 1, BUCKLIN, KS. 67834. (378)

Today's progress is stepping backward, learning the past will shape a better future and knowledge of the Creator will increase. TRUBIA, P.O. BOX 132, SUNAPEE, N.H. 03782. (379)

Spirit catchers, Plateau and Plain's flutes. KELLY EMO, BOX 68, DEARY, ID. 83823. (388)

Contact PAWNEE BILL STATE PARK, Pawnee, OK. for information on workshops and events in 1991. (918) 762-3615 or (918) 762-2513. (394)

I'm interested in animal husbandry (pack burro) etc. Also primitive shelter (sweat lodge) and especially desert habitat and lifestyle. TOM TAYLOR, 1640 N. LINDSAY ROAD, MESA, AZ. 85203 (399)

"Bitterroot Bows and Arrows" Authentic Indian bows and arrows and atlats of the western states. RT. 1, BOX 138, TROY, ID. 83871 (208) 835-8810 (401)

Lost arrow Indian bows and arrows. Handmade. P.O. BOX 4096, PAGOSA SPRINGS, CO. 81157 (303) 731-2927 ARTIFACT APPRAISALS (407)

FLYING H YOUTH RANCH. A Christ-centered rehabilitation home for boys. "Turning the Hearts" Malachi 4:6. Helping families since 1962. (509) 658-2990 (408)

Interested in hide tanning, pottery, canoes, open hearth cookin gand all environmental concerns. New England area call ERIC at (203) 738-3669. (410)

Archaeological pottery reproductions, programs on pottery making, firing; Tammy. Atlatl, flintknapping, flint demonstrations of other tools and weapons; LARRY. TAMMY & LARRY BEANE, 822 BRUMMEL AVE., BRIDGEPORT, AL. 35740. (416)

Can you survive in the wilderness? Edible wild plants/wilderness survival/herbs/correspondence courses. Related books/visuals. WILDERNESS LEADERSHIP, 42832 KNOLL RD., OAKHURST, CA 93644 (209) 683-8295 (419)

Contemporary and museum quality 19th Century Aboriginal boomerangs and throwsticks. BEN RUHE, 1-(202) 234-9208. (429)

Curator of historic KAW MISSION, COUNCIL GROVE, KS. 66846. Seeks contact with practitioners of primitive technology for demonstration purposes at this site. (427)

The HARDT SCHOOL OF WILDERNESS LIVING AND SURVIVAL. For free brochure write: BOX 231-A, SALISBURY, VERMONT, 05769 OR CALL (802) 352-1033. (426)

Interested in WILDERNESS RITES OF PASSAGE? Receive complementary issue of "Circles on The Mountain", 200 BEACON HILL LANE, ASHLAND, OR. 97520. (424)

Primitive skills seminars; school demonstrations; private weekend trips emphasizing primitive living skills; Call BART OR ROBIN (813) 722-8392 to leave message. (435)

Primitive arrows, rivercane shafts, turkey wing-tail feathers, sinew, obsidian points. STEVE CHATTIN, RT. 2, BOX 186, GOODVIEW, VA. 24095 (443)

Horseback "Historical Trail" adventures with premier re-enactor serving as guide and educator. Week long venture with six clients maximum. CHILICOTE, P.O. Box 28, BRADY, NE. 69123 (442)

Interested in associating with individuals or groups in survivalism, homesteading, camping, hiking, backpacking. Contact NAOMI, P.O. Box 286, ROANOKE, VIRGINIA, 24002. (438)

Living anthropology for children. Programs and hands-on workshops in aboriginal technology/living skills. JEFF GOTTLIEB, LONG ISLAND, N.Y. (516) 798-8988. (451)

Herbal medicinals made with care from local, wildcrafted plants, tinctures, tonics, salves. Free catalog. WILDERNESS HERBS, BOX 518, ISHPEMING, MI. 49849. (450)

"The Bowyers Craft", \$16.95 + \$1 P/H; "The Book of Primitive Archery", \$18.95 +\$1 P/H from BEAR PAW PUBLICATIONS, P.O. BOX 429, GIRDWOOD, ALASKA. 99587. (458)

Ancient Lifeways Institute offers 6-day programs in cultural ecology and appropriate technology in our MAT LODGE VILLAGE, R.R. 1, MICHAEL, ILL. 62065. (462)

Design and build your house and make it your home. Two week classes. YESTERMORROW SCHOOL, BOX 76A, WARREN, VT. 05674. (802) 496-5545. (461)

Would like names and addresses of organizations or individuals with survival schools or programs. David Davenport, 213 Louella Lane, Nokomis, FL. 34275. (460)

Henry Behr is the First Sergeant of a Paratrooper Infantry Line Company serving in Operation Desert Storm. He knows not of this gift membership. Drop him and/or his men a note. ISG H.E. Behr, A Co. 2/505 P.I.R., 82nd ABN. DIV., APO N.Y. 09656. (4)

RIVERCANE RENDEZVOUS - Spring earthskills gathering. April 16-21, 1991. Unicoi State Park, Helen, GA. Contact Bob Slack, 404-878-2201., ext. 282

"Living Classroom" and "Cat Den Containers" Environmental Awareness and outdoor education as well as native American basketry. Traditional skills and technologies. TOM MOWATT, P.O. BOX 36, CLEMONS, N.Y. 12887 (470)

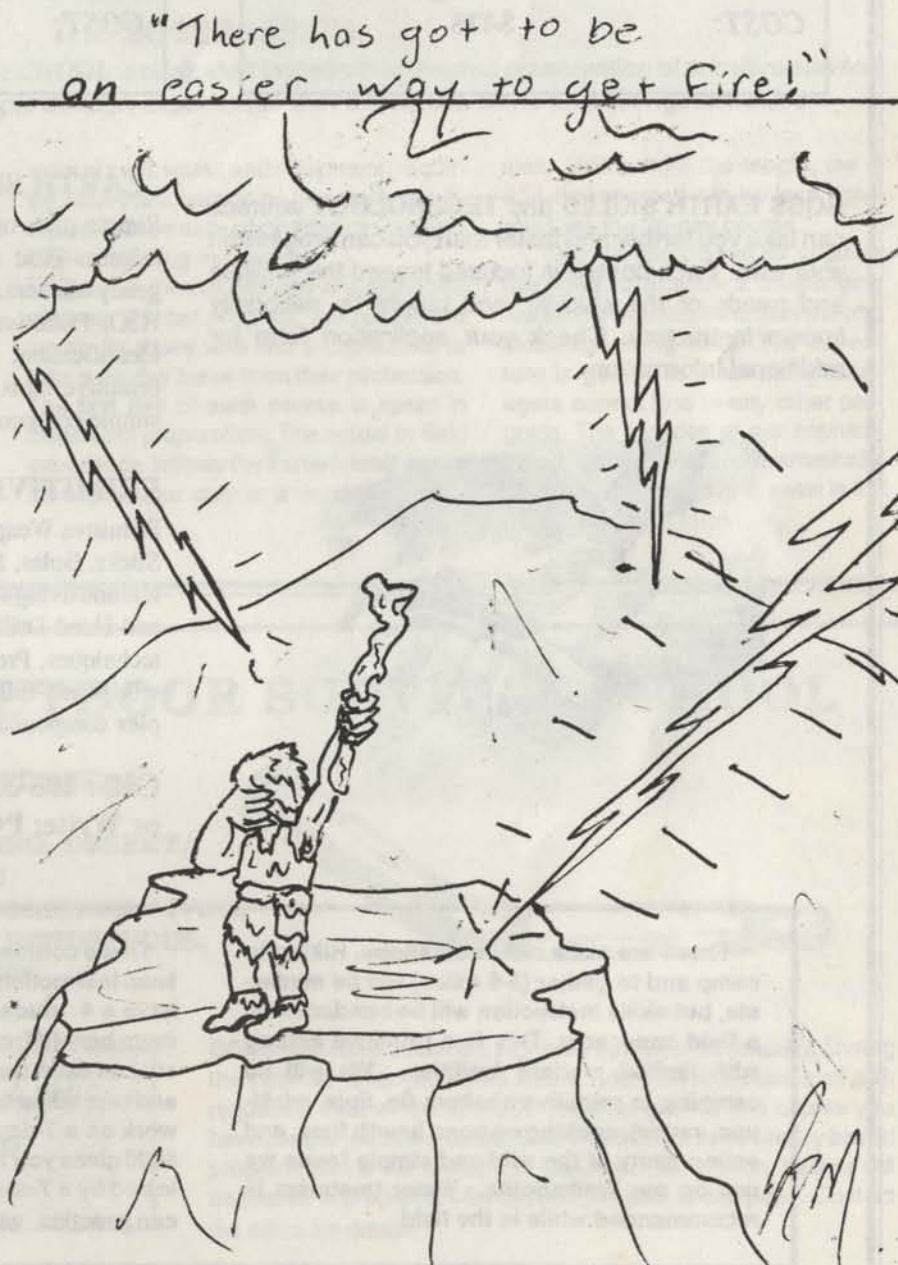
Indian Crafts and supplies, beads, hairpipe, books, needles, kits, leather and more. THE WANDERING BULL, BOX 1075, ATTLEBORO, MA. 02703. (508) 226-6074. (468)

ARCHAEOLOGICAL FIELD SCHOOL, Mission San Antonio, California, June 16-July 26, 1991. \$762.00 tuition, room and board. ROBERT HOOVER, (805) 544-0176. (467)

Tim Baker

*Thanx for taking
the time, energy
& cost to rush us
photos. Some of
which are used
herein.*

*Abo-"Toons"
on this page,
pages 6 and 34,
were drawn
specifically for
the Society by
Joshua D.
Mendenhall of
Rupert, Idaho.*



BOULDER OUTDOOR SURVIVAL SCHOOL

EARTH SKILLS

DATES: E-20 June 24-30
E-21 August 12-18
LOCATION: Boulder, Utah
DATES: E-22 Sept 30-Oct 6
LOCATION: BOSS Idaho Field Site
LENGTH: 7 days
COURSE DIFFICULTY: Easy
AGE: No Age Limit
COST: \$475

PRIMITIVE TECHNOLOGY

DATES: P-16 July 8-14
LOCATION: Boulder, Utah
DATES: P-17 Oct 7-13
LOCATION: BOSS Idaho Field Site
LENGTH: 7 days
COURSE DIFFICULTY: Easy To Moderate
AGE: No Age Limit
COST: \$475

BOSS EARTH SKILLS and **TECHNOLOGY** courses can take you farther and faster than you can progress on your own. Each course is focused toward the abilities and needs of the student, and taught by nationally known instructors. Check your application form for additional information.



EARTH SKILLS TOPICS

Simple tools of stone, bone and wood, Fires without matches-Flint and Steel, Bow-Drill, Primitive emergency shelters, Finding water and human needs for H2O, Primitive cooking skills, Basic plant use and identification, Trapping and tracking skills, Basic primitive tools, String, fibers, weaving, Hafting and simple compound tools, and MORE.

PRIMITIVE TECHNOLOGY TOPICS

Primitive Weapons- Atlatls, Bow and Arrows, Rabbit Sticks, Bolas, Slings, Flintknapping, Permanent shelters and living structures, Fires from scratch (no knives) and Hand Drills, Primitive cooking and preservation techniques, Preparation and use of wild game, More wild plants-Edible, Medicinal, and Constructive, Complex compound tools, Music and instruments.

Call : 208-356-7446

or Write: PO Box 905 Rexburg, ID 83440

These are skills only workshops. Hiking to camp and to gather (3-6 miles) will be moderate, but skills instruction will be conducted in a field basecamp. This is a primitive setting with limited modern facilities. We will be camping in primitive shelters (ie. tipis, wicki-ups, caves), cooking on open hearth fires, and eating many of the wild and simple foods we use on our Walkabouts. Water treatment is recommended while in the field.

These courses are short and to the point. To keep instruction effective, BOSS skills courses have a 4 student per staff ratio. To get maximum benefit from this course, we suggest you stay an extra week at a discounted price (\$100) and take advantage of putting your new skills to work on a 7-day intensive. A package price of \$800 gives you 7 days of intense instruction followed by a 7-day field experience in which you can practice what you've learned.

WALKABOUTS 7-14-27 DAY

27- DAY WALKABOUT

DATES : N-32 May 18 - June 13

N-33 June 15 - July 11

N-34 July 20 - Aug 15

COST: \$1225

AGE: 16+

14-DAY WALKABOUT

DATES : J-14 Aug 17-30

COST: \$735

AGE: 16+

YOUTH ADVENTURE

DATES : Y-9 JULY 15-28

COST: \$675

AGE: 13-16

7-DAY INTENSIVES-UTAH

DATES: I-8 July 1-7

I-9 Aug 19-25

7-DAY INTENSIVES-IDAHO

DATE: I-10 Sept 23-29

COST: \$425

AGE: No age limit

COURSE DIFFICULTY: THESE COURSES ARE DESIGNED TO BE RIGOROUS AND CHALLENGING, DEMANDING THE PARTICIPANT TO BE IN GOOD PHYSICAL CONDITION.

THE BOSS MISSION

BOULDER OUTDOOR SURVIVAL SCHOOL is dedicated to the instruction and preservation of primitive survival arts and the development of people through experiences with the natural world and aboriginal tradition.

The 26-day courses are designed for the student who desires a rugged outdoor challenge. Walkabouts are held in the remote deserts, canyons, and mountains of south-central Utah and Idaho. **BOSS** is noted for the teaching of ultra-light desert travel and self-sufficiency.. Our desert living skills are practical, and all courses let you practice what is taught. Expeditions demand that the student test his/her endurance and stamina under very harsh conditions (including a mini-

mum of food, water, and equipment) requiring each participant to be physically conditioned and mentally committed to successfully completing the course.

The 7 & 14-day courses are patterned after our 26-day program, but reduced in length for those who find it impossible to take a 26-day leave from their profession. The first day of each course is spent in classroom preparation. The actual in-field experience follows the same format as the 26-day course only in a condensed ver-

sion. Aside from the length, the 7 & 14-day courses are no less rigorous than the 26-day course.

Our 14-day course for youth is designed to provide a challenging adventure in wilderness survival and stone-age living skills. The adventure is geared to what many teenagers cannot find in any other program. The facades of our sophisticated modern life are dramatically stripped away and life is seen in its most basic, real form.

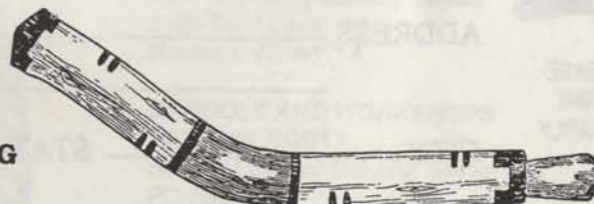
BOULDER OUTDOOR SURVIVAL SCHOOL

WILDERNES LIVING SKILLS - WINTER & TRADITIONAL

EARTH SKILLS- STAFF TRAINING, DESERT/ MARINE, EARTHSKILLS

PRIMITIVE TECHNOLOGY - ABORIGINAL LIVING SKILLS, RABBIT STICK RENDEZVOUS, PRIMITIVE TECHNOLOGY

WALKABOUTS- 7, 14 & 27 DAY



*Contact: BOSS, PO Box 905,
Rexburg, ID 83440
208-356-7446*

BOSS staff have become a highly sought after commodity. During the 1989-90 seasons, **BOSS** was able to train and place staff with regularity. Internships at **BOSS** are available for any course you have completed as a student. Staff training is a competency based program, with a mix of trail and classroom instruction. Interns will be placed in programs with specific projects to complete. Contact the office for details.

O.K. . . you've seen it. How'd we do? Take a few minutes to drop us a line letting us know what you like about the Bulletin. . . what you don't like. What do you want to see more of. . . less of. We're reaching out to a broad segment (note on the following page the fields our directors/advisors represent). It's gonna be tough to please all the people all of the time. We need to know what percentage of the membership wants what.



I have an arrangement with Wooden Canoe Heritage Assn to build birch bark canoes for its members for a 5% discount off the basic per foot cost, also to rebate \$50 per canoe thus sold to the Association operating fund. . . it's been worth the fairly substantial loss (approximately \$250 per canoe) to know that the product will end up in the "right hands." So I'm willing to make the same offer to your fledgling Primitive Technology Society as long as customers can prove or you will vouch for their membership."

Jack Minehart
Bigfoot Canoe Trails
Cedar Falls, IA

We envision that over the years copies of the Bulletin will become an encyclopedia of primitive technology, an integral part of the libraries of our members. . . (we will index as we go).

Some of those beginning in primitive technology today. . . possibly with this issue. . . will be the advanced specialists of tomorrow. We can't push only the basics. . . those advancing will want to continue to advance. Then there is the segment of our membership that has no desire to rehash the basics and we need to attend to him also. Finding the right balance is our problem. You can help by just dropping a note. But we can never forget, no matter how far we advance, that all primitive technology revolves around the basics. . . you can't make a primitive pot if you can't make a primitive fire (there may be those who will disagree with this).

There are two major advantages of this society for you (other than the Bulletin). 1) The fact that you can write directly to any of the advisors listed on the next page to address specific problems in their fields and 2) the free 20-word notice in the "Bulletin Board". To us, this is the most valuable asset. For too many years us oldtimers thought that we were the only ones out there. . . reinventing the wheel so to speak. Here is your opportunity to let others know that you exist, what you are doing. Set up your own networks. Only one third of you took advantage of this benefit in this issue. . .

All even hundred numbered members (100, 200, etc.) receive one extra year's membership free. As we go to press membership approaches 500.

John & Geri McPherson, Secretary-Treasurer

We plan to publish at some time the names and addresses of all members of the Society. PLEASE NOTIFY US IF YOU DO NOT WISH YOUR NAME PUBLISHED.



----- SOCIETY of PRIMITIVE TECHNOLOGY -----

NAME _____

ADDRESS _____

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CLEARLY

CITY _____ STATE _____ ZIP _____ PHONE () _____

FREE notice in Bulletin Board (20 words or less)

\$20.00 per year

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MEMBERSHIP APPLICATION



MEMBERSHIP: HOW IT WORKS

We need you to make this effort come to life. Membership in the society costs \$20. This includes subscription to the *Bulletin of Primitive Technology* which comes out twice a year at this time. Make checks payable in U.S. funds to the Society of Primitive Technology. New members please complete the membership form on the preceding page of this Bulletin. Current members are asked to respond to our query on page 48 to help focus the efforts of the society.

The Society of Primitive Technology is a not for profit organization. Our efforts are to network with others working towards the preservation of our prehistoric and world culture. **This is your organization.** If you are interested in what the Bulletin and Society stand for, don't just sit back, get active.

Letters, articles, questions, announcements, etc., are welcomed and along with memberships should be sent to SPT Secretary, PO Box 96, Randolph, KS 66554. Forward address change information immediately.

Specific questions or articles may be sent to any of the editorial board members (addresses below). We look forward to an active membership.

The Bulletin is a vehicle to support networking, problem solving and education in the primitive/pre-historic arts and technologies.

Do you have a specialty that you want help perfecting, a discovery you want to share, or a question you wish to explore? Get those communications flying and join us.

BOARD MEMBERS: HOW TO REACH THEM

Please address correspondence to the following, according to your area of interest. Include questions, articles, letters to the editor, announcements, etc.

MUSEUMS

STEVE WATTS
207 W Fourth Ave
Gastonia, NC 28052
704-861-1698

OUTDOORSMEN

JOHN & GERI MCPHERSON
PO Box 96
Randolph, KS 66554
913-293-5310

NATURALISTS

SCOTT SILSBY
Rt 1, Box 2426
Front Royal, VA 22630
703-636-4824

SCIENTISTS

ERRETT CALLAHAN
2 Fredonia Ave
Lynchburg, VA 24503
804-528-3444

ARCHEOLOGISTS

JACK CRESSON
40 E 2nd Street
Moorestown, NJ 08057
609-234-3286

ENVIROMENTALISTS

SUSAN EIRICH-DEHNE
c/o Duncan
Rt 4 Box 887
Flagstaff, AZ 86001



ETHNOBOTANISTS

SCOOTER CHEATHAM
2612 Sweeney lane
Austin, TX 78723
512-926-9460

FLINTKNAPPERS

Mike Stafford (Advisory Board)
3109 Todd Lane
Madison, WI 53713

SCHOOLS AND WORKSHOPS

DAVID WESCOTT
Boulder Outdoor Survival School
PO Box 905
Rexburg, ID 83440
208-356-7446

POTTERS AND EDUCATORS

MARIA-LOUISE SIDOROFF
14 Blauvelt Ave
Ramsey, NJ 07446
201-327-271

The 1991 Rabbit Stick Rendezvous

on Henry's Fork of the Snake River

September 17-21, 1991 COST \$125

September 14-17 - Instructors Camp

Sponsored By BOULDER OUTDOOR SURVIVAL SCHOOL



(BAKER)

Instruction in over 50 primitive disciplines with the most expert authors/instructors/ practitioners in the field of primitive survival/ technology. Registrations are being taken now. If you are interested in teaching, workshop proposal forms are available (proposals will be juried).

BOSS has invited the top specialists, teachers and artisans in primitive technology to attend this **Fourth Annual** gathering in order to share ideas and methods, as well as spread the arts through hands-on workshops to people such as yourself.

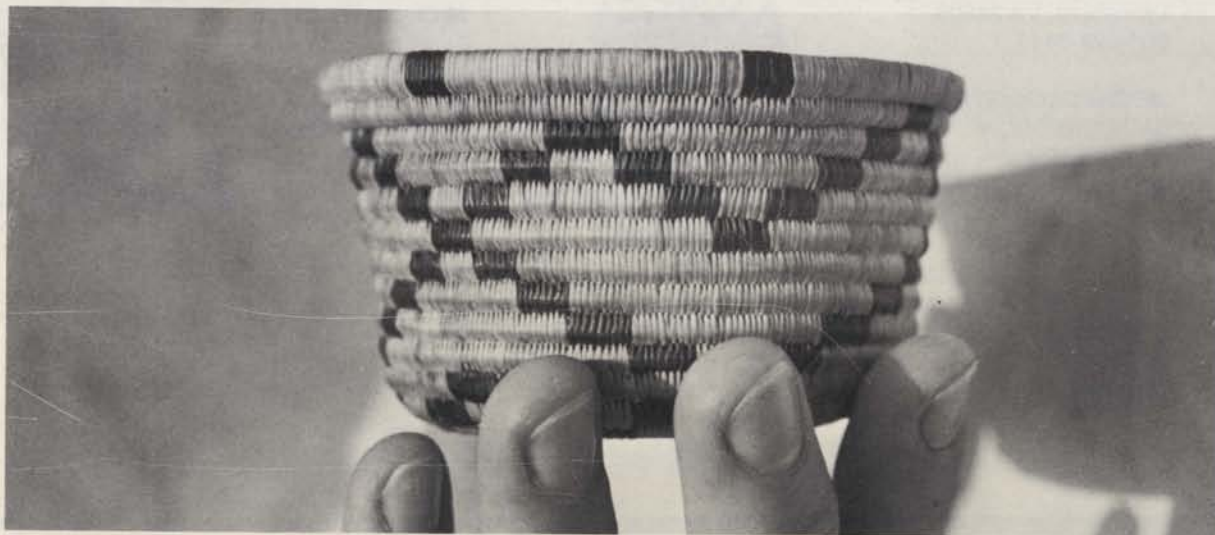
EDIBLE, MEDICINAL, AND CONSTRUCTIVE PLANTS
WILDERNESS MEDICINE AND SELF HELP
TANNING AND RAWHIDE
ADVANCED WEAPONS AND COMPOUND TOOLS
FLINTKNAPPING-BASIC TO ADVANCED
FIRE BY FRICTION
PRIMITIVE INSTRUMENTS AND GAMES
POTTERY AND FIBER WORK
AND MUCH, MUCH MORE !!

Camping accommodations are free to participants. Morning and evening meals are provided with your help. Call for more information.

(208) 356-7446

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Test your ABO-skills in Atlatl, Bow and Arrow, Sling, Rabbit Stick, Fire Building, and other areas. Start practicing now!



(BAKER)