Editorial

Archeoastronomy: The First Century

One hundred years ago, in 1894 Archeoastronomy was born with the publication of The Dawn of Astronomy by British Astronomer Royal J. Norman Lockyer. Subtitled A Study of the Temple Worship and Mythology of the Ancient Egyptians, the indomitable Sir Norman approached the subject of ancient Egyptian astronomy with a precocious and innovative interdisciplinary style. It was his working premise that the temples and pyramids had been constructed "in strict relation to the stars." He hypothesized that the changes in their axial orientations might have resulted from the precessional shift of their stellar alignments. He was also interested in the effects of the decrease in the obliquity of the ecliptic on alignments to solar extrema. Thus Lockyer was keen on applying his considerable 19th-century expertise in positional astronomy to the tangles of ancient Egyptian chronology and history.

Beginning in 1890, Lockyer tackled these archaeological and historical problems in an essentially modern spirit. Not content to rely solely on the published scholarship and interpretations of Egyptologists, he went into the field, conducting extensive surveys of the temple and pyramid alignments. He published his data, but did so as an outsider, independent of the community of professional archaeologists and philologists whose academic territory he had openly invaded. Sir Norman was a celebrated astronomer, justly noted for his pioneering studies in solar and stellar spectroscopy. He was the founding editor of Nature in 1869, a post he held until his death in 1920. But in spite of his credentials in astronomy – or perhaps because of them – Lockyer’s book was essentially ridiculed and largely ignored by Egyptologists, regardless of what we now know were a number of important new ideas and methodologies. In truth, many of his astronomical arguments were technically beyond the easy grasp of many archaeologists and historians, but the evidence is that they hardly gave him a serious hearing as he was not in their club. Does this sound like a familiar lament? It is certainly true that Lockyer made a number of flagrant errors in interpretation that would probably have been avoided if he had chosen to work cooperatively with an Egyptologist. We also know that he was an independent, aggressive and somewhat cantankerous personality, to put it mildly. Undaunted, Sir Norman continued his archeoastronomical researches to include the first real surveys of Stonehenge in 1900 followed by the publication in 1906 of his Stonehenge and other British Stone Monuments Astronomically Considered with a second
revised edition in 1909. These works suffered a similar lack of professional scrutiny by the Celtic archaeologists and prehistorians of the day. But regardless of where we allocate the blame, in hindsight – and there was plenty to go around – scholarly territoriality won the day. The subject that was to become Archaeoastronomy languished with Lockyer’s passing. It would take 70 years from The Dawn of Astronomy before “astro-archaeology” would be reborn in the “Stonehenge controversies” of the 1960s, the result of the discoveries of astronomer Gerald Hawkins and amateur astronomer C.A. “Peter” Newham.

The year 1963 marked both the first report of Newham’s ideas, published in obscurity in the Yorkshire Post that spring (March 16th), followed by Hawkins’ article entitled “Stonehenge Decoded” which appeared, significantly, in the October 26th issue of Lockyer’s journal Nature. Together, they had revived the ghost of Lockyer by independently suggesting that the icon of British Megalithic monuments, Stonehenge, contained astronomical alignments to the extrema of both the Sun and Moon, and might have functioned as a Neolithic observatory. It was déjà vu with the British prehistorians reacting viscerally to the unwanted invasion of an astronomer into their preserve. This situation was further inflamed by the publication of Hawkins’ article “Stonehenge: A Neolithic Computer” in 1964 (again, in Nature) followed by his popular book, Stonehenge Decoded, in 1965. Hawkins’ ideas and the popular as well as professional interest they triggered, led historian and philosopher of science Giorgio de Santillana to arrange for the reprint of Lockyer’s The Dawn of Astronomy by the MIT Press in 1964 on the occasion of its 70th anniversary.

A decade later, Lockyer’s legacy had really begun to bear fruit. In 1973, a diverse group of astronomers, archaeologists, anthropologists, architects and historians met in Mexico City around the June Solstice for a benchmark conference that inaugurated the study of “Archaeoastronomy in Pre-Columbian America.” Organized by astronomer Anthony Aveni and architect Horst Hartung as part of an international AAAAS (American Association for the Advancement of Science) meeting, notable perspectives were provided by Mesoamerican archaeologist Michael Coe (“Native Astronomy in Mesoamerica”), astronomer Gerald Hawkins (“Astroarchaeology: The Unwritten Evidence”) and anthropologist Elizabeth Chesley Baily (“Mesoamerican Archaeoastronomy So Far”). I well remember the excitement generated in these meetings and field trips which I attended as an enthusiastic novice. Most of us had seen the draft of Chesley Baily’s extensive synthesizing article entitled “Archaeoastronomy and Ethnoastronomy So Far,” which was published with extensive commentary in Current Anthropology later that year. Whether or not these two ungainly words were the best choices for what have become the interdisciplinary studies of ancient and contemporary indigenous astronomies, celestial lore, mythologies, religions and cosmologies of all peoples, 1973 marked the first time these terms came into general professional usage. The conference proceedings of Archaeoastronomy in Pre-Columbian America, edited by Anthony Aveni, were published by the University of Texas Press in 1975.

Eighty years after Lockyer’s The Dawn of Astronomy, The Royal Society of London (and Oxford University Press, 1974) published The Place of Astronomy in the Ancient World, the proceedings of a remarkable joint symposium sponsored by The Royal Society and The British Academy held in December 1972. These presentations were organized into two categories: (I) “Astronomy in Ancient Literate Societies,” and (II) “Ancient Astronomy: Unwritten Evidence.” Scholars participating in Group I included such luminaries as Asger Aaboe (“Scientific Astronomy in Antiquity”), Abraham Sachs (“Babylonian observational astronomy”), Richard Parker (“Ancient Egyptian astronomy”), Joseph Needham (“Astronomy in ancient and medieval China”) and J. Eric Thompson (“Maya astronomy”). Group II included Richard Atkinson (“Neolithic science and technology”), David Lewis (“Voyaging stars: aspects of Polynesian and Micronesian astronomy”), Alexander Thom (“Astronomical significance of prehistoric monuments in Western Europe”), Gerald Hawkins (“Astronomical alignments in Britain, Egypt and Peru”) and Ewan MacKie (“Archaeological tests on supposed prehistoric astronomical sites in Scotland”). This singular conference demonstrated that the study of non-Western astronomical traditions by scholars who were not main-stream historians of science, addressing the unwritten archaeological evidence along with textual sources, was a legitimate new area of scholarship.

The spirit of exploration and productive dialogue characterized these two conferences held in London and Mexico City. The two decades that have followed have witnessed research extended to most regions of the globe with a resulting exponential growth in the published literature.

Now, as we enter 1994 and celebrate the Lockyer Centennial, we can cite a creditable body of work in world archaeoastronomy, ethnoastronomy and applied historical astronomy. The “anthropology of astronomy” has now established an equal place beside traditional history of astronomy, and Sir Norman would certainly take considerable satisfaction in what has come of his passion. He would marvel at the sophistication of our computing power and the technical reach of modern physics and astronomy. I am sure he would be pleased to see that his journal Nature is still a lively forum at the cutting edge of science, not to mention the existence of a journal called Archaeoastronomy. But what might he have to say about the loss of the brilliant night sky to light pollution and the quality of life that has faded with it? — JBC