



ESRARA NEWSLETTER

Quarterly of the Eastern States Rock Art Research Association
30th member of IFRAO - International Federation of Rock Art Organizations

Volume 7, Number 3

Summer 2002

PRESIDENT'S MESSAGE . . .

This newsletter contains a preliminary announcement of ESRARA's spring 2003 Conference and a short report on the recent ARARA annual conference in Dubois, Wyoming. It is always a "trial" for an "easterner," such as myself, to make it to these "western" meetings. It is somewhat expensive, time-consuming, and possibly worst of all, problematical to maneuver to the often remote areas chosen by our western rock art friends for these annual meetings! I grumble and fuss (and worse!) – but then – I am always so glad that I went! The meetings are ALWAYS great – and in so many ways. First of all, it's great to see and be among our rock art colleagues! Then, the very remoteness of the locations turns out to be another great feature. Last year it was Pendleton, Oregon -- this year -- Dubois, Wyoming! What an incredible setting!

Soon after our plane landed in Jackson Hole, it began snowing! The www weather report was "snow and rain showers" so this was no surprise. The snow continued off and on during the 2-hour car shuttle to Dubois. The car took us past the magnificent snow-capped Grand Tetons through snow-covered fields. I just figured that my web weather report was correct. That was Thursday. Friday, and for the rest of the conference, the weather was sunny, warm, and superbly beautiful!

There were over 20 ESRARA members in attendance (a record to be sure) and several gave slide presentations (another record!). Of course, the highlight of the meeting was that our own Dr. Fred E. Coy, Jr. was there to receive the prestigious Klaus Wellmann Award! (More on Dr. Coy and the meeting inside this issue)

Finally, we were pleased to see a review of our ESRARA Newsletter in the URARA (Utah) Newsletter. Editor Layne Miller devoted an entire page to informing their Utah members about rock art research in the east. Thanks, Layne!

M'Best,
Carol

NOTE: Enclosed in your newsletter is an IFRAO scale. Some of you may already have one (or two), but they do wear out, and we thought it was time to send out replacements. Robert Bednarik, at IFRAO headquarters in Australia, kindly filled our order. Along with the scales, please take time to read the commentary regarding IFRAO the use of these scales.

Dr. Fred E. Coy, Jr. Receives 2002 Klaus Wellmann Award at ARARA Conference in Dubois, Wyoming



Dr. and Mrs. Fred E. Coy, Jr.
(See articles on page 2)

DUES

DUES ARE DUE ON JANUARY 1.

An envelope is enclosed for those who still need to pay their \$12.00 dues for 2002.

TO CONTINUE YOUR MEMBERSHIP

PLEASE SEND YOUR DUES NOW TO

ESRARA TREASURER:

ILOILO M. JONES

P. O. BOX 4335

HELENA, MT 59604

ESRARA'S 2003 CONFERENCE PLANS ARE IN THE WORKS!

Although the dates have not yet been confirmed, organizers, Jean Allan and Bart Henson, are looking at a March date in 2003 in Huntsville, Alabama. Allan and Henson are planning field trips to several local sites, and a whole day of papers. Keynote speaker, Professor Charles Faulkner, will give a slide presentation on the fascinating finds at Mud Glyph Cave. There will be an ESRARA banquet, and of course, a few awards. And don't forget to be saving items to bring for ARARA's second big Auction!

Registration forms, housing and travel information will be forthcoming. However, if you are planning to present a paper, you may go ahead and let Jean Allan know, or send the abstract (only) to Jean at: jallan@fs.fed.us. The official call for papers will be out with the meeting information later this fall. The abstract deadline will be February 1, 2003.

**** DR. FRED E. COY, JR. ****

Dr. Fred Coy was born in El Paso, Texas on October 27, 1923. In 1942, Dr. Coy enlisted in the U.S. Air Force. After graduating from flying school, he received training in P-40 and P-47 fighter planes, and flew 130 combat missions in WW II as well as close support for General Patton. He was awarded over 25 medals including the Distinguished Flying Cross and the Air Medal with 20 oak leaf clusters. Dr. Coy obtained his M.D. in 1950, the same year that he married his wife, Emily Jean Ellison. They have three children (and grandchildren). Dr. Coy specialized in Orthopaedic Surgery and later focused on joint replacement. He retired from active practice in 1989 as Emeritus Assistant Clinical Professor from the University of Louisville.

Dr. Coy was the organizer and co-chairman of the 1993 Eastern States Rock Art Conference at Natural Bridge, KY. He served as ESRARA's first President for two consecutive terms. In 1996, Dr. Coy received the Certificate of Recognition from the Kentucky Heritage Council. In 1997 his book, *The Rock Art of Kentucky*, was published. He had previously written articles and provided much information on Kentucky rock art to Klaus Wellmann for Wellmann's 1979 survey book. Klaus and Margot Wellmann made several visits to the Coy's Kentucky home while working on that major piece. Now, in 2002, Dr. Coy has received the prestigious Klaus Wellmann Award, for "Distinguished Service in the field of rock art research, conservation and education," at the annual ARARA Conference in Dubois, Wyoming.

ARARA WYOMING CONFERENCE

Dubois, Wyoming is between Jackson Hole and Riverton. If your plane arrived at Jackson Hole, you got to see the spectacular and snowcapped Grand Tetons (still more beautiful at 5:00 am. when the rising sun turns the snow to a glowing pink). There was one main drag in the town of Dubois with a plank walk on either side. Best eats were at the Cowboy Café, and a couple other spots. The main means of transportation appeared to be "the pick-up truck w/dog in back."

There were many available field trips to see either Dinwoody style or Plains style rock art (or both). Near the town of Dubois was the Torry Valley site – a Dinwoody style site and definitely awesome. Some attendees took time to explore Yellowstone, but those who came a week early to do this – did it in a snowstorm! They said it was beautiful!



Dinwoody Style Petroglyph at the Torry Valley Lake Site

There were so many papers this time, that instead of one day, papers were presented over a day and a half. Many good papers. The auction was fun, as usual, with one of the biggest "treasures" fought over – a collection of the AURA journals. You had to be there to appreciate the "tension!" Marglyph won the high bid!

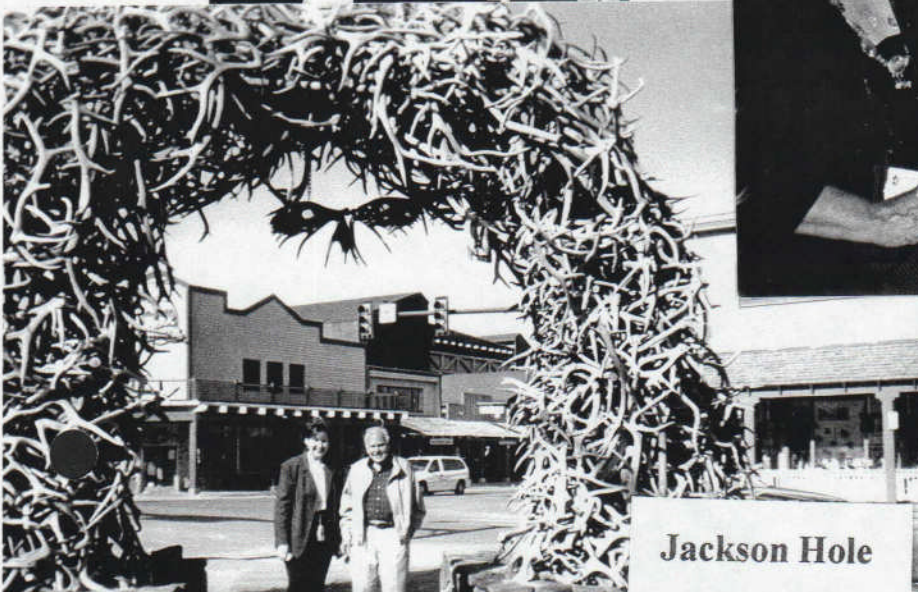
It was great to see so many ESRARA members at the meeting. It was definitely an all-time record: Jean Allan, Lloyd Anderson, Alan Barbick, Margaret Berrier, Richard Brock, Anne Cobry, Fred Coy, Donna Gillette, Mavis and John Greer, Judy Hilbish, Jane Kolber, Leigh Marymor, Peter Pilles, Faith Rockenstein, Denise Smith, Jack Steinbring, Teddy Stickney, Sharon Urban, Rex Weeks, Ann Worthington, and probably others whose faces I am not familiar with (my apologies for any omissions!).

Next year's annual ARARA meeting will be in San Bernardino, California, Memorial Day weekend. For more information on ARARA, log on to the ARARA website: www.arara.org

Grand Tetons



**2002 Annual ARARA Meeting
in Dubois, Wyoming**



Jackson Hole



**Washington Post Reporter Claims
Few Human Figures in Eastern Rock Art!
ESRARA Responds!!**

If anyone reads the Washington Post newspaper, they might have caught an article by reporter, Fredrick Kunkle, titled: "Stone carries prehistoric carvings Near the Potomac, amateur finds anthropological treasure" – It appeared on May 8. This was brought to my attention by ESRARA member, Jane Kolber, who replied to the WP. Jane's response was:

"I've sent this to some of the people in the Eastern States Rock Art Research Association who will be interested to know that there is hardly any rock art in the east after all the books they've written about it and conferences they've held and that this guy is using his sticky fingers to touch it. Here's their website:
http://www.public.asu.edu/~rexweeks/Eastern_State_s_Rock_Art_Re.htm
Jane Kolber"

(Thanks, Jane!)

Jane inspired me to respond, too, with the following to the Washington Post: (May 16)

Dear Editor,

"I must respond to an erroneous statement in this article: "Though prehistoric rock carvings with human figures are almost unheard-of in the eastern United States, . . ."

This is far from the truth. There are several hundred known rock art sites in the eastern United States and many, many human figures among them. There are human figures in the rock art of Wisconsin, Pennsylvania, Kentucky, Illinois, as well as in other eastern states. I refer the reporter to the broad landmark surveys of U. S. rock art by the late Campbell Grant (1967, 1981) and Klaus Wellmann (1979). In 1992 (a decade ago!) I completed a project to document the rock carvings (petroglyphs) and rock paintings (pictographs) in Missouri. Of the 134 original sites recorded, 30 of these contain human figures (totaling approximately 60 depictions of human figures in all). And, yes, we do consider Missouri (while bordering a number of regions and west of the Mississippi) -- for the most part, particularly with regard to the prehistoric iconography observed in its rock art, an eastern state.

Regards,
Carol Diaz-Granados
President,
Eastern States Rock Art Research Assn."

**Update on Summer Petroglyph Survey
in South Carolina,
Report by Tommy Charles**



We had an interesting spring but not a lot of new discoveries. Much of our time was spent revisiting sites to obtain good GPS locations, better data, photographs, etc., needed to complete site records. We now have recorded 46 petroglyph sites and one pictograph site. Two other pictograph sites have been visited but not yet recorded. We plan to visit one of these this summer because it is located in an area that is heavily hunted during the winter months. The other pictograph site is a new discovery. It is located in a rock shelter in the mountains of Pickens County, South Carolina. On the back wall of the shelter are eight figures drawn with rust-red ochre. Several are too worn to identify, but those that can be are all similar in what they represent, which could be almost any long-tailed animal, cougar, dog, squirrel, fox, whatever. They differ only in their size, which varies considerably. Oddly, they are drawn in pairs of two that face each other. Obviously, we cannot say with certainty if these drawings are prehistoric, but they are well protected from the elements and they appear to be old. There is prehistoric pottery in the shelter floor and a total absence of evidence of historic use or debris. We are keeping our fingers crossed that the evidence will support a prehistoric origin.

URARA CALL FOR PAPERS

The Utah Rock Art Research Association's 22nd Annual Meeting is planned for Veterans' Day weekend, Nov. 9-11, in St. George, Utah. Abstracts of maximum 200 words should be sent by Sept. 2nd, to David Sucec, Papers Coordinator, 832 Seago Ave., Salt Lake City, UT 84102, or e-mail to davids@networld.com (or call him at 801-359-6904). Papers are limited to 20 minutes in length.

PAUL NEVIN RECEIVES GRANT TO RECORD THE SAFE HARBOR PETROGLYPHS IN PENNSYLVANIA



A petroglyph recording project is now in progress at the rock art sites on the Susquehanna River near Safe Harbor, Lancaster County, Pennsylvania, with ESRARA member, Paul Nevin, is serving as project coordinator. This is the first funded fieldwork to take place at Safe Harbor since 1932, when State Archaeologist Donald Cadzow led a two-year effort to document prehistoric habitation in and around the area affected by the construction of Safe Harbor Dam. His work resulted in the publication of the Safe Harbor Report entitled "Petroglyphs [Rock Carvings] In the Susquehanna River near Safe Harbor, Pennsylvania" (Pennsylvania Historical Commission, 1934), a volume that over the years has gained near-cult status in the region, and has recently been reissued and is available through the Pennsylvania Historical and Museum Commission (PHMC -ISBN 0-89271-100-0, Item #0137).

The goal of the Safe Harbor Petroglyph Project is to record all of the extant carvings (including historic 'euro' carvings) at six archaeological sites collectively known as 'The Safe Harbor Petroglyphs' and to greatly improve the quality of the representations of the designs. The project will provide the most accurate representation of a rock art site that has been done up to this time in Pennsylvania and will provide researchers with a database which can be compared to other rock art sites as well as to other cultural material with the purpose of providing insight into the people who produced the carvings. Project Coordinator, Paul Nevin, will produce charts and an accompanying text comprising the first complete record of the actual shapes, sizes, orientations and locations of all known carvings.

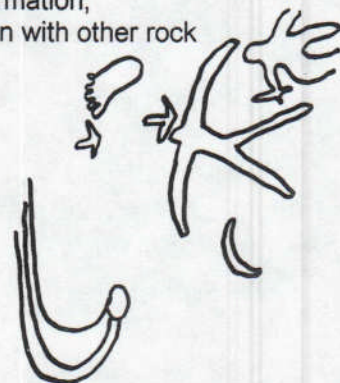
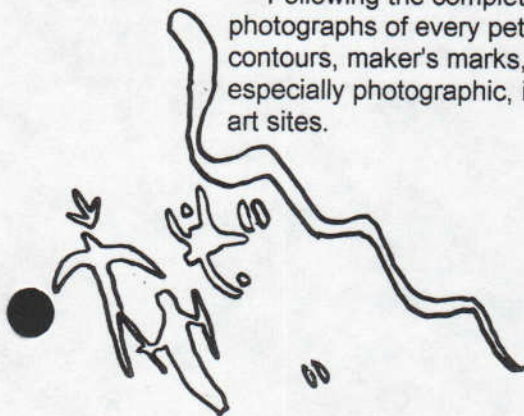
Recent investigations have indicated that these sites may be the most significant concentration of Native American rock art still in existence in the northeastern United States. The Society for Pennsylvania Archaeology sponsored the PHMC Historic Preservation Grant application on behalf of the local S.P.A. Chapter, Conejohela Chapter 28, where Paul is currently serving as president. The \$4,800 grant will provide recording materials and salary for the project coordinator. In addition, Conejohela Chapter 28, S.P.A. has pledged \$5,625.00 in in-kind contributions, mostly in the form of donated (i.e., volunteer) labor.

The PHMC grant is only awarded to organizations or local entities located in Pennsylvania that have tax-exempt status and are registered with the Pennsylvania Commission on Charitable Organizations (i.e., nonprofit organizations) The Pennsylvania History and Museum Grant Program is one of the largest and most diversified state-supported history and grant programs in the country and has awarded as much as \$5.4 million annually since 1995.

In October, a public Safe Harbor Petroglyph Day will be held with information and exhibits about the petroglyphs on the lower Susquehanna as well as other aspects of the local Native American Culture. Previous public events have greatly increased public awareness and respect for the petroglyphs as cultural treasures. The recording project will be finished by November and will be submitted for publication in "Pennsylvania Archaeologist," the Bulletin of the Society for Pennsylvania Archaeology, Inc.

Following the completion of this project Paul intends to work to compile a catalogue of photographs of every petroglyph at the site, complete with detailed descriptions of depths, contours, maker's marks, wear patterns, etc., as he believes that this information, especially photographic, is critical to their study and will enable comparison with other rock art sites.

CONGRATULATIONS, PAUL!



RECORDING ROCK ART WITH A 3D LASER SCANNER: IS IT IN YOUR FUTURE? by Kevin Callahan

It would not be surprising to me if, in a few years, rock art sites are recorded with 3D laser scanners as frequently as excavation archaeologists now use "total stations." It would also not be surprising if this technology is used to allow visitors walk through local museums' reproductions of important rock art caves.

So what are these 3D laser scanners and how do they work? Technically, 3D Laser Scanners are "triangulation rangefinders" capable of precisely and permanently recording minute positional data (measurements) which can be used to "render" petroglyph panels in what looks like a perfectly lit and shaded photograph. You might think of it as being an automated version of a surveyor's "total station" for very tiny objects. This recording approach is a fast, non-contact way of digitally measuring and recording petroglyph panels (or Roman sculptures, carved pebbles, underground caves, tiny electronic parts, etc.) and does not rely on the observations of individuals manually drawing the individual peck marks or grooves or curves.

Imagine an automated laser repetitively measuring three points on a curved 3 dimensional object (like a vase) and then recording lots and lots of connected triangular measurements--called a "polygon mesh." A 3D laser scanning company called Archaeoptics says it produces 3D triangle meshes which can have a resolution of 170 microns and an accuracy of 50 microns. A micron is one millionth of a meter.

This scanning technology was designed to "reverse engineer" (i.e. copy) business competitors' electronic products that use extremely tiny parts. Recording relatively crudely made objects with larger differences in height, such as the height of a petroglyph groove, does not appear to be any problem.

There is an example on the web of this being successfully done at the well known Neolithic sandstone cup and ring site at Ballochmyle, UK to preserve the data on the site and to have a baseline to note any changes due to weathering. (Ballyochmyle is important in Europe as a Neolithic cup and ring site because it is one of the rarer ones on a vertical rather than a horizontal surface--suggesting the carvings were symbolic rather than functional containers.)

Archaeoptics used a Minolta scanner to make the scan. The VI-900 3D laser scanner's specifications are fully described at the Minolta website. Archaeoptics scanned approximately 60 square meters of carvings on a rock face in one afternoon(!) at a resolution of approximately 0.5mm and an accuracy of 0.08mm. A Minolta 3D laser scanner was used to make a duplicate of Altamira cave in Spain. Altamira II is now part of the wing of a museum.

(The websites are at:

<http://www.archaeoptics.co.uk/gallery/casestudies/heritage/ballochmyle.html>
and <http://www.minolta-3d.com/>)

Although buying such a scanner outright for a single major rock art recording project might be expensive, hiring someone specializing in this technology may not be. Archaeoptics, for example, allows customers to request a quote for their services on their website and describes their current main business activity as "high-quality, low-cost, fast turnaround 3D laser scanning." With the increasing availability of 3D technology, rock art recording, museum displays, and rock art websites should be interesting viewing in the 21st century.

THE COY TECHNIQUE FOR PHOTOGRAPHING PETROGLYPHS IN BRIGHT DAYLIGHT

by Fred E. Coy, Jr.

The first and most important piece of equipment is a camera with a leaf shutter (between the lense shutter, Compur Rapid shutter) in contradistinction to modern day cameras with focal-plane shutters. Any of the twin lense reflexes are good (2 1/4" X2 1/4"), the camera that I use is a Retina Reflex 35mm. I just looked at the Retina Reflex cameras on line and they were priced at less than \$150. The purpose of using the leaf shutter type of cameras is that they are synchronized at all of the speeds, usually up to 1/500 second. The second piece of equipment is an electronic flash with the flash sensor – I use a Vivitar 283. I just looked the Vivitar 283 up in Shutterbug and it is still available for less than \$60. The third piece of equipment is a PC extension flash cord to go from the camera to the flash unit. You are now ready to go.

To use:

The slower film that you use the better. I used Kodachrome 25 (now 64 because they have stopped making Kodachrome 25). I will use my Vivitar 283 as an example. Place the sensing element on the shortest distance, smallest *f.* (largest number) setting for the film used (10 feet at *f.* 11 using Kodachrome 64). Place your camera on a tripod and focus on the petroglyph that you wish to record (most of the leaf shutter type cameras have manual focus which is great because it forces you to focus on the object that you want rather than have the camera do the guessing) using the *f.* 11 setting on the camera set at 1/500 second. Plug the PC cord into the camera and also into the flash (the flash has an odd attachment and you may want to get a PC attachment for the hot shoe of the flash). Now use the flash at a low angle as you would at night. I generally use multiple exposures around the petroglyph that I am trying to record (it is generally better to make several exposures at one site because two or three originals are much better than trying to make duplicates later and cheaper than a return trip). The flash sensor assures that you have the correct exposure (be certain that the sensor is pointing the same direction as the flash). If you are doing this by yourself you can use the automatic timer on the camera. I often use this anyhow to keep the vibration down. By using 1/500 second the low *f.* setting you have effectively blocked out some of the ambulant light. The difference between your setting of *f.*11 and 1/500 second will be two or more stops less than the exposure with ambulant light. The light from the electronic flash will give enough light and shadow to show the petroglyph but the area around the petroglyph will still be visible but underexposed.

I might add a bit of information here about photography that will be old hat to most of you. An "*f.*" number is determined by the ratio of focal length of the lense to diameter of the diaphragm (iris opening). The standard *f.* settings i.e. *f.* 4, *f.* 5.6, *f.* 8, *f.* 11, *f.* 16 etc. each represents a reduction by one half the amount of light reaching the film as the *f.* numbers become larger. The speed of the shutter 1/25 second, 1/50 second, 1/100 second, each also reduces the amount of light by one half reaching the film. Each of the above are known in photographic jargon as "stops." These stops can be manipulated around to give the exposure that you desire as to depth of field or speed. What we are trying to do here is to manipulate these numbers to reduce the ambient light as much as possible and still supply enough low angle light with an electronic flash to adequately bring out the petroglyphs. Applying the standard rule of thumb the correct exposure in bright sunlight is the speed of the film over *f.* 16, for instance using an ASA 64 speed film in bright sunshine the correct exposure would be *f.* 16 at 1/64 second or *f.* 11 at 1/128 (1/125) second, or *f.* 8 at 1/256 (1/250) second or *f.* 5.6 at 1/512 (1/500) second. If you set the camera at a shutter speed of 1/500 and an iris setting of *f.* 11 using a film speed of ASA 64 the object would be two stops (*f.* settings) underexposed. In other words you have reduced the effect of the ambient light by two stops.

Faces in the Forest: First Nations Art Created on Living Trees.
Michael D. Blackstock. 2001. McGill-Queen's University Press Publishers,



Book Review:

by

Dr. Fred E. Coy, Jr.

It is well appreciated that within the near past there has been an explosion of interest in all aspects of the field of rock art. A few years ago, 1986, research on the engravings left in the sediments coating the walls of caves by the American Indians, "mudglyphs," was added to the field of rock art. Most recently the terms "dendroglyphs" or "arborglyphs," communications carved or painted on the less durable boles of trees, has crept into the literature. Dendroglyphs have been described by early travelers and keepers of journals in the Eastern United States as a picture writing type of communication left on trees by the American Indian to convey his messages. In the Western United States there has been an exerted effort by many to record the picture writing of the Basque shepherders on aspen trees while they are still extant.

In 1999 I was privileged to review a draft copy of *Faces in the Forest, First Nations Art Created on Living Trees*, authored by Michael D. Blackstock. He was born 1961 of mixed parentage in Smithers, British Columbia, paternal ancestor Gitksan, First Nation and maternal ancestor of European descent. He was taught by both parents from a very early age to enjoy and respect nature. In 1985 he graduated from the Forestry program at the University of British Columbia. In 1994 he was one of the first graduate students to take advantage of a First Nations Studies, master's program at the University of Northern British Columbia. About this time Michael became aware of Gitksan trail and boundaries being marked by clan carvings. He became interested in using these carvings as the subject of his research for his master's dissertation. He was encouraged to use this dissertation as the basis for a book that has resulted in the publication of *Faces in the Forest*. Presently Michael D. Blackstock is Aboriginal affairs manager in the Ministry of Forest, British Columbia.

Montreal & Kingston. London. Ithaca. xxxii +224 pp. \$44.95 (cloth), ISBN 0-7735-2256-5.

The book is a scholarly treatise on the significance of the culturally modified living trees created by the Native Peoples, "First Nations," of British Columbia and the Yukon Territory of Western Canada. Michel D. Blackstock expresses the theme of the book in the opening sentences of his preface: "Elders have warned me about creating meaning with knowing. They would not want me to create meaning for the sake of order where meaning may not exist, at least not in a profane sense. This book is a journey into the sacred forest; it is also an anthropological discourse from a First Nations point of view." He continues a few paragraphs later with his position: "First Nation culture is strong and has survived despite the oppressive effects of colonialism. On the other hand the culture cannot return to the form it had prior to European contact. I have found a way to feel comfortable in the Western and Gitksan cultures. My place is at the edge of both, where the two cultures interface: I have a foot in each world. I guide the reader through transitions in perspectives, just far enough to respect the other's perspective, because we can never be completely uprooted from our cultural stance."

Blackstock divides his book into four chapters in which he takes the reader on a metaphorical journey into the realm of carvings and paintings on living trees by First Nations peoples:

● Chapter One: The Long Way Around Is Closer to Home,

Blackstock starts the chapter with his personal philosophy for proceeding with his research with a story about how the long way around is usually the best and safest way to a point. He introduces the reader to his "Journey" into the field of culturally modified, "sacred," trees, initially inspired by a paper on Tsimshian Culture by George F. MacDonald and information supplied by his uncle Walter Harris (Chief Geel).

● Chapter Two: Preparing for the Journey.

This chapter is a comprehensive review of the literature on arborglyphs, (dendroglyphs) with the Gitksan spiritual beliefs regarding trees and the forest.

● Chapter Three: The Journey.

Blackstock visits several of the extant "faces carved on trees" and includes several oral histories about them.

● Chapter Four: Campfire Reflections of the Journey.

This chapter is a summary of Blackstock's reminiscences and philosophy on the information and thoughts carved or painted on to or into living trees from the dual aspects of being a trained forester and also a Gitksan.

A Forward is by Dr. Antonia Mills, Ph.D., Associate Professor in the First Nations Studies Department at the University of Northern British Columbia, also included are comprehensive Notes, References and Index plus an Appendix. The book is abundantly illustrated with 34 photographs, 12 line drawings and a map.

This is a very compelling book to read with points illustrated by numerous stories. It should be in the library of anyone interested in the Native American, First Nation, cultural, physiological, and sacred traditions with emphasis on "art" left on living trees.

The entire Preface to Faces in the Forest may be found on line at:
<http://www.mqup.mcgill.ca/2001/xt-black.htm>



IFRAO Standard Scale

Preamble

The IFRAO (International Federation of Rock Art Organizations) Standard Scale was first proposed in *IFRAO Report No. 6* (Bednarik 1991). Consultation of researchers and various specialists in the following years has led to progressive evolution of the design (cf. *Rock Art Research* 8: 156) until it was finalised in 1993. The Australian Institute of Aboriginal and Torres Strait Islander Studies then made available a grant to meet the cost of producing the Scale, through its Rock Art Protection Program. The Institute realised the enormous advantages of such a measure — in documentation, computerisation, and the study of rock art and patination.

Purpose of the Scale

We know that there are many millions of photographs and colour transparencies of rock art in existence world-wide: in my estimation at least twenty millions. Many archives have in the order of hundreds of thousands of images, while thousands of individual researchers each possess collections of many thousands of colour slides or photographs. We also know that this enormous collective record is irreplaceable, and yet it is doomed to eventual destruction. No known photographic dye is fade-proof, and we still lack any form of permanent photographic or digitised storage of imagery (Dickman 1984). In short, this enormous effort of creating a visual record of world rock art is ultimately in vain. Even with rapid rock art deterioration it will be survived by most rock art, fortunately. But there is a simple way of rendering this massive record permanently useful: digitised colour re-constitution or reconstruction.

In scientific photography it is essential to know the size of an image, and for this purpose, Taylor et al. (1979) designed a simple ten-centimetre scale for rock art recording. A scale has other roles too. It serves as a general indication of a photograph's sharpness, by showing how well it was focused and processed. Manual focusing is often difficult with rock art, because of the typical lack of straight or well-defined lines, and the operation of a camera with viewfinder focusing is much easier by selecting one of the lines on a scale.

More important than the black and white scale markings are the colour blots. The colour properties of an object are always distorted in a photograph, by such factors as optics, film type, paper type, temperature and, most particularly, lighting conditions.

Therefore a colour photograph cannot be expected to be a true record of chroma, value and hue. However, by checking the colour distortion on a scale photographed with the rock art we can obtain an indication of its severity. Some rock art researchers (a very tiny minority) have been using a variety of colour scales, including the Munsell Soil Colour Chart, the Kodak Colour Separation Guide, the Letraset Pantone colour chart and a variety of others. These colour standard charts are all expensive, they are all different, and standardisation would obviously be desirable here.

The main reason for needing a standard photographic scale, however, is its function as a COLOUR CALIBRATION DEVICE for a variety of computer-supported uses. Electronic colour enhancement methods have been used in rock art studies for many years (Rip 1983). In 1994, electronic colour re-constitution of rock art images was achieved at the National Museum of Man in Bhopal, India, calibrated with the IFRAO Standard Scale as the profile device (Bednarik and Seshadri 1995). This has led to the development of colour-re-constitution software at the Museum.

The original colour values of colour-distorted and even faded rock art photographs can now be automatically re-constituted almost in an instant. The only precondition is that the photograph must bear a colour standard against which the computer can calibrate. The greatest advantage is that the computer does not recover the colour properties of the original photograph, before it faded, but goes beyond that — all the way back to the true colour of the rock art image at the moment it was photographed! It re-constitutes the actual colour properties of the subject at the time, even if this was several decades earlier. Colour re-constitution thus compensates for photographic distortion as well as for the subsequent fading of dyes.

This technology opens enormous possibilities in research, recording, documentation storage, computerised image manipulation, publishing and conservation studies. For instance, such techniques can facilitate mathematically precise monitoring of deterioration of rock art pigment or patinae over any period of time (Pager 1992; Ward and Maggs 1994). They permit the recovery of objective colour infor-

mation, free of the 'technical subjectivity' of conventional photography. They facilitate the digitisation of real colour information, which can then be used in many ways: it can be permanently stored, it can be used as the basis of enhancement procedures (Rip 1989), or it can be cross-checked in intra- and inter-site studies for various purposes by engaging computer search functions. Such information can also be used in conservation, retouch, graffiti and lacunae repair, comparative pigment studies, sourcing studies, dating work, recovery of very faint images, printing of colour plates and so forth. It provides a reliable and standardised base for numerous applications, and while many of the technologies required may not yet have been developed, it is most reasonable to expect that they will be available within a few years. All that is required at this stage is that every photograph taken of rock art for scientific purposes must bear the same colour calibration standard scale.

The long-term effect of the use of the IFRAO Standard Scale will be a standardisation of the photographic record of world rock art. Our archival record will become a permanent record by virtue of its retrievability. The greatest fear of all rock art students, that the art will deteriorate beyond archival recovery, can be met by the knowledge that the susceptibility of our photographic record to colour calibration will lead to an 'ultimate conservation method'. We will have the means of preserving rock art in pristine condition forever, at least in our archives.

Use of the IFRAO Standard Scale

The IFRAO Standard Scale bears the printing date and will be periodically reprinted to guard against it fading. It should be stored in a dark, dry and cool place when not in use. It includes a grey scale for comparing tone values. The patches correspond with reflection densities of 0.0, 0.70 and 1.60 respectively.

The Scale must never be placed over rock art, or very close to a motif. Preferably it should not be attached to the rock face. In vertical or over-head locations, the Scale should be hand held. Only where definitely undecorated and structurally sound rock surface is available may the use of small double-sided adhesive pads be considered, or the insertion of small metal pins through the Scale to affix it to soft rock surfaces (e.g. in limestone caves); but this is to be avoided whenever possible.

The Scale should be positioned parallel to the predominant plane of the rock art motif and the same

distance from the camera lens. Ensure that the lighting source is not directly reflected by the Scale. One Scale should be used for distances of up to 1.5 m. Between 1.5 and 4.5 m, two Scales are required. The Scale cannot be used with precision at distances exceeding 4.5 m, using lenses of standard focal length. Best results will be achieved at distances of under 1 m. Where artificial lighting is required, place the Scale on upper left corner and light the image from same direction. However, natural lighting is preferred to artificial. The small scale on the left-hand end of the IFRAO Scale is intended for close-up photographs. For best digital results, slides or negatives are preferred to prints.

The IFRAO Standard Scale is distributed free to all rock art researchers of the world (the members of the thirty IFRAO-affiliated organisations). In addition, it is rapidly being adopted by specialists in various other fields. Specimens of the Scale are available from the IFRAO Convener's office (P.O. Box 216, Caulfield South, Vic. 3162, Australia). The sale of the IFRAO Scale for profit is not permitted. The Scale is not subject to copyright within IFRAO and may be reproduced by any organisation affiliated with IFRAO — but again, not for profit.

Acknowledgments

I express my gratitude to the sponsor who underwrote the initial production costs of the IFRAO Standard Scale, the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra, Australia. I also thank the Australia-India Council, Canberra, for supporting the work at the National Museum of Man in India in 1994.

ROBERT G. BEDNARIK
IFRAO Convener

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ARKANSAS WEB SITE:

Congratulations to Dr. George Sabo and his colleagues at the Arkansas Archaeological Survey and University of Arkansas at Fayetteville. With a \$17,600 grant, the group has put together an on-line database of Arkansas rock art and an educational web site to accompany it. The on-line database contains hundreds of painted or carved images from around the state. Visitors can search the database for specific motifs by selecting fields such as image (motif) depicted, medium, etc. There is also a "FAQ" feature, educational activities and lesson plans, plus a site report form in case anyone finds a new site and wishes to report it. Sabo hopes the web site will encourage "more interest and further study." Check it out at: [HTTP://ROCKART.UARK.EDU/](http://rockart.uark.edu/).

CORRECTIONS TO SPRING NEWSLETTER:

Kevin Callahan's corrections to the Spring Newsletter –

1. Samuel's Cave was discovered in 1878 rather than 1978.
2. Bart Henson's name was incorrectly spelled (due to an OCR typo error).
3. Ed Lenik lives in New Jersey.

Also, we have been advertising the only collection of eastern rock art papers ("**Rock Art of the Eastern Woodlands**"), a book edited by Charles H. Faulkner and published by the American Rock Art Research Association. The address has been listed incorrectly. If you would like to order this book that contains papers by Coy, Diaz-Granados, Faulkner, Hedden, Henson, Hockensmith, Hranicky, Lenik, Lowe, Mooney, Swauger, and Wagner, please send a check for \$16.00 to:

Deer Valley Rock Art Center, POB 41998, Phoenix, AZ 85080.

NOTE:

WHILE WE ARE WORKING OUT A REORGANIZATION OF THE QUARTERLY NEWSLETTER EDITORS, PLEASE SEND YOUR RESEARCH REPORTS, NEWS AND NOTES, BOOK REVIEWS, ETC. FOR THE FALL ESRARA NEWSLETTER TO:

Carol Diaz-Granados

7433 Amherst Avenue

Saint Louis, Missouri 63130-2939

or e-mail them to her at: cdiazgra@artsci.wustl.edu

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ESRARA Newsletter

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Summer Newsletter Editor
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In this issue:

- ***Preliminary notice for ESRARA 2003 Meeting!***
- ***Brief report on ARARA Wyoming Conference
(Plus pictures!)***
- ***Dr. Fred E. Coy, Jr. receives Wellmann Award***
- ***Pennsylvania Recording Project Funded***
- ***Impact of 3-D Laser Scanner***
- ***Book Review: "Faces in the Forest"***
- ***New Site found in South Carolina***
- ***Photographing in bright sunlight***
- ***IFRAO Scale enclosed (along with info)***