This excellent collection includes in-depth studies on mills and milling, gardens, urban hydrology, peasant grain production, and the symbolic uses of mills. It demonstrates in innovative ways that broadly conceived studies of wind and water can shed much light on environmental conditions, legal structures, and economic development. Because such technologies were so important to medieval societies, they can become modalities for understanding those societies in fundamental ways beyond technological considerations per se. The geographical range of the volume extends from England and Ireland to southern France and the Iberian Peninsula, but unfortunately not to Italy or to Scandinavia.

George Brooks investigates the technologies pertinent to the development of the water mill in the Roman world. He confirms the growing consensus that there was not a medieval technological revolution based on the water mill, precisely because the water mill for grinding grain was already well developed in antiquity. Brooks analyses classical references to mills, including the five hydraulic machines described by Vitruvius in Book 10 of De architectura. He also discusses gearing. An important development was the lantern/cog gear combination, far more expeditious than the original arrangement of two cog wheels at right angles. Brooks argues that the vertical water wheel developed from ancient vertical water lifting machines, not from horizontal water wheels. My one small quibble is that, especially given the space that he rightly devotes to the De architectura, his references do not fully reflect the depth of scholarship that has been devoted to this text. Nevertheless, Brooks analyses written sources and archaeological data with great precision as he also explains (and provides illustrations for) the technical details of complex machines with unusual clarity.

Niall Brady in “Mills in Medieval Ireland” takes a broad, regional approach. He analyses a range of evidence for mills in Ireland, including archaeological information, dendrochronological dating, early legal documents and, for the period post 1100, manorial extants. His purview extends to the landscape around medieval mill sites such as mill ponds, races, and dams. Brady uses mill data to argue for revisions in a larger historiography, first against the notion of an early medieval subsistence economy in Ireland, and second against the idea that Irish mills existed only in small-scale networks serving monastic communities. He suggests that tidal mills around Dublin, set back from active shorelines for protection, point to a commercial interest in protecting profits. (I am not quite swayed by this argument. Surely a mill owner would want to protect the mill to the greatest extent possible, no matter what its intended use.) Brady points to areas of future research where his broad geographical approach could be extremely useful—such as a study of the relationships of mills to other agrarian technologies.
Focusing on the Islamic garden, D. Fairchild Ruggles describes the overlap between the irrigation machinery available in the Islamic world—water wheels, the shaduf, the qanat, canals, aqueducts, siphons, the Archimedean screw—and the technologies of actual gardens. Such gardens often displayed mechanical devices such as singing birds, and required irrigation for plants and water for fountains. Ruggles relates these garden technologies to the content of illustrated treatises on mechanical devices from the Islamic world, such as the ninth-century manual by the three brothers called Banu Musa bin Shakir and the thirteenth-century treatise by Al-Jaziri.

Adam Lucas confronts head-on the argument promulgated by Marc Bloch and Lewis Mumford, among many others, that the monasteries played an important role in the promotion of technological progress and the transition to modernity. Lucas undertakes a comprehensive review and critique of the monastic innovation thesis, namely that monasteries run by Benedictines and Cistercians, among others, introduced watermill technologies to eliminate the drudgery of milling. Ecclesiastical lords, he counters, were as oppressive and exploitative as their lay counterparts. Also refuting Bloch’s assumption that the Normans introduced seigneurial privileges into England, Lucas shows that such privileges were already widespread there by the eleventh century. Many lords abandoned such privileges in the twelfth century and later, in the context of economic downturn and political turmoil. After the Black Death, they tried to regain their control of mills, but often failed or, if they succeeded, did so at considerable cost in pay to tenants.

The voluminous primary source materials on mills and milling in medieval England and Ireland often derive from court cases. Janet S. Loengard discusses legal cases about mills that involved both equals and non-equals in a variety of disputes concerning upkeep and repairs, physical injury done by mills, and the right of lords to compel tenants and others to grind grain at their mills. Mills were expensive to build and keep in repair, but could also be highly profitable. They attracted multiple legal conflicts that were adjudicated within diverse jurisdictions. As Loengard and Adam Lucas both emphasize, recent scholarship has affirmed that there were a large number of free mills in England. Miller frequently had to defend themselves in court cases. They rented their mills and enjoyed little profit of their own, as they struggled to make ends meet. Often accused of shortchanging customers or giving incorrect weights, their very marginal earnings surely encouraged such practices in fact.

Tim Sistrunk investigates the legal status of wind and its relationship to windmills after these machines proliferated in the twelfth century. His study is far more “vertical” than Loengard’s, going back as it does to the Justinian legal code. Sistrunk also interestingly exploits medieval commentaries on Roman law such as the Glossa ordinaria from Bologna, compiled in the 1220s by Accursius. Windmills were new, and thus not encumbered with the conglomeration of monopolies, rights, and privileges that tied watermills into centuries-old legal, economic, and social entanglements. The wind, a gift from God, nevertheless did eventually become entwined within human legal matrices involving windmills.

Urban hydrology is treated extensively in only one of the essays, Roberta Mag-