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278

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# Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures

Archaeoastronomy

and

Ethnoastronomy:

Building Bridges

between Cultures

*Edited by*

Ruggles

Clive L. N. Ruggles

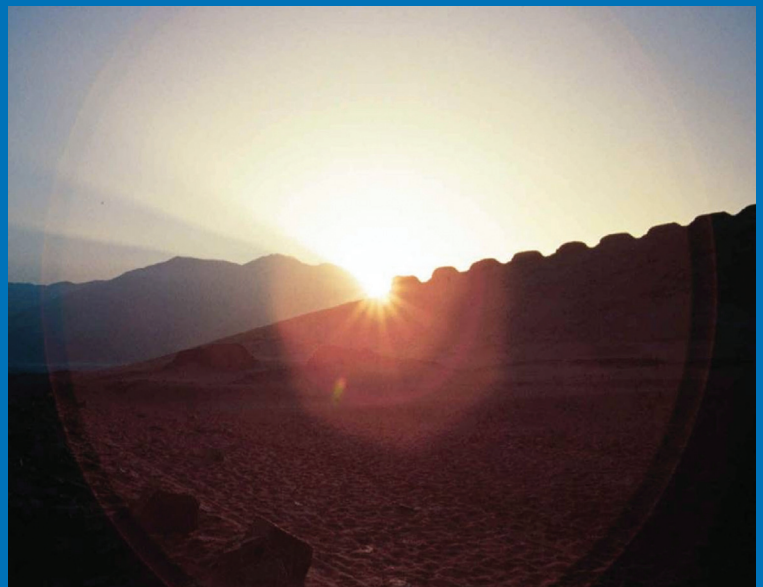


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'OXFORD IX' INTERNATIONAL SYMPOSIUM ON  
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June solstice sunrise at Chankillo. Photograph: Iván Ghezzi.

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# ARCHAEOASTRONOMY AND ETHNOASTRONOMY: BUILDING BRIDGES BETWEEN CULTURES

PROCEEDINGS OF THE 278th SYMPOSIUM OF THE  
INTERNATIONAL ASTRONOMICAL UNION  
AND 'OXFORD IX' INTERNATIONAL SYMPOSIUM  
ON ARCHAEOASTRONOMY  
HELD IN LIMA, PERU  
JANUARY 5–14, 2011

Edited by

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## Preface

IAU Symposium 278, entitled “Archaeoastronomy and Ethnoastronomy: Building Bridges between Cultures”, took place in Lima, Peru, on January 5–14, 2011.

The meeting was also the ninth in a series of international symposia on archaeoastronomy that have been held at roughly four-yearly intervals since Michael Hoskin, then President of IAU Commission 41, organised a meeting in Oxford in 1981 to bring together two very different ‘schools’ that had been developing on the two sides of the Atlantic within an emerging ‘interdiscipline’ concerned with the diversity of human practices and beliefs relating to the sky as evidenced through archaeology, history and ethnography. Since that landmark meeting, the ‘Oxford’ conferences—as they became known—have drawn in participants from all over the globe investigating problems covering the greatest possible time-span from early prehistory through to modern indigenous societies. ‘Oxford IX’ brought this series to South America for the first time, thereby providing a unique opportunity to strengthen co-operation between scholars practising ethno- and archaeoastronomy in South America and to forge stronger links between them and the global community of researchers.

The Oxford conferences bring together an extraordinarily, perhaps uniquely, diverse range of disciplinary perspectives on a set of problems—now often characterised using the term ‘cultural astronomy’—that continue to raise exciting and challenging new research questions as well as to excite the popular imagination. One of the defining characteristics of the series is the avoidance of parallel sessions, thus bringing all participants into direct contact with disciplinary approaches very different from their own. It is perhaps for this reason that the Oxford conferences retain a strong focus on the development of theory and method in cultural astronomy, while remaining a key forum for reporting major new discoveries and developments. They have also staged some vigorous debates: this tradition was certainly adhered to at Oxford IX, most notably in relation to competing interpretations of the now-famous thirteen towers of Chankillo, a solar observation site dating to c. 300 BC, both in the conference sessions and during a two-day excursion to this and nearby sites in the Casma area (Jan 10–11).

The ‘building bridges’ theme of the conference reflects a desire to extend discourse about cultural astronomy beyond the global community of ‘Western’ academics so as to include some of the very people in whose astronomical understanding we are interested. It is also clear that there is a strong linkage between cultural astronomy and the advancement of modern astronomy in the developing world, since the most secure foundation for such advancement is a mutual appreciation of and respect for different systems of knowledge about the cosmos. A key aspect of the conference was its relevance to the IAU’s new decadal strategic plan, ‘Astronomy for the Developing World’. As George Miley pointed out in his opening address (p. xv): “Astronomy is a unique tool for development because it combines cutting-edge technology with fundamental science and has deep cultural roots.” It is the business of archaeoastronomy to explore these roots.

In order to balance global participation and regional engagement, 1½ days of the 4½-day main conference (Jan 5–9) were devoted to South American topics, while the three-day Regional Meeting (Jan 12–14)—an innovation for the Oxford series—was devoted exclusively to Latin America. Special encouragement was given to presentations by younger scholars and both of our local hosts, the Anglo-Peruvian Cultural Association and the Pontifical Catholic University of Peru, provided support to enable local young scholars and students to attend. We hope that all this will contribute very positively to the development of the field in South American countries.

The conference attracted considerable media attention in local and national newspapers and magazines. Cognisant of the popular image of archaeoastronomy in the run-up to the Mayan era-completion date in December 2012, a thematic half-day session on ‘The 2012 phenomenon: Maya calendar, astronomy, and apocalypticism in the worlds of scholarship and global popular culture’, organised by John Carlson and Mark Van Stone, linked together studies of Mayan literature and of modern popular beliefs.

Among the various highlights at Oxford IX that, for one reason or another, did not progress into written form in time to appear in this volume, was Gary Urton’s keynote on “The Role of Khipu Cord-Keeping in Inka Astronomy: Calendrics and State Administration”, describing how the Inca khipus (knotted-cord strings) functioned as record-keeping devices important in the maintenance of Inca administrative practices relating to time, materiality, and power. Gary also provided an expert commentary on the khipus held in the museum at the Inca site of Puruchuco, visited on a half-day excursion. Another was Flora Vafea’s reconstruction, from historical accounts, of the use of a modified astrolabe to predict the visibility of the lunar crescent by tenth- and eleventh-century Muslim astronomers. Yet another was Mario Friscia’s ethnomusicological perspective on Hindu rituals for the planetary deities in Tamil Nadu, India.

First and foremost, the Oxford conferences remain a forum for interchange across disciplinary boundaries between the many different researchers actively contributing to archaeoastronomy, most of whose time is spent interacting with their disciplinary peers. Here they come together not only to discuss new discoveries and interpretations but also to consider broader issues of mutual interest such as field methodology and social theory. This was the first IAU symposium devoted specifically to this topic and we hope that this will encourage more mainstream astronomers to take an interest in, and possibly even themselves actively to contribute to, research in a field that is not only valuable in terms of global human culture but also bears upon issues of general concern such as the protection of astronomical heritage and the preservation of dark skies.

We are immensely grateful to the Cultural Centre of the Asociación Cultural Peruano Británica for offering us such a congenial venue for the Main Conference and for their faultless logistical support. Grateful thanks are also due to the Pontificia Universidad Católica del Perú, and particularly to Dr Krzysztof Makowski, for organizing a venue and facilities so that the Regional Meeting could be held on campus despite the summer vacation. The International Society for Archaeoastronomy and Astronomy in Culture provided conference fee waivers to deserving participants that complemented the IAU’s travel grants, and the International Union for the History and Philosophy of Science, Division of the History of Science and Technology, provided support for some of the administrative activities associated with this conference, most notably the website. The Instituto de Investigaciones Arqueológicas, Lima, provided additional financial and logistical support, particularly with regard to the conference excursions, and Asociación Ancash, Huaraz, provided local transportation for the group visit to Chankillo. Finally, the Instituto Peruano de Astronomía provided a very pleasant reception. Grateful thanks are due to all.

Finally, I would like to add a personal note of gratitude to all the members of the Scientific and Local Organising Committees, as well as to the conference treasurer, and to the webmaster and translators, who worked tirelessly throughout the months of planning and preparation as well as during and after the meeting itself.

*Clive Ruggles, principal organiser,  
Leicester, 5 May 2011*

## CONFERENCE PHOTOGRAPH



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## Welcoming address on behalf of the IAU†

Dear colleagues,

On behalf of the Executive Committee of the International Astronomical Union it is a pleasure to welcome you to IAU Symposium 278 and the Ninth Oxford Symposium on Archaeoastronomy and Ethnoastronomy. I was looking forward to this symposium immensely, but unfortunately I have been forced to cancel my attendance for personal reasons. I'm sorry about that.

However, I was delighted to see that the subtitle of the symposium is 'Building Bridges between Cultures'. The immensity and beauty of the Universe can indeed provide us with a unique perspective on our world that can stimulate understanding between cultures, tolerance and world citizenship. As Carl Sagan said: "Fanatic ethnic, religious or national identifications are difficult to support when we see our planet as a fragile, blue crescent fading to become an inconspicuous point of light against the bastion and citadel of the stars" (Sagan 1980: 318). This statement preceded by more than a quarter of a century the recent iconic picture of the earth taken from the neighbourhood of Saturn by the Cassini probe.

It is giving very young disadvantaged children this sense of perspective that motivates Universe Awareness, one of the cornerstones of the extremely successful International Year of Astronomy and an important ingredient of the new IAU decadal strategic plan, 'Astronomy for the Developing World'. I don't need to tell any of you that from the earliest times astronomy was an important utilitarian discipline that has had a profound effect on our development. The ability to predict the motions of the Sun and stars were decisive factors in the emergence of agriculture and navigation. The IAU Strategic Plan and its activities will continue the role of astronomy as a practical discipline in the present age.

Astronomy is a unique tool for development because it combines cutting-edge technology with fundamental science and has deep cultural roots. Modern large astronomical telescopes are among the most sophisticated and complicated machines ever constructed and provide a gateway to ICT, electronics, optics and engineering. But the uniqueness of astronomy is that it combines high-tech with wonder. We are all children of the Big Bang and from the dawn of civilization humans have looked at the sky with a sense of awe.

The IAU Strategic Plan is an ambitious blueprint to mobilize talented astronomers, engineers and teachers around the world, in the service of developing countries. The Plan will be coordinated and implemented by the Office of Astronomy for Development (the OAD), hosted by the South African Astronomical Observatory in Cape Town. We have recruited a superb Director, Kevin Govender, to lead this effort and the Office will begin its tasks on 1 March 2011.

The OAD will coordinate a wide range of development activities throughout the world. These include inspiring very young disadvantaged children, stimulating science and engineering education, training school teachers, building up the research capacity of university departments and exciting members of the public from the cradle to the grave.

† In George Miley's absence this address was communicated to the conference by Clive Ruggles.



On behalf of the IAU, I wish you a rewarding and stimulating symposium and thank Clive Ruggles, the Scientific and Local Organizing Committees and everyone in Peru and further afield who has contributed to organising IAU Symposium 278.

*George Miley, Vice-President, IAU  
Leiden, 5 January 2011*

### **Reference**

Sagan, C. 1980, *Cosmos*, Random House, New York.