

# UC Berkeley

## International Association of Obsidian Studies Bulletin

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# IAOS

International Association for Obsidian Studies

## Bulletin

Number 31

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### *International Association for Obsidian Studies*

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### NEWS AND INFORMATION

#### **CALL FOR PAPERS**

Please consider joining an IAOS sponsored session on long distance exchange at the 2006 Society for American Archaeology meetings in Puerto Rico. If interested, please contact Carolyn Dillian at [cdillian@crcg.net](mailto:cdillian@crcg.net) or stop by the IAOS meeting in Salt Lake City.

#### **IAOS ELECTIONS**

We have one nominee for the position of President of the IAOS for elections to be held in 2004 and inauguration during our annual meeting at the SAAs in 2005. Please review the election materials enclosed with this *Bulletin* and complete and send the ballot on the last page. You can also vote electronically by sending an email with your vote to Janine Loyd at [iaos@origer.com](mailto:iaos@origer.com)

#### **CONGRATULATIONS**

Congratulations to Anastasia Steffen (University of New Mexico), the recipient of the 2003 IAOS Travel Award to attend the *International Specialized Workshop: Recent Advances in Obsidian Dating and Characterization* in Melos, Greece.

#### **AWARDS**

The IAOS has instituted a new award for obsidian-related papers presented during conferences or meetings. The award consists of a two-year membership in the IAOS and publication of the paper in the *IAOS Bulletin*. If you have a paper you wish to nominate, please send the following information to Carolyn Dillian at [cdillian@crcg.net](mailto:cdillian@crcg.net)

- Name and affiliation of nominee
- Title of paper
- Conference where presented

## NOTES FROM THE PRESIDENT

Greetings! I recognize that many of you were perhaps wondering whether the IAOS has folded, and I assure you, we are beginning a new effort to resurrect our organization. Beginning with our co-sponsorship of the international obsidian workshop in Melos, Greece last summer and now continuing with a new look to our *Bulletin*, we hope to rebuild interest in the IAOS as a forum for obsidian researchers to communicate and share ideas. As I prepare to transition leadership of the IAOS to a new president (please vote!), and take up my new role as editor of the *Bulletin* (please send articles for publication!), I ask for your assistance in generating new interest in both obsidian and our organization. Excellent work is being done on obsidian by archaeologists, geologists, chemists, and others around the world, and in many cases, being done by non-IAOS members. If you happen to attend a conference or meeting where this work is being presented, please nominate authors for our new IAOS award consisting of a two year membership in our organization. We are particularly interested in student nominees and want to increase our student membership. I ask for your help in this and all the challenges of rebuilding the IAOS. I think we can again create a new community of obsidian researchers and a *Bulletin* to present the newest and the latest in obsidian studies around the world. Thanks in advance for all your help!

Sincerely,  
Carolyn Dillian

## ELECTIONS

We have one nominee for the position of President of the International Association for Obsidian Studies. Please read the candidate's statement below and cast your vote using the ballot enclosed at the end of this *Bulletin* or by email to [iaos@origer.com](mailto:iaos@origer.com)

**Philippe D. LeTourneau**  
**BOAS, Inc. and Department of Anthropology,**  
**University of New Mexico**

I am running for election to be President of IAOS because I want to contribute to this important organization's continued growth. As President, my goal would be to help build on what I see as the IAOS' three major strengths:

- the core, dedicated membership that has been its backbone since 1989,
- the excellent newsletter that keeps us up to date on a broad range of current obsidian research,
- the extremely well run website that serves as a central resource for obsidian researchers.

IAOS has seen significant recent improvements in all of these areas, and I intend to build on this forward momentum. In the upcoming two years I would also expand on IAOS' recent successes in broadening its international connections.

I received a PhD from the University of New Mexico in fall 2000 with a dissertation on Folsom raw material procurement that allowed me to focus on my two primary research interests – Paleoindian archaeology and raw material sources. My interest in raw material sources is to better characterize their geologic and geographic locations as well as their physical and chemical characteristics to allow for better understanding of regional mobility and exchange. My research on obsidian sources, specifically, has focused on northern Chihuahua, southern New Mexico, and central New Mexico. In Seattle, I am Principal Investigator at BOAS, Inc., a CRM firm, as well as part-time archaeology faculty at Seattle Central Community College. I also have an appointment as Adjunct Assistant Professor in the University of New Mexico Anthropology Department.

**Highlights from the 2003 International Specialized Workshop:  
Recent Advances in Obsidian Dating and Characterization, Melos, Greece**

Organized by the Laboratory of Archaeometry, University of the Aegean  
and the International Association for Obsidian Studies

In forthcoming *Bulletin* issues, we are pleased to present highlights and abstracts from the 2003 *International Specialized Workshop: Recent Advances in Obsidian Dating and Characterization* held in Melos, Greece. The conference was organized by Professor Ioannis Liritzis of the Laboratory of Archaeometry at the University of the Aegean, with the assistance of Dr. Carolyn Dillian of the IAOS. IAOS served as a co-sponsor of the event. The conference was designed to address the current status and research potential of obsidian hydration dating and chemical characterization. Since the 1960's, when hydration dating first appeared, the method has proven useful to archaeologists, although unsatisfactory results have frequently occurred. The reason for this uncertainty relies on several factors: a) a limited understanding of the water diffusion in obsidian, b) the unknown temperature and humidity history of the hydration environment, and c) interpretation of site depositional context and sampling. During the last five years, the dating of obsidian has focused on modeling the concentration-dependent diffusion process. The development of this approach as well

as experimental evidence on water diffusion in obsidian and glass in general, may establish appropriate mathematical expressions, which will make the method essentially intrinsic and independent of environment factors, since they are embedded within the diffusion equations. These and other new developments were explored. As dating is closely related to the distribution and transportation of obsidian, particular presentations addressed questions regarding characterization (and thus provenance) focusing on the Aegean, Mediterranean, Pacific, United States, and other parts of the world. Therefore, up to date reviews and current results of recent archaeological excavations, chemical analyses with physical methods, and usewear analyses were presented. Papers will be published as special issues in the *Journal of Mediterranean Archaeology and Archaeometry*

([www.rhodes.aegean.gr/maa/journal](http://www.rhodes.aegean.gr/maa/journal)).

*-Editor's note: Conference description paraphrased from conference notes previously published by Prof. Ioannis Liritzis as part of workshop abstracts.*

## ABSTRACTS

Liritzis, I. (University of the Aegean) and M. Diakostamatiou (University of the Aegean)  
*Potential and Limitations of the Novel SIMS-SS Obsidian Hydration Dating Method*

Following our initial endeavor towards an integrated method of obsidian hydration dating, we are aware of certain points that need to get solved. The SIMS-SS or ODDSIMS-SS dating method basically uses the final sigmoid (S-like) profile of hydrogen concentration, C (gmolH<sub>2</sub>O per cc), versus diffusion depth, X (μm), within the obsidian to extract the diffusion time. The model consists of a) modeling the sigmoid diffusion curve, b) defining the saturation layer near the surface where C remains stable for a short time (depth) interval, thereafter decreasing to the level of pristine (intrinsic) water, c) adoption of

diffusion laws (Fick's 1<sup>st</sup> and 2<sup>nd</sup> law), as well as exponential function of diffusion coefficient D with C, and appropriate transformations emerging from these maths, with certain boundary conditions, to reach the age equation or diffusion time. Although the rationale of this development has the potential for dating, certain points need clarification, some of which will be presented in this workshop by our colleagues (Stevenson *et al.*, Brodkey *et al.*). Our concern at the moment in the course of the analysis is to elucidate 1) the evidence for re-use of the tools (as two SS layers?), 2) the water concentration on the obsidian surface (about <0.5μm)), 3) the sigmoid shape variation with time and environmental factors, 4) the choice of flat surface for SIMS analysis and the involved errors in the age.

Zhang, Y. (University of Michigan), X. Xu (University of California Irvine), and H. Behrens (University of Hannover)  
*Water Diffusion in Obsidian and Obsidian Hydration Dating*

Although obsidian hydration dating (or more generally, glass hydration dating) has been investigated as a method to determine the age of archaeological samples (e.g. Anovitz *et al.*, 1999; Liritzis and Diakostamatiou 2002; Riciputi *et al.* 2002), the fundamental basis has never been laid. This presentation attempts to lay the foundation for glass hydration dating from a theoretical point of view. Such a foundation requires an understanding of the following: 1) the water diffusivity in obsidian at room temperatures as a function of water concentration (as well as anhydrous glass composition); 2) water solubility in obsidian at room temperatures as a function of water fugacity; 3) diffusion behavior for periodically changing temperature as a function of time for natural conditions; 4) the effect of periodic boundary condition on water diffusion profile because water fugacity in nature might also fluctuate periodically; 5) possible dissolution of obsidian in water and its effect on the hydration profile, and 6) the effect of long-term trends in temperature change (global warming) and water fugacity change (such as drying of a region due to climate change, uplift of the region, etc.).

In this presentation, previous experimental data and theoretical models on water diffusion and solubility will be reviewed. Since these experiments were all carried out at higher temperatures, room temperature experiments are necessary for understanding obsidian hydration dating. Some new numerical simulations of water hydration profiles will also be presented to examine the shape of the hydration profile, the effect of periodic temperature and periodic boundary condition on water diffusion profiles, and the effect of long-term temperature and water fugacity variations. Preliminary modeling results indicate that hydration profiles in obsidian are sensitive to climate conditions. Hence, only when local T-fH<sub>2</sub>O conditions surrounding the obsidian were nearly perfectly constant, would obsidian

hydration dating be accurate. On the other hand, if age can be independently determined (Riciputi *et al.* 2002), measurement of hydration profiles has the potential to reveal past climate information.

It is hoped that the numerical simulations and models will shed light on and lay the theoretical foundation for using obsidian hydration profiles to infer information. In addition to theoretical modeling, future progress will require thorough calibration by 1) age determination of the samples, 2) measurement of hydration profiles, and 3) independent information of local climate conditions.

Jones, M. (University of Auckland)  
*Archaeological Soil Temperature and Obsidian Hydration: A Case Study in Quantifying Uncertainty in OHD Age Estimates*

The temperature history of an obsidian artifact is one of the most significant factors governing any observed hydration phenomenon. However, uncertainty in this temperature history is rarely taken into account when calculating age estimates from obsidian hydration data. This can have significant implications for obsidian hydration dating (OHD), giving rise to spuriously precise age estimates and potentially resulting in heavily biased chronological reconstructions. In this paper, we explore methods to incorporate such uncertainty into the OHD process, and assess the implications for OHD within the context of a large scale archaeological soil temperature monitoring program conducted throughout New Zealand. This study shows that temperature estimation uncertainty must be incorporated into the calculated age estimate.

While the focus of this paper is upon incorporating temperature estimation uncertainty into the OHD chronometric, this issue is not limited to temperature estimation alone. It is critical for the ongoing development of OHD that all areas of uncertainty are correctly factored into the age estimate. The general approach discussed in this paper, and the conclusions drawn, are relevant to all aspects of OHD independent of the particular dating method employed.

**Abstracts of the 2004 Annual Meeting of the Society for American Archaeology  
Montreal, Canada**

**IAOS Sponsored Session**

*From Source to Finish: Obsidian Characterization, Exchange, Technology, and Use*

As the most visible material in the archaeological record, stone tools are critically important to the interpretation of past human behaviors and lifeways, and studies of obsidian in particular have the potential for reconstructing the entire chaîne opératoire of activities represented, including quarrying, production, transport, trade, and use. The studies assembled here address the advantages and limitations of using modern analytical techniques in provenance studies, and methodological and theoretical approaches in technological, typological, and use-wear studies of obsidian artifacts. The cases presented represent major obsidian-using cultures in Anatolia, the Mediterranean, the Philippines, Alaska and the western United States, and Mexico.

Aldana, Gerardo V. (University of California Santa Barbara), Ian G. Robertson (Brigham Young University), and Joshua Watts (Arizona State University)

*Individual Style and Obsidian Craft Production at Teotihuacan*

The large sample of stemmed spear-points interred as part of the spectacular sacrificial offerings of the Feathered Serpent Pyramid provides a unique opportunity for investigating the organization of obsidian workshops at Teotihuacan. A new method for describing biface morphology is used to quantify variation in the flake-scar patterns exhibited by these bifaces. The results are used in turn to make inferences about variation in skill levels, the nature of individual style, and the number of Flintknappers responsible for making these artifacts.

Andrews, Bradford (Independent)

*Skill and the Question of Blade Crafting Intensity at Classic Period Teotihuacan*

Defining the scale and organization of Classic Period Teotihuacan's obsidian tool industry is an important research objective. One question of interest is whether its craftsmen were full-time or part-time specialists? This paper assesses the craftsman skill reflected by surface collections from workshops as a means for inferring specialist labor intensity. Skill is measured by tabulating the frequencies of attributes that represent core-blade production errors. Comparing this information to core-blade workshops from Epiclassic Xochicalco indicates that Teotihuacan may have had only part-time blade producers.

Barrett, Thomas (Greenhorne & O'Mara, Inc.)

*Tuxtlas Obsidian: Organization and Change in a Regional Craft Industry*

This paper presents the results of research into the obsidian industry in the Tuxtlas region of Veracruz, Mexico. During the Maticapan Archaeological Project and Tuxtlas Region Archaeological Survey, over 23,000 artifacts were recovered and analyzed to describe the behavior of the prehistoric industry. Analytic methods included geochemical characterization, technological analysis and pattern-recognition techniques. Also, an interpretive framework was developed based on economic theory, lithic replication and archaeological context. All artifacts were divided by debris types into stages associated with acquisition, production, distribution and consumption. Ultimately, this information tests the explanatory relevance of two opposing models of the obsidian industry.

Beyer, Lisa (University of South Florida), Robert H. Tykot (University of South Florida), and Teddi Setzer (University of South Florida)  
*The Role of Agency in the Central Mediterranean Obsidian Trade during the Late Neolithic Period.*

Understanding the role that obsidian trade played in the development of socio-economic complexity within the Late Neolithic Diana culture on Lipari is central to the reconstruction of its social dynamics within a broader regional network in the south central Mediterranean region, especially Sicily and southern Italy. We examine the social and economic functions that obsidian may have served, including body modification, animal butchery, and plant processing. We specifically focus on the internal development of social agency within the materially rich Diana culture to assess whether Lipari controlled not only its own obsidian resources but also its production and long-distance exchange.

Boley, Michael (University of Arizona)  
*Technological Characteristics of the Marana Mound Site Obsidian Assemblage*

Obsidian is ubiquitous on Classic period Hohokam village sites and clearly was valued by the sites' inhabitants. Archaeologists have recognized this and devoted much effort to analysis of obsidian. Given the ease with which the material can be sourced to geographic location, most studies have focused on issues of procurement and distribution, often emphasizing projectile points. Analyses based on technological aspects of debitage are virtually nonexistent; yet stand to contribute to a fuller understanding of the importance of obsidian to the Hohokam. Extensive sourcing information is combined with such analyses of the obsidian assemblage from the Marana Mound site.

Carballo, David (UCLA)  
*State Militarism and Obsidian Craft Specialization at Teotihuacan*

Teotihuacan's political hegemony relied on a sizable military and militaristic state ideology. Keeping soldiers armed and maintaining an active program of martially-themed ceremonies

and offerings were compelling state interests that encouraged a specialized sector of the obsidian industry for the manufacture of items such as dart points, eccentrics, and large knives. Recent excavations have uncovered obsidian workshop dumps related to the production of these items near the Moon Pyramid. This paper discusses the social and political implications of the production of weapons and ideologically-charged items at Teotihuacan and draws comparisons with other early states.

Dillian, Carolyn (Rutgers University)  
*Trade and Tribulation: Obsidian Sourcing and Interpretations of Exchange*

Geochemical characterization and sourcing of archaeological obsidian samples has underlies investigations of prehistoric exchange in many regions. However, misunderstanding of sourcing methodologies and/or archaeological or geologic contexts can result in the erroneous application of sourcing methods and results. Most sourcing practitioners are well aware of complicating factors such as secondary deposition and geochemical variation, which can affect our understanding of quarries or exchange networks. Yet the degree to which these factors affect our interpretations may still be open to question. A critical examination of geochemical sourcing as a tool for understanding prehistoric exchange remains valuable in ongoing archaeological dialogue.

Doering, Travis (University of South Florida)  
*San Andres Obsidian Analysis*

This paper presents an interpretation of data produced through the analyses of obsidian artifacts from the Middle Formative period site of San Andres, La Venta, Tabasco, Mexico. Results indicate nine Mesoamerican obsidian sources contributed to the San Andres assemblage, but one quarry in central Mexico and one in Guatemala, consistently provided the majority of imported obsidian throughout the 1,000-year occupational period. The evidence suggests that obsidian and other artifactual materials were imported through two separate acquisition hubs: El Viejon, Veracruz and San Isidro, Chiapas. Specialized social

activities and extended reuse and recycling are implied through use-wear and production analysis.

Esparza, Lopez, Juan Rodrigo (Centro de Estudios Arqueologicos El Colegio de Michoacan, A.C.)

*Los Yacimientos de Obsidiana de El Pedernal-La Mora: Una Explotacion Constante durante el Desarrollo del la Tradicion Teuchitlan*

Uno de los factores mas importantes en el desarrollo de la Tradicion Teuchitlan fue la explotacion de yacimientos de obsidiana del volcan de Tequila. Durante las exploraciones llevadas a cabo dentro del yacimiento de El Pedernal-La Mora, se registraron mas de 150 minas de extraccion con características distintas segun la calidad del material, su ubicacion y al periodo cronologico que corresponden. Esto podria confirmar una especializacion en el proceso de explotacion para posteriormente transformarla en dos tipos de artefactos: las macronavajas y las navajillas prismaticas.

Freckleton, Iain (California State University Long Beach), Carl Lipo (California State University Long Beach), and Hector Neff (California State University Long Beach)

*ICP-MS Analysis of Obsidian Sources on Easter Island: A Study of Resource Movement and Microcommunity Exchange*

Rapa Nui (Easter Island) is an archaeological setting that provides no end of questions for researchers, not the least of which centers on differential population size and access to resources between competing groups. In light of recent field inquiry into patterns of settlement and raw materials distributions, it has become plausible to apply certain conditions of a bet-hedging model as proposed by Lipo and others. Trace element analysis of Rapa Nui obsidian fragments, as exacted by a laser ablator, provides information on the movement of resources around the island and between microcommunities.

Glascock, Michael (University of Missouri), John Cook (BLM – Alaska), Randy Korotev (Washington University – St. Louis), and Harry Haskin (Washington University – St. Louis)

*Characterization of Sources and Distribution of Obsidian Artifacts in Alaska*

Obsidian has proven to be an invaluable tool for the elucidation of local, regional, and long-distance exchange in many areas of the world. Over the past 25 years, more than 1000 obsidian source specimens and artifacts from Alaska, the Yukon Territory, British Columbia, and northeastern Siberia have been characterized by instrumental neutron activation analysis. From these data, more than 40 discrete varieties of obsidian have been identified within the region. These data offer glimpses of prehistoric exchange patterns in Alaska that have not been discernible by any other means.

Lazzari, Marisa (Columbia University)

*Circulation of Things, Production of Social Spaces: The Roads of Ceramics and Obsidian in NW Argentina (1<sup>st</sup> millennium AD)*

Anthropology has long noticed that the exchange of things is connected to the production of space as a field of social experience. However in NWA archaeology, the circulation of objects has often been considered as a mechanism to overcome the environmental limits of social reproduction, while space – in terms of physical distance – was the only measure for the value of circulating things. This paper explores the landscape as a social space, constructed through the circulation and use of things and their sedimentation in different places. Lithic and ceramic evidence from sites in the Aconquija Mountains will be presented.

Menzies, Adam (University of Pittsburgh)

*The Obsidian Assemblage of Minanha, Belize*

An analysis of the obsidian assemblage from the Classic Maya site of Minanha, Belize was carried out to address questions of obsidian trade, production, distribution and the differential usage of blades at the intra-site level. Using technological analysis and low-power usewear analysis, it is suggested that prismatic blades were produced at the site, although the raw material was



likely received at a late-stage trade junction. Usewear data indicate that blades found in ceremonial contexts lack intensive edge damage whereas blades recovered from domestic contexts exhibit intensive wear patterns, indicating the importance of obsidian in both prestige and utilitarian economies.

Nance, C. Roger (UCLA) and Jan de Leeuw (UCLA)

*The Obsidian Blade Sequence for El Ujuxte, a Late Preclassic Center*

Systematic data on ca. 1200 blades El Ujuxte were summarized in terms of three ceramic phases (defined by Love 2002) for the same site. That is, blades were assigned to phases based on the ceramic content of their proveniences. Regular phase-by-phase decreases were found in blade dimensions, weights and length:width ratios, and these results had been predicted based on early findings from La Blanca (Nance and Kirk 1991). The blade sequence is discussed as the result of increased scarcity of obsidian traded to the region. The possible impact of increased inadvertent, post-use breakage is considered also.

Norris, Susan (Fordham University)

*Aztec Obsidian Blade Production and Distribution: Evidence from Household Assemblages in Yautepec, Morelos*

Late Aztec period obsidian core-blade industries were part of a highly organized and integrated system, as indicated by the effective procurement and exchange of raw materials and the movement of finished goods through market networks. A technological analysis of over 20,000 obsidian blades and debitage excavated from houses in the urban center of Yautepec demonstrated that Aztec artisans employed diverse strategies in the organization of obsidian production and exchange. Household industries intensified through time, beginning in the Middle Postclassic and continuing into the Colonial period. Obsidian production traversed social classes and household organization.

Parry, William (Hunter College – CUNY) and Shigeru Kabata (Universidad Nacional Autonoma de Mexico)

*Chronology of Obsidian Artifacts from the Moon Pyramid, Teotihuacan, Mexico*

Numerous obsidian artifacts were incorporated into the construction fill of 7 sequential substructures of the Moon Pyramid (and adjacent Complexes 6 and 22) in Teotihuacan, Mexico. Although these samples are redeposited (and probably mixed chronologically), they provide evidence of general trends and changes in raw material procurement and tool typologies. Additional evidence comes from 3 obsidian offerings associated with the 4<sup>th</sup>, 5<sup>th</sup>, and 6<sup>th</sup> substructures. Typological changes permit cross-dating with other offerings, both in Teotihuacan and in the Maya region. Finally, abundant debitage from obsidian bifaces provides evidence of specialized production in the vicinity of the Moon Plaza.

Setzer, Teddi (University of South Florida) and Robert H. Tykot (University of South Florida)

*Use-Wear Studies of Obsidian from the Late Neolithic Site of Contraguda, Sardinia (Italy)*

Lithic artifacts are among the most durable remains found at archaeological sites. Sometimes, they are the only clues available to learn about the decisions humans made in the past. This study focuses on identifying the purpose of obsidian tools from the Late Neolithic archaeological site of Contraguda on the island of Sardinia. The information obtained from use-wear analysis provides information about technology, subsistence patterns, craft specialization, and social differentiation, and how these change over time. The experimental and analytical techniques used in the research may be applied by others to obsidian assemblages from archaeological sites in other regions.

Speakman, Jeff (University of Missouri), Michael Glascock (University of Missouri), and Altan Cilingiroglu (Ege University, Izmir, Turkey)  
*Trace Element Analysis of Eastern Anatolian Obsidian by ICP-MS, INAA, and XRF*

The success of provenance studies of obsidian lies in the ability to trace culturally modified materials back to their geologic source. By identifying sources of artifacts, archaeologists can develop and test models of prehistoric trade, interaction, and access to resources. To date, the majority of obsidian source studies have used instrumental neutron activation analysis (INAA) and X-ray fluorescence (XRF). This paper explores compositional variability in obsidian from Eastern Anatolia using data generated by INAA, XRF, and laser ablation ICP-MS.

Steffen, Anastasia (University of New Mexico) and Richard E. Hughes (Geochemical Research Laboratory)  
*New Studies of Chemical Variation Within and Among Valles Caldera Obsidians*

Several geochemical studies have documented the more dramatic chemical differences among obsidians in the Jemez Mountains but recent research, incorporating a range of composition variables (including major, minor, and trace elements, as well as water content as a volatile constituent) has allowed investigation of variation within Cerro Toledo Rhyolite deposits and facilitated characterization of Valles Rhyolite obsidians. This research provides a more nuanced understanding of relationships among Valles caldera glasses and carries broader implications for obsidian research in geology and archaeology.

Tripcevich, Nicholas (University of California Santa Barbara)  
*Obsidian from the Colca Valley (Peru) and Altiplano Socio-political Development*

Recent survey and test excavation work at the Chivay/Cotallaulli obsidian source above the Colca Valley (Arequipa, Peru) has yielded new information that has both local and regional significance concerning prehistoric obsidian production, trade, and socio-political evolution. Research at the 5000 m.a.s.l. obsidian source

itself has documented Pre-Columbian obsidian processing areas as well as a roadway that accesses the source. Systematic survey in the nearby upper river valley has provided settlement pattern information and evidence of long-term change in local traditions that can be evaluated against known regional distributions of obsidian in the south-central Andes in prehistory.

Vargo, Barbara (University of South Florida/AMEC) and Robert Tykot (University of South Florida)  
*Neolithic Trade Networks in the Central Mediterranean: The Role of Pantelleria (Italy)*

Complex trade networks developed during the Neolithic as communities transitioning from hunter-gatherer to agricultural food strategies created a demand for raw materials no longer readily available to these sedentary groups. Obsidian became the principal stone traded in the central and western Mediterranean during this period and the role that Pantellerian obsidian played in the changing relationship between Sicily, Malta, and North Africa is explored. This study initiates a new perspective regarding the adaptation of new technologies to facilitate the movement of goods and the impact that this interchange had on the political and cultural atmosphere of the central Mediterranean.

Wallace, Erin (Washington State University) and William Andrefsky, Jr. (Washington State University)  
*Prehistoric Land-Use Continuity and Obsidian Source Analysis in the Northern Great Basin*

Julian Steward suggested that Great Basin hunter-gatherers were organized sociopolitically at the "family level" of integration. Supposedly, such an organizational level was conditioned by the environment and availability of food resources. Family groups were the most effective demographic package to circulate through this harsh environment exploiting available resources. Our study explores the circulation of hunter-gatherer populations from one location (Birch Creek Site) using obsidian provenience analysis. Assuming family level sociopolitical organization and obsidian sources as proxy for human land-use, it appears that prehistoric populations at Birch

Creek Site exploited the same resource range for approximately 5,000 years.

Wegener, Robert M. (Statistical Research, Inc.), Bruce A. Bradley (Primitive Tech Enterprises, Inc.), Karry L. Blake (Washington State University), and M. Steven Shackley (U.C. Berkeley, Archaeological XRF Laboratory) *Prehistoric Lithic Traditions and Raw Material Procurement Patterns in West-Central New Mexico*

Occupation of the Fence Lake Project area started during the Paleo-Indian period when knappers relied upon distinctive flaking technologies. It

was then occupied by Archaic foragers who used a biface technology and dart points that represent the Cochise Culture and Oshara and Great Basin Traditions. An eventual reliance upon a generalized flake core technology typifies the Formative period, X-ray fluorescence analysis of obsidian artifacts resulted in identification of the widest “point-to-source” distribution in the American Southwest, along with significant diachronic obsidian procurement trends. This presentation summarizes what we know about these phenomena and provides several recommendations for future research.

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### CAST YOUR VOTE FOR IAOS PRESIDENT

All IAOS members are encouraged to vote for officers. We currently have one candidate for IAOS president for the 2005-2007 term. You may cast your vote via snail mail, by detaching and mailing this form, or via email.

President:

\_\_\_\_\_ **Philippe D. LeTourneau**  
**BOAS, Inc. and Department of Anthropology, University of New Mexico**

Please mail to:

IAOS  
c/o Janine Loyd, Secretary-Treasurer  
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Cotati, CA 94931-7602  
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[iaos@origer.com](mailto:iaos@origer.com)

## MEMBERSHIP

The IAOS needs membership to ensure success of the organization. To be included as a member and receive all of the benefits thereof, you may apply for membership in one of the following categories:

Regular Member: \$20/year\*

Institutional Member: \$50/year

Student Member: \$10/year or FREE with submission of a paper to the *Bulletin* for publication. Please provide copy of current student identification.

Lifetime Member: \$200

Regular Members are individuals or institutions who are interested in obsidian studies, and who wish to support the goals of the IAOS. Regular members will receive any general mailings; announcements of meetings, conferences, and symposia; the *Bulletin*; and papers distributed by the IAOS during the year. Regular members are entitled to vote for officers.

Institutional Members are those individuals, facilities, and institutions who are active in obsidian studies and wish to participate in interlaboratory comparisons and standardization. If an institution joins, all members of that institution are listed as IAOS members, although they will receive only one mailing per institution. Institutional Members will receive assistance from, or be able to collaborate with, other

institutional members. Institutional Members are automatically on the Executive Board, and as such have greater influence on the goals and activities of the IAOS.

\*Membership fees may be reduced and/or waived in cases of financial hardship or difficulty in paying in foreign currency. Please complete the form and return it to the Secretary-Treasurer with a short explanation regarding lack of payment.

NOTE: Because membership fees are very low, the IAOS asks that all payments be made in U.S. Dollars, in international money orders, or checks payable on a bank with a U.S. branch. If you do not do so, much of your dues are spent in currency exchange. Thanks for your assistance in this matter.

For more information about the IAOS, contact our Secretary-Treasurer:

Janine Loyd  
P.O. Box 7602  
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Membership inquiries, address changes, or payment questions can also be emailed to [iaos@origer.com](mailto:iaos@origer.com)

## ABOUT THE IAOS

The International Association for Obsidian Studies (IAOS) was formed in 1989 to provide a forum for obsidian researchers throughout the world. Major interest areas include: obsidian hydration dating, obsidian and materials characterization ("sourcing"), geoarchaeological obsidian studies, obsidian and lithic technology, and the prehistoric procurement and utilization of obsidian. In addition to disseminating information about advances in obsidian research to archaeologists and other interested parties, the IAOS was also established to:

1. Develop standards for analytic procedures and ensure inter-laboratory comparability.
2. Develop standards for recording and reporting obsidian hydration and characterization results
3. Provide technical support in the form of training and workshops for those wanting to develop their expertise in the field
4. Provide a central source of information regarding the advances in obsidian studies and the analytic capabilities of various laboratories and institutions.

## ABOUT OUR WEB SITE

The IAOS maintains a website at <http://www.peak.org/obsidian/>. The site has some great resources available to the public, and our webmaster, Craig Skinner, has recently included a members' only section.

The members' lounge has a message board for posting questions, keeping in touch, or updating fellow IAOS members about research. There is also a link for the IAOS listserv. Other items on our website include:

- World obsidian source catalog
- Back issues of the *Bulletin*.
- An obsidian bibliography
- An obsidian laboratory directory
- Photos and maps of some source locations
- Links

Thanks to Craig Skinner for maintaining the website. Please check it out!

## CALL FOR ARTICLES

Submissions of articles, short reports, abstracts, or announcements for inclusion in the *Bulletin* are always welcome. We accept electronic media on IBM compatible disks and CD in a variety of word processing formats, but MS Word or WordPerfect are preferred. Files can also be emailed to the *Bulletin* at [cdillian@crcg.net](mailto:cdillian@crcg.net). Please include the phrase "IAOS Bulletin" in the subject line. An acknowledgement email will be sent in reply, so if you do not hear from us, please email again and inquire.

**Deadline for Issue #32 is November 1, 2004.**

Send submissions to:

Carolyn Dillian  
IAOS *Bulletin* Editor  
c/o CRCG  
415 Cleveland Avenue  
Highland Park, NJ 08904  
U.S.A.

Inquiries, suggestions, and comments about the *Bulletin* can be sent to [cdillian@crcg.net](mailto:cdillian@crcg.net). Please send updated address information to Janine Loyd at [iaos@origer.com](mailto:iaos@origer.com).

## MEMBERSHIP RENEWAL FORM

We hope you will continue your membership. Please complete the renewal form below.

NOTE: Due to our failure to produce a Winter 2004 *Bulletin*, all current and former IAOS members will receive a free 6 month extension on their membership.

Yes, I'd like to renew my membership. A check or money order for the annual membership fee is enclosed (see below).

Yes, I'd like to become a new member of the IAOS. A check or money order for the annual membership fee is enclosed (see below). Please send my first issue of the IAOS *Bulletin*.

Yes, I'd like to become a student member of the IAOS. I have enclosed either an obsidian-related article for publication in the IAOS *Bulletin* or an abstract of such an article published elsewhere. I have also enclosed a copy of my current student ID. Please send my first issue of the IAOS *Bulletin*.

Not convinced, but want to know more?

Please send me a complementary issue of the latest IAOS *Bulletin*.

NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_ AFFILIATION: \_\_\_\_\_

STREET ADDRESS: \_\_\_\_\_

CITY, STATE, ZIP: \_\_\_\_\_

COUNTRY: \_\_\_\_\_

WORK PHONE: \_\_\_\_\_ FAX: \_\_\_\_\_

HOME PHONE (OPTIONAL): \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

My check or money order is enclosed for the following amount (please check one):

\$20 Regular

\$10 Student (include copy of student ID)

FREE Student (include copy of article for *Bulletin* and student ID)

\$50 Institutional

\$200 Lifetime

**Please return this form with payment to:**

**IAOS**

**c/o Janine Loyd, Secretary-Treasurer**

**P.O. Box 7602**

**Cotati, CA 94931-7602**

**U.S.A.**