

community, Forsyth proposes a three-part typology: cell, corridor-and-centre, and landscape-frame. This typology is useful and corresponds to the planners' development concepts in each case. Irvine's planners, for example, used and explicitly cited Kevin Lynch's *The image of the city* (1960) as their cardinal idea in creating a legible landscape within their development (pp. 73–7). Here, as elsewhere in the text, Forsyth's presentation would have been more effective had she used maps to illustrate the point. Their paucity is perhaps a by-product of the book's intention to reach a general audience and spurs a complaint which geographers will forever voice. Nevertheless, Forsyth's proposed typology is helpful in understanding the various communities as their developers saw them, as well as how they have grown over time.

Ultimately, *Reforming suburbia* is a sobering reminder to those enthusiastic about the possibility for, and potential speed of, change that planning horizons have to be long, and that the newest models of anti-sprawl urbanism are not necessarily superior to past innovative efforts. The three communities studied here were backed by massive private financing, by corporations comfortable with small immediate dollar returns. After nearly four decades of continuous habitation and continued planning, these communities, judged by the satisfaction of residents and the regard of outsiders, are still on the cutting edge. Surprisingly or not, for example, this year's *Money* magazine listed Columbia as the fourth-best place to live in America. Forsyth is right to turn the planning world's gaze back to communities that stand as good design ideas put into practice. The book's extensive research, comparative analysis, and lengthy appendices make it a valuable addition to understanding the complexity of truly revolutionary design.

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Geology and settlement: Greco-Roman patterns by *Dora P. Crouch*, Oxford University Press, New York, USA, 2004, 372 pp. ISBN 0-19-508324-5.

Dora Crouch has been a force in international archaeology for more than three decades, making

major contributions to understanding cities in both the Old and New Worlds. The co-author of *Spanish City Planning in North America* (Crouch et al., 1982) and *Traditions in architecture: Africa, America, Asia, and Oceania* (Crouch and Johnson, 2001) has now written a broad survey of urban site conditions and environmental history in the Classical World. Her latest book concerns the role played in urban morphology and ancient city life by the physical nature of the ground beneath towns and the influence natural events such as earthquakes and volcanoes had on them. The book extends her earlier study, *Water management in ancient Greek cities* (Crouch, 1993), on a more interdisciplinary basis.

For a long time, understanding of ancient cities has been approached through historical, literary, and archaeological sources, with little concern for geology or engineering. This new work seeks to extend and deepen the attention archaeologists pay to the geomorphological composition of the environs surrounding ancient settlement sites. Although the necessity for considering this dimension of earth-human relations in settlement history was laid out by Karl Butzer in *Environment and archaeology* (Butzer, 1964) four decades ago, detailed and systematic studies answering his call have been slow in coming. Here the relation of city infrastructure to environmental resources and limits is emphasized, particularly its influence in shaping urban form and development. The book is organized in three parts: background, case studies (the bulk of the study), and findings and reflections.

In laying out her task, Crouch seeks to demonstrate several key propositions: that (1) similar physical environments engender similar urban morphological outcomes; (2) departures from ideal city planning can sometimes be explained by responses to different geomorphological conditions; and (3) the relations between the geological 'challenge' and the human 'response' are reciprocal, each being influenced, and changed, by the other. A major accomplishment of the book is the way in which it confronts the artifactual evidence of standard historical and archaeological study with that from the very different time scale of geological investigations, and the way it interprets them within a common framework.

The topic is approached through careful examination of ten Greco-Roman cities, selected as clusters of nearby sites in three representative Mediterranean regions: four on the island of Sicily (Agrigento, Morgantina, Selinus, and Syracuse);

three in central Greece (Argos, Corinth, and Delphi); and three on the southwestern coast of Turkey (Miletus, Priene, and Ephesus, these last all within a 50 km radius of modern Söke).

In each case, geological and geomorphological conditions are presented in detail, and in many climatological and hydrological aspects also. The combinations and saliency of these range widely because of the sometimes quite different physical settings and historical purposes of the places selected (some coastal ports, others inland centres). For most cases, substantial information is given on the nature and structure of bedrocks (including tectonics and sea-level changes, and their implications for water quality and supply, and for quarries for building materials); geomorphological processes in history (sedimentation and erosion, whether fluvial, karstic, or coastal); and extreme events such as flooding, earthquakes, and volcanic eruptions. On the human side, the occupation history of each site is presented in some detail, including the record of construction, destruction, followed by consideration of the geological significance to be found in variable patterns of such things as building materials, urban relocations, water chemistry and supply (affecting sustenance, sanitation, and burial practices), geotechnical degradation (for example, rates of decay in stone, and deforestation and land erosion), weather modification, and the like.

The last part of the book summarizes the substantive findings from the case studies in light of the propositions advanced at the outset. There are two appendices presenting site chronologies for each place, useful for readers unfamiliar with the detailed history of these cities, and a 55-page multilingual, widely interdisciplinary bibliography whose entries reach far beyond the Ancient World. The work is replete with generally effective maps, diagrams, site plans, and photographs that give volume and plasticity to the verbal discussions in the text.

Crouch's study succeeds on several levels. It amply demonstrates the emphatic role that environmental resources played in shaping these particular cities in ancient times. Beyond that, the implication that such a generalization extends across all human time and geography, regardless of technological stage, is consequently hard to resist, insofar as technological triumph over adverse environmental obstacles itself carries costs that shape cities in any period. The work demonstrates

the feasibility of incorporating geology, geomorphology, climatology, hydrology, biogeography, and soil science, where appropriate, in archaeological studies – how much more complicated and interdisciplinary must such work become? It also reminds this reviewer how analogous this integrated approach appears to the small but resilient tradition of morphological settlement studies within historical geography, ancient and modern, that has been around in the literature for a long time.

With Crouch's study, and its emphasis on water supply, the question arises how applicable her findings are to the wider world of settlement history in environments where karst conditions have not been historically so key, and whether or not the variety of responses to environment she found in these sublimely selected cases represent the kind of internal variation to be found in other culture areas. In gauging design responses to environmental challenge how much influence for similar outcomes versus diverse ones belongs to the environment as opposed to local human ingenuity or broader cultural adoption, and how much the other way round? Crouch offers us a number of stimulating ways forward in tackling such issues. While the study will appeal first and foremost to Greco-Roman archaeologists and classical scholars, there are important demonstrations here of complex human adaptations to environment over long periods of time that will interest urban morphologists with less ancient passions.

References

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