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[Presas i Puig, Albert \(D-TUB\)](#)

★ **Praktische Geometrie und Kosmologie am Beispiel der Architektur. (German) [Practical geometry and cosmology in the example of architecture]**

Dissertation, Technische Universität Berlin, Berlin, 1998.

Algorismus. Studien zur Geschichte der Mathematik und der Naturwissenschaften [Algorismus. Studies in the History of Mathematics and the Natural Sciences], 27.

Institut für die Geschichte der Naturwissenschaften, Munich, 1998. 339 pp. €15.20.

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Presas i Puig's dissertation deals with a sequence of formal and (mostly) informal cosmologies presupposing the world order to be based on proportion and numerical regularity, putting them in the context of the practical geometries of their times and claiming them to be strongly inspired by these contexts. The geometry of architecture and monumental building is in focus. Roughly speaking, the treatment covers three periods: ancient Egypt, classical antiquity, and the fifteenth-century CE.

The discussion of classical Egypt covers both architecture and the "canonical system" for depicting the human body according to fixed proportions. The treatment of classical antiquity begins by discussing the Greek adoption and transformation of the Egyptian canon, in particular the transformation due to the fifth-century BCE sculptor and technical author Polycleitos, and continues by pointing to elements in Anaximander's philosophy that can be linked to a mathematical practice built on proportion and the use of a basic module; a presentation of Vitruvius, Pythagoreanism and Plato's *Timaios* follows. The fifteenth century is treated through presentations of Matthäus Roriczer's writing and Luca Pacioli's *De divina proportione*. A 56-page bibliography contains ca. 1000 items.

The main thesis seems plausible, and the work will be useful for anybody interested in the area. Unfortunately, it must be used with some circumspection, as offering a collection of interesting working hypotheses rather than a trustworthy basis. Firstly, the author often documents his statements by references to the secondary literature, and often to writers who can be supposed to know less about the subject-matter than he does himself (Lancelot Hogben is but one example) or to literature that must be characterized as outdated; he does so even in cases where relevant primary sources that might challenge the interpretation are used elsewhere. Secondly, what he claims to have found in the literature often does not correspond too well to what is actually written there (p. 236, for instance, Leonardo Olschki makes Pacioli refer to the *Gesetzmäßigkeit* of mathematics—already twisting the *generalità* of the original but understandable within the historiographic horizon of 1919; the author cites this as anachronistic *allgemeingültige mathematische Gesetze*). Thirdly, the sources are sometimes misread or misrepresented (thus, Aristotle's accounts, in *Metaphysics* N3 1090a20 and id. M 6 1080b16, of the Pythagorean view that things "are" numbers or have numbers as their essence, are claimed to be endorsements of these views). Fourthly, even when the reliability of problematic sources is discussed critically at one point, the

doubts may be forgotten in the following pages (in particular when Pythagoras is concerned).

In addition there are a number of puzzling mistakes, sometimes contradicted by what is found elsewhere in the volume. Thus, on p. 148, numbers of the type $n \cdot (n + 1)$ are stated to have been labelled “gnomons” (on p. 149 the correct definition is given); on the same page, this presumed gnomon is identified with the one Anaximander is supposed to have imported from Babylonia. On p. 226, both Piero della Francesca and Pacioli are seemingly supposed to antedate Alberti’s book *On painting* from 1435. On p. 229, analogia/proportion is believed to designate the inequality of ratios in *Elements* V. On p. 231 we are told that Vitruvius knew Nicomachos (born a good century later) through even later commentaries. (These objections are meant as representative examples.)

It should be observed that $\tilde{A}n$ occurs in various places instead of \sqrt{n} .

Reviewed by *Jens Høyrup*

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