



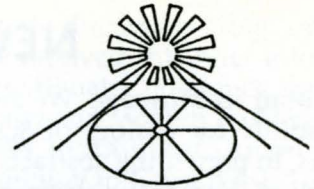
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ARCHAEOASTRONOMY & ETHNOASTRONOMY NEWS

The Quarterly Bulletin of The Center for Archaeoastronomy



#12, June Solstice, 1994

Connections

Dave Dearborn

Nature is a word used to describe the basic constitution of the universe, and is culturally invariant. Electrons do not care what you call them, and ask nothing of an individual's belief system. As a result, televisions, nuclear weapons, imaging radars or simple light bulbs work well for Europeans, Hindus, Chinese and Muslims. Science is simply a means for questioning nature about its basic constitution. The questions that can be asked through science are limited in extent (i.e., there may be more in nature than can presently be investigated), but the process has given people from around the world an astounding ability to work with nature. This powerful process has developed from the achievements of individuals from many cultures, and elements of what has become modern science can be found in the activities of the inhabitants of every continent. Observation and the systematic organization of information are activities that extend through the earliest historic periods and perhaps even into the late paleolithic. While nature is invariant to culture, the method of asking it questions and the questions asked do vary. The means by which a society acquires and utilizes knowledge is not simply an academic curiosity, it can be a determinate for survival and prosperity.

The power of the Sun and the presence of the sky make astronomy an area that was questioned by many groups. As a result, astronomical knowledge is a suitable topic for cross cultural comparisons, and archaeoastronomy is pursued as a means of learning more about how various cultures collect and use that knowledge. Archaeoastronomy is still in the early stages of developing the theoretical understanding of how astronomical practices were integrated into societies, but we are certainly beyond the stage of simple alignment collecting. While the primary goal of archaeoastronomy will continue to be social or cultural research, our results may be useful for teaching how the process of science itself works.

In an earlier essay (*A&E News* #8), I suggested that archaeoastronomy was a superior vehicle for giving students an understanding of science and illustrating its integration into society. This is particularly true for students who reject science as a purely western development that cannot be practiced without loss of cultural identity (and possible assimilation). Research like that of David Jacobs (see news note below) may ultimately be used to show students that science (or at least portions of it) was a process used in many cultures, and understanding it leads to enrichment, not assimilation. In an attempt to put my meager temporal resources where my scribbling has been, I have been working with the staff at DQ University (near Davis, California) to develop an archaeoastronomy course for Native American students. As part of the usual academic procedure (begging for grant money), we now have a *draft* syllabus and reading list (and I admit to having drawn shamelessly from the materials sent to me after the earlier essay). I would now like to make that syllabus available to other interested parties with the hope of continuing discussion on the subject. To obtain a copy, send a message to me (e-mail is preferred) at dearborn@ocfmail.ocf.llnl.gov or (510) 422-7219. ☆

Editor's Column

ARCHAEOASTRONOMY Vol. 11 is hot off the press, and we're sitting back and...well, we're thinking about our subscription list. Please look at the number in the upper corner of your mailing label. If it is 11 (or earlier), your subscription expires with this issue. If you wish to continue receiving *A&E News* and Vol. 12 (and we certainly hope you do!), it is time to resubscribe.

We are indeed working on Vol. 12. Although we already have some articles and reviews, there is still space available, so we are accepting submissions for publication. You can help us maintain our schedule by sending your submission on disk (Mac or DOS) or by e-mail to John Carlson (yes, John has entered the electronic age), at the address on the last page of this newsletter. We will, of course, be happy to receive manuscripts in the time honored fashion of metallic dye marks on processed carcasses of trees.

No essay was solicited for this issue of *A&E News*, as I chose to write one to close out our 3rd year of the newsletter and 11th volume of the journal. Guest essays will continue to be a feature of *A&E News*. In coming issues, we hope to present ideas and comments by Alexander Marshack, David Jacobs and others. In both the essay and this editorial, I am taking the opportunity to continue the discussion of archaeoastronomy as a vehicle for promoting science education.

Lorna Waddell-Kremer has sent a description of the course taught by Chuck Frake at the University of Buffalo. The course includes sections on the astronomical practices of Medieval Europe, Mesoamerica and Pacific Navigation. Lorna has contributed material and taught the section on Diné (Navajo) astronomy, with additional material on Iroquois, Skidi Pawnee, Lakota

Editorial, continued on p. 2.

ARCHAEOASTRONOMY journal Volume 11 was mailed with this issue of *A&E News* if your subscription is current. Please renew now and remember us when you think of tax-deductible, charitable contributions. We depend on your support.

NEWS NOTES

• **Our Man in Moscow:** We are collaborating with Alexander Gurshtein of the Institute for History of Science and Technology, Russian Academy of Sciences, in presenting abstracts of papers that might otherwise go unnoticed in the West. Here is the abstract to Alex's "Prehistory of Zodiac Dating: Three Strata of Upper Paleolithic Constellations." It is the second part of an investigation "On the Origin of the Zodiacal constellations," which was published in *Vistas in Astronomy*, Vol. 36, pp. 171-190, 1993.

A pattern of archaic proto-constellations is excerpted from Aratus' *The Phenomena*, using criteria elaborated earlier, and their symbolism is analyzed. Three celestial symbolic strata are discovered that may be a reflection of the symbols for the Lower, the Middle and the Upper Worlds; the Under-World creatures have water character, the Middle World ones are mostly anthropomorphic, and flying beings are for the Upper World. The strata excerpted from Aratus' sky seem to be in agreement with the well-known Babylonian division into three god pathways for Ea (Enki), Anu and Enlil. Precession of the equinox suggests a date for the beginnings of the pattern as far back as 16,000 years, a result supported by comparison of the mean sizes of different star groups. The enormous size of the Argo constellation (Ship of Argo and his Argonauts), as well as large sizes of other southern constellations are explained due to the existence of an accumulation zone near the South celestial pole. Some additional correlations between the reconstruction proposed and cultural data are discussed.

• **Such a Deal!** Cambridge University Press has sold a number of copies of *Records in Stone* to the editor of the volume, Clive Ruggles, at reduced cost. This memorial volume for Alexander Thom includes contributions by Archie Thom, Aubrey Burl, Euan MacKie, Clive Ruggles, Jon Patrick, Peter Freeman, Graham Ritchie, Anthony Aveni and Ed Krupp. Clive is able to offer this volume on a first-come-first-served basis, at the price CUP charged him, plus his own costs for further postage and packing. These copies must only be for personal use and cheques must be personal ones payable to Clive. This is because the book is not remaindered and copies will continue to be sold by booksellers at full price (currently £70.00/US\$120.00).

Clive estimates an expenses-only price of £7.50 (\$12) per copy for UK or surface-mail delivery. Please add £2.50 (\$4) per copy for delivery elsewhere in Europe, £5.00 (\$8) for air mail to the U.S. or Canada, and £7.50 (\$12) for air mail elsewhere. He can only deal with sterling cheques drawn on a British bank or dollar cheques drawn on a U.S. bank. Send your order to Clive Ruggles, Department of Mathematics and Computer Science, Leicester University, Leicester LE1 7RH, England.

Clive states "If I end up with any excess funds I will use them to send complimentary copies to eastern Europeans or other people in non-Western countries who would be interested in the contents."

• **Solar Mounds and the Salado Civilization:** A popular article in the April 1994 *Phoenix Home and Garden* describes archaeological research being done at a Tonto Basin site in Arizona. Under the direction of Glen Rice of the Anthropology Department at Arizona State University, researchers have found a platform mound of ceremonial design that seems to have been constructed to mark seasonal motions of the sun. A preliminary report was given by David Jacobs at the 1991 meeting of the Society for American Archaeology and was subsequently published under the title "Increasing Ceremonial Secrecy at a Salado Platform Mound" (*Developing Perspectives on Tonto Basin Prehistory*, edited by Charles Redman, Glen Rice and Kathryn Pedrick, Arizona State University, Office of Cultural Resource Management, Anthropological Field Studies 26, pp. 45-60, 1992). In his article, David describes the growth of the site, including the construction of a platform mound from a pre-existing building. Several rooms at the site are interpreted as light-shadow markers for the solstices. David is currently working on the theoretical study of how astronomical observations were integrated into the social activities of early Native Americans in the Phoenix area.

— Editorial, continued from p. 1. —

Sioux, Haida and Zuni cosmologies. Readings for the course include Trudy Griffin-Pierce's *Earth is My Mother, Sky is My Father: Space Time and Astronomy in Navajo Sand-painting*, Tony Aveni's *Sky Watchers of Ancient Mexico*, Thomas Kuhn's *The Copernican Revolution: Planetary Astronomy in the Development of Western Thought* and Stephen Thomas' *The Last Navigator*. Lorna has now moved to the Department of American Studies at the University of New Mexico, where she hopes to establish a course in archaeoastronomy. We continue to be interested in hearing about teaching archaeoastronomy at all levels. — DSPD

And speaking of education, the historical Astronomy Division of the American Astronomical Society will hold special sessions on "Teaching Astronomy Through History" at its next meeting in Tucson, 8-9 January 1995. These sessions will be sponsored jointly with the AAS Education Officer and the Working Group on Astronomy Education.

For the purpose of these sessions, "history" includes everything from prehistoric to modern, and "teaching" covers any setting from the classroom to the campfire. For more information, contact LeRoy Doggett at (202) 653-1572 or doggett@ariel.usno.navy.mil — LED

In Memoriam

We have learned of the passing of Robert Merritt at the age of 74 from cancer. A tax lawyer by profession, he pursued a wide range of intellectual interests, becoming prominent in civic activities in Cleveland, Ohio. Fortunately, he became interested in archaeoastronomy, both as sponsor and research collaborator. He was a member of the team assembled by Alexander and Archibald Thom that surveyed sites in Britain, Brittany and Scandinavia. This effort resulted in a series of important publications in the *Journal for the History of Astronomy*. We will remember Bob for his kindness and for his devotion to the field.

• **Cultural Astronomy Meets S&T:** *Sky & Telescope* is a popular monthly magazine written for amateur astronomers (and frequently read by professionals). A regular feature is the column "Rambling Through the Skies," which deals with current celestial events. Ed Krupp, director of the Griffith Observatory in Los Angeles and one of archaeoastronomy's most prolific writers, is a current contributor to this column. Ed's June 1994 column, titled "Rabbit Tracks," brings his interest in cultural astronomy to the pages of *S&T*. In it, he introduces readers to Navajo Lore surrounding Scorpius. Ed cites the work of Von Del Chamberlain in analyzing Navajo constellation patterns and Aileen O'Bryan's study of lunar associations in that culture, a book titled *The Diné: Origin Myths of the Navajo Indians*. Look for Ed to cover a wide range of cultures and astronomical topics in this ongoing column.

• **The Snake River Institute** of Jackson Hole, Wyoming will again present a short summer course called "Stories in the Sky." The ever-active Ed Krupp will present lectures on the evenings of 29 and 30 August 1994. Tuition for each evening is \$10 for adults and \$5 for children. For additional information, contact the Snake River Institute, P.O. Box 128, Wilson, WY 83014.

• **Ancient Skies, Ancient Lives** is a program on the archaeology and astronomy of the Southwest that will be presented by the Crow Canyon Archaeological Center. The program combines visits to ruins such as Chaco Canyon and rafting on the San Juan River, with lectures on archaeology and astronomy of the Anasazi. Astronomy will be presented by Ray Williamson, who is well known for his work at Chaco. Future presentations of "Ancient Skies and Ancient Lives" will be 23–31 July and 2–10 September. For information, write to the Crow Canyon Archaeological Center, 23390 Country Road K, Cortez, CO 81321, or call (800) 422–8975. The Center is also sponsoring a program by Kim Malville called "Solstice Markers and the Anasazi Sky." However, this program is already full.

• **Exploring Copán: Sacred Geography and History on the Southern Maya Frontier:** John Carlson will lead an intensive archaeological study tour to the Maya site of Copán, Honduras, 27 January–2 February 1995. Co-sponsored with the Barbachano Foundation, the tour includes round-trip air fare from Miami to San Pedro Sula, with five full days at Copán to study the latest excavations with the archaeologists. Space is limited. Price is approximately \$1500, which includes a tax-deductible donation to the Fundación Copán. For more information, contact your editor, John Carlson.

Meetings and Conferences

• **SEAC Meeting:** The European Society for Astronomy in Culture (SEAC) will hold its 1994 symposium in Bochum, Germany, 29–31 August. Anyone not currently on the SEAC mailing list who is interested in receiving further details of the meeting should contact the organizer, Prof. Wolfhard Schlösser, Astronomisches Institut, Ruhr-Universität, Universitätsstr. 150, D-44780 Bochum, Germany.

• **Ugh Beg (1394–1449) Jubilee:** From HASTRO–L

(Steve McCluskey's electronic discussion group on the history of astronomy), we received this brief information concerning an International Conference on Advances in Astronomy (History and Modern Problems) to be held in September 1994 in Tashkent. Among the themes is "History of Astronomy in Central Asia" (Prof. T. S. Yuldashbaer, Astronomical Institute, Academy of Sciences, ul. Astronomicheskaya 33, Tashkent 700052, Uzbekistan, CIS).

• **The Annual Chacmool Conference** will be held 10–13 November 1994 in Calgary, Canada. The focus is on human travelers and, in particular, the social, cosmological and political ideas that traveled with them. The broad nature of this mandate includes the spread of cosmologies and astronomies. Contact the 1994 Conference Committee, Dept. of Archaeology, University of Calgary, Calgary, Alberta T2N 1N4, Canada, or e-mail Lesley Nicholls (13042@ucdcaasvml.admin.ucalgary.ca).

• **The 17th International Congress of History of Religions**, which will include a symposium on Andean Religions, is being organized by Mariusz Ziolkowski. It will include papers relating to archaeoastronomy. The meeting will be held in Mexico City, 5–11 August, 1995. We will present more information as it becomes available.

• **Mural Masterpieces of Ancient Mexico: A Symposium**, 17 September 1994. A special one-day symposium, sponsored by the Pre-Columbian Society of Washington, DC, the Center for Maya Research, and the Center for Archaeoastronomy, will feature six principal speakers: John Carlson (Cacaxtla), Beatriz de la Fuente (Mexican Murals Project), Stephen Houston (Bonampak-Maya), Arthur Miller (Oaxaca), George Stuart (Moderator for Panel and Introductions) and Sabuaro Sugiyama (Teotihuacan). To obtain more information, contact Jeff Splitstoser: (301) 942–5532.

Publications

• *Ancient Astronomers* by Anthony Aveni is a 1993 publication in the Smithsonian series "Exploring the Ancient World," Jeremy Sabloff, general editor. It is published in Montreal St. Remy and by the Smithsonian, Washington, DC. The book has 176 pages with many illustrations. Tony believes the price is \$19.95.

• *How the Shaman Stole the Moon* by William H. Calvin, Bantam, 1991, is principally about pre-Stonehenge methods for forecasting eclipses. A brief version, "Foretelling Eclipses," was published in the *Whole Earth Review*, 7:64–71 (1991). It is available by gopher from: gopher.well.com, Science heading.

• *Star Myths of the Vikings, A New Concept of Norse Mythology*, by Bjorn Jonsson is privately published. The cost is \$35.00 Canadian or \$27.00 US plus \$3.00 postage. For information contact Bjorn Jonsson, P.O. Box 1027, Swan

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- "Written in the Stars: Celestial Origin of Maya Creation Myth" by Richard Wertime and Angela Schuster, *Archaeology*, Vol. 46, No. 4, July/August 1993, pp. 26-35. (See also the editor's note in this issue and the correction in the next issue, Vol. 46, No. 5).
- "How Long is a Lunar Month?" by Ala'a H. Jawad, *Sky & Telescope*, November 1993, pp. 76-77.
- "Lunar Crescent Visibility" by LeRoy Doggett and Brad Schaefer, *ICARUS*, Vol. 107, pp. 388-403, 1994. An analysis of 1534 observations, with tests of prediction models.

José Barrios García has reported the following publications which are part of his doctoral studies in the Anthropology Department of the University of Laguna, Tenerife, Spain. These studies include investigation of the calendars and astronomical practices of the ancient inhabitants of the Canary Islands. Most of these papers are either in press or as yet unpublished. As we know of relatively little work in this area, we are presenting the titles. Interested parties can contact José directly at José Barrios García, Dpto. de Análisis Matemático, Universidad de la Laguna, 38271 La Laguna (Tenerife), Canary Islands, Spain.

- "Apuntes para un Estudio Arqueoastronómico de las Pirámides de Chacona (Guimar Tenerife)", *La Gaceta de Canarias*, 3 November 1991, pp. 16D.

- "Estudio Sobre la Noción de Alma entre los Antiguos Canarios", *Proceedings of the 1st International Congress on Mummy Studies*, February 1992, in press.
- "La Lista de Numerales Canarios Atribuida a Antonio Cedeno. Estudio de Variantes (Cedeno, Marin de Cubas, Fr. José de Sosa, y Abreu Galindo)", *Actas del X Coloquio de Historia Canario-Americana*, December 1992, in press.
- "Notas Sobre los Conocimientos Matemáticos y Astronómicos de los Benahoaritas, Según las Fuentes Escritas Anteriores al Siglo XVII", *Actas del I Congreso de Historia, Arte y Geografía de la Palma*, Mar 1993, in press.
- "A Berber Solstitial Marker Earlier than the 16th Century in Grand Canary Island (North-West Africa)." Paper read at the Fourth Oxford International Conference on Archaeoastronomy, Stara Zagora, Bulgaria, August 1993, unpublished.
- "Some Remarks about the Astronomical Orientation of the Pyramids of Chacona (Guimar, Tenerife)." Paper read at the Fourth Annual European Conference on the Current Problems and the Future of Archaeoastronomy, Smolyan, Bulgaria, September 1993, unpublished.
- "Mathematica Tribales y Cultura el Caso de las Canarias. Bereberes Durante los Siglos XIV y XV." Paper read at the VI Congreso de Antropología de la Federación de Asociaciones de Antropología del Estado Español, Tenerife, Spain, September 1993, unpublished.

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