

After reviewing the bathhouse's origins, Th. moves on to typology, which he categorizes not by the presence or absence of certain features (as did I. Nielsen, *Thermae et Balneae*² (1993)) but by mode of use, as reflected in ground-plans: does the bath display a symmetrical or non-symmetrical arrangement of rooms, and is there a linear or circular itinerary through these rooms? The catalogue of buildings and their architectural analysis follows (129–284), with a chapter on the route of the bathers through the buildings and a survey of bath-related terms (287–401). Th. closes the book with a lengthy section on the history and functions of baths in Roman Africa, to which is attached a catalogue of bath-related Latin inscriptions (405–521).

Of particular interest is the section on later eras, as Roman baths gave way to the Islamic hammam, which remain popular to this day in the region. While baths and bathing habits were indeed transformed in the process, Th. argues convincingly that changes at many levels were gradual and progressive rather than rapid and catastrophic. This conclusion ratifies the value of public baths and bathing in opening windows onto the ordinary, even in periods of perceived crisis. One hopes that potential will continue to be exploited in future studies.

While ground-plans abound, there are no quality plates of the ruins so carefully described and analysed in the text. This lacuna is extremely regrettable. For so rich and massive a work, the absence of a bibliography is an even greater disappointment. The reader is forced to trawl through the detailed notes to find references, since an index of modern authors (535) is so perfunctory as to be useless. One lags with dismay many unwelcome bibliographic omissions, predominantly of non-French scholarship. My own work on baths, much of it directly pertinent to the topics Th. addresses — e.g., the origins of the building type, methodological problems, or bath-related epigraphy (on which, see G. Fagan, *Bathing in Public in the Roman World* (1999), uncited here) — attracts minimal attention, as do valuable contributions in various related areas by scholars such as C. Bruun, N. de Haan, G. Jansen, H. Manderscheid, or A. Wilson, to name only a few. Even G. Wesch-Klein's detailed study of public munificence in North Africa (*Liberalitas in Rem Publicam* (1990)), which covers many of the inscriptions catalogued by Th., merits no mention. In any scholarly project, there will always be omissions and oversights, but the merits of this generally excellent book are undermined by its reluctance to engage large swathes of non-French scholarship.

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D. P. CROUCH, *GEOLOGY AND SETTLEMENT: GRECO-ROMAN PATTERNS*. Oxford: Oxford University Press, 2004. Pp. xii + 372, 83 figs, 6 tables. ISBN 0-19-508324-5. £40.00.

In this volume, the promised accompaniment and extension to her *Water Management in Ancient Greek Cities* (1993), Dora Crouch broadens her efforts to form bridges between the geology and ancient urban history. While an appreciation of the role of the environmental surroundings to urban development in antiquity has long been acknowledged in the study of ancient cities and has seen recent expression in an increase in the study of landscape and survey work by archaeologists (e.g. Cherry, Davis and Mantzourani (1991) and The Tibur Valley Project), few authors have sought such a reflexive interrelation between geologically identified features and the particulars of history and architecture. Refreshing emphasis is placed upon the vital aspects of city infrastructure and reaction to the environment as an explanation of form and historical change. The result is a largely successful synthesis of the two disciplines that suggests an important new direction for future research into ancient urbanism.

Selecting a smaller sample from her previous survey, C. purposefully attempts to reconcile geological analysis with historical information in the urban development of ten ancient cities from Sicily and the eastern Mediterranean. Aspects of the surrounding landscape: the resources, raw materials, and advantages it affords, as well as the perils of natural disasters and difficulties created by the environment, are examined *vis-à-vis* their effects on architecture, trade, and the management of infrastructural elements as attested in the historical and archaeological record. The results will be of interest to classical archaeologists and Greco-Roman historians, adding significantly to the systemic study of urbanism and city life and helping to create a fuller picture of the underlying causes and priorities of ancient city planning and building.

The aims of the book are clearly stated: to suggest that analogous geographical conditions tend to generate similar urban environments; that divergence in urban form may be caused by particular differences in environmental setting; and that the role of the natural environment of a city is a reflexive one, both being changed by human activity and exerting its own unavoidable

influences (9). In order to examine these ideas, two vastly different time scales — the geological and the historical — had to be aligned in search of connections and causal relationships between the two. A considerable amount of information was collected through the collaboration of numerous scientific specialists, examination of the published record, and on-site investigation. Ch. 2 details the development of history, geology, and archaeology as background to the study. Chs 3, 4 and 5 then present the collected information for each of the ten cities using three main categories (nominally western, central, and eastern) which are perhaps better described as: Sicilian sites (Agrigento, Morgantina, Selinus, Syracuse); cities on the Greek mainland (Argos, Corinth, Delphi); and Ionian centres (Miletus, Priene, Ephesus). For each city, geological features are described in detail, followed by a survey of known site history. A small section devoted to interconnections and interrelations between geological factors and historical vicissitudes follows this information. While observations tend to focus upon issues of water supply and management, other topics such as pottery sourcing and the influence of the climate on site design are occasionally included, presumably according to availability of information. Following these surveys are two relatively short interpretive chapters that summarize observations derived from the sample as a whole. Additionally, there are two appendices that contain chronologies and an extensive glossary.

The volume most clearly succeeds in documenting the active and pervasive role of the environment and geological features influencing the urban development of these ancient cities. This can particularly be seen in C.'s analysis of water management and supply (particularly karst systems), the presence or absence of natural resources, for example quarries for building stone, and gradual changes over time, such as the silting of early harbours and the effects of poor water management practices and deforestation. The strength of these relationships is the detailed connection between geological interpretation and systemic explanations of historical urban changes. Particularly interesting observations are made regarding the specific obstacles faced by ancient builders and architects as in the careful placement of Temple G at Selinus ensuring its stability (77).

However, the remark that 'Roman engineers had more hydraulic and geological knowledge than is evident in the writings of Vitruvius or Frontinus' (236) is an important and wide-reaching conclusion and deserves treatment at much greater length than it has received in this volume. Observations of this type commonly remain lost amongst the particular details of each city and are not clearly brought out in the interpretive summary. This is also true of the geological information itself, much of which is never fully utilized or explained. For instance, the non-geologist is left to wonder why soil charts documenting the presence of Pleistocene marls and Jurassic limestone or radial diagrams documenting the directions of aqueducts are included in the text when little clear reference is made of their role in the urban history of the sites. From an archaeological perspective one might have expected these to be shown to play a role in site placement.

Nor is it entirely certain what factors other than a common participation in Greco-Roman history cause C. to suggest that these particular cities prove that comparable geological conditions cause similar urban environments. The cities appear instead to have been quite diverse in their responses to the challenges and opportunities presented by the environments in which they were situated. While they are all located in regions with similar water-bearing capacities (aquifers or *karst*-like systems), this was a prerequisite for inclusion in the study. No examples are given of sites that do not have this geology, and would accordingly be expected to have been different in some way. However, the primary importance and reflexive nature of the natural environment in the particular design of each city is clearly articulated and proven: a conclusion that is perhaps important enough for a groundbreaking investigation.

This volume presents a considerable quantity of detail and a wealth of information relating to the interconnections between geology and urban history in ten Greco-Roman period cities. While it perhaps does not take full advantage of the important information it presents, the book is a forerunner in interdisciplinary research and makes a very real and valuable contribution to the understanding of ancient urban settlement.

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