Astronomy and landscape in Ancient Egypt: Challenging the enigma of the minor step pyramids

Juan Antonio BELMONTE
Mosalam SHALTOUT
Magdi FEKRI

The minor step pyramids (MSPs) form a coherent group of seven monuments distributed along Egyptian geography with a series of common characteristics that make them unique and distinct from other buildings of similar typology. The purpose of these pyramids is a matter of dispute among Egyptologists and most proposals could be interpreted as sad examples of *vox nihil*. By contrast, our archaeoastronomical study of the monuments would suggest that minor step pyramids were built at certain locations and with particular orientations that might relate them to the preliminary stages and consolidation, during the reign of king Snefru, of two master creations of early dynastic Egypt, the civil calendar and the stellar Afterlife later appearing in the *Pyramid Texts*.

Las pequeñas pirámides escalonadas integran un grupo coherente de siete monumentos distribuidos a lo largo de la geografía egipcia con una serie de características comunes que las diferencian y las singularizan con respecto a otros edificios de similar tipología. El propósito de estas pirámides constituye un debate abierto entre los egipiólogos, si bien la mayoría de las propuestas para explicar su causa son tristes ejemplos de explicaciones ad hoc sin gran fundamento. Por el contrario, nuestro estudio arqueoastronómico de los monumentos sugeriría que las pequeñas pirámides escalonadas fueron construidas en ciertas localizaciones, y con orientaciones peculiares, que podrían relacionarlas con los primeros estádios y el proceso de consolidación, durante el reinado de Snefru, de dos creaciones maestras del periodo dinástico temprano de Egipto, el calendario civil y la escatología estelar, presente en los Textos de las pirámides.

**Key Words:** Old Kingdom, Huni, Snefru, minor step pyramids, astronomy, Pyramid Texts

Minor step pyramids (hereafter MSPs) have been an archaeological enigma since they were revealed to the scientific community in the 18th Century, and especially after they were identified as a coherent group by the seminal work of Günter Dreyer and Werner Kaiser. As Mark Lehner recently argued, *the purpose of these small pyramids is a mystery*, with almost as many hypotheses to explain them as there are researchers who have dealt with the problem.

* We wish to express our acknowledgement to our colleague Dr. Zahi Hawass for his strong support of the Archaeoastronomy Mission as Director of the Supreme Council of Antiquities. We also express our gratitude to the various inspectors, guides and escorts who join us during the fieldwork; they were very kind and helpful. The first author is indebted to the Egyptologist R. Krauss for many valuable discussions and for his authorization to discuss in this paper some of his material prior to publication. Corrections, comments and suggestions from the Egyptologists L. Gabolde and J. Lull and the archaeoastronomers C. González and E. Krupp greatly enriched the paper. Finally, the editors of the journal, notably the Egyptologist M. A. Molinero Polo, also proposed fundamental emendations. This work is partially financed under the framework of the projects P310793 “Arqueoastronomía” of the *Instituto de Astrofísica de Canarias*, and AYA2004-01010 “Orientatio ad Sidera” of the Spanish Ministry of Education and Science.

1. See, e.g., Denon, 1802.