
Lisa Raphals

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*Principles and Practices in Ancient Greek and Chinese Science* is a second collection of papers by Geoffrey Lloyd. Unlike his earlier collection, *Methods and Problems in Greek Science* (Cambridge, 1991), this Aldershot collection selects fifteen of what he considers his most important or influential of some ninety articles published between 1987 and 2005. All but four deal primarily with Greek material. However, four concluding comparative pieces make clear the importance of comparativism to Lloyd’s overall project. The book is divided into three parts. Part 1 addresses problems in Greek medicine, with three of the five chapters devoted to Galen. Part 2 turns to Greek mathematics and philosophy, including three studies published in non-Anglophone collections, two in English translation for the first time. Part 3 consists of four comparative studies, on the diverse topics of appearance versus reality, mythology, literacy and the future of ancient science. As is typical of Aldershot variorum republications, texts are presented in their original format and pagination, with additional bibliography and notes provided after each section, as well as an index and supplementary notes at the end of the volume.

Although the book covers a wide subject matter, three themes reoccur. One is a preoccupation with disciplinary boundaries, expressed variously as relations between fields, the “right” way to investigate a given field, and who counts as colleagues or rivals. A second concern is rhetoric and polemics, including questions of legitimacy and prestige. A third is the “open-endedness,” and the unpredictability of the scientific investigations undertaken in ancient civilisations” (ix). Lloyd emphasizes that, in order to
understand their development, we need to combine an “externalist” study of social and institutional factors with an “internalist” understanding of abstract or intellectual questions (x).

The first section begins with two broad studies on Greek medicine. Lloyd emphasizes its heterogeneity and the questions of legitimacy inherent therein. “The Transformations of Ancient Medicine” considers modern and ancient histories of the reception of Greek medicine. Instead of seeking to unify the “Hippocratic corpus” Lloyd argues that the very diversity that proved an embarrassment to idealizing and romanticizing views of Greek medicine provides a starting point for newer studies of ancient medicine. He identifies four features of ancient medicine ignored or underestimated by positivist interpretations. The naturalist medicine of the Hippocratic corpus was one of several rival medical traditions. Others included midwives (maiai), root cutters (rhizotomoi), drug-sellers (pharmakopōlai), and Asclepian temple healers. Even “rationalist” Hippocratic medicine was not a unified phenomenon. In working through these and other claims, Lloyd focuses on the paradoxes of tension between image and reality of the authority of medical experts and between open-endedness and the eventual dominance of Hippocratic medicine. The chapter also takes up Greek understandings of gender difference. All the ancient medical writers agreed on a fundamental difference between males and females, but they had no consensus on what it was, and used the same evidence (e.g. menstruation) as evidence for competing conclusions. Theories justified practices which in turn justified theories (I, 123). The chapter also discusses disagreement in theories of what constitutes health and disease, including their relation to the gods.

“The Definition, Status, and Methods of the Medical Technē in the Fifth and Fourth Centuries” asks what arguments were used to describe the technē of medicine and the authority of its practitioners. Medical traditions were diverse throughout the ancient Mediterranean, but what is exceptional to Greek medicine is the degree of explicit attack by some groups on their competitors. Hippocratic writers do not attack midwives or women healers and may have cooperated with them, but they do attack itinerant purifiers and root cutters, often for self-justification (II, 250-51). The chapter focuses on the definition of medicine in three Hippocratic treatises: “On the Art,” “On Regimen in Acute Diseases” and “On Ancient Medicine.” The three offer divergent views on the methods of medicine and use different rationales to stake claims for its status as a technē.

The remaining three studies address aspects of the work of Galen, the most famous physician of late antiquity. “Scholarship, Authority and Argument in Galen’s Quod Animi Mores” focuses on Galen’s treatise on the soul’s dependence on the body. Galen drew his arguments in part from
citation of earlier authorities, especially Plato, Aristotle and Hippocrates. He supposes general agreement among them, but also points out important differences, for example, between Plato and Aristotle on the faculties of the soul. He argues that the qualities of the soul follow those of the body, but the exact relation of the capacities of the soul to the mixtures of the body is not made clear (III, 33ff).

“Theories and Practices of Demonstration in Galen” turns to Galen’s view of the proper methods of science, especially axiomatic deductive demonstration. Galen was unique among practicing physicians for his interest in, and mastery of, logic. It alone, in his view, could provide valid reasoning and yield incontrovertible conclusions. As a result, Galen offers a particularly good opportunity to examine the benefits of the Greek preoccupation with demonstration (IV, 256-57). Lloyd identifies four strengths in Galen’s approach. Galen insisted on orderliness in reasoning and checking the validity of inferences. He also distinguished between different types of premises and made effective use of logical analysis in exposing the flaws in his opponents’ arguments. But even Galen acknowledged that parts of his logic were useless, and the ambition to give clear demonstrations could be harmful when certainty is not obtainable. Lloyd argues that Galen pursued the methods of geometrical demonstration, modelled on Euclid, beyond the point where they supplied good models of deductive rigor. He argues that Galen’s use of the geometrical method reflects the intense competition that characterized Greek medical writings since the Hippocratic corpus, and further that Greek medicine strongly exhibits the competitiveness characteristic of most areas of Greek speculative thought (IV, 273-74). “Mathematics as a Model of Method in Galen” takes up further problems that arise in applying methods of demonstration to medicine.

Part 2 consists of six studies in the history of Greek mathematics and philosophy, three reprinted from journal articles. “The Alleged Fallacy of Hippocrates of Chios” (Apeiron 20, 1987) argues against the claim that the fifth-century BCE mathematician Hippocrates of Chios used fallacious reasoning in his work on the quadrature of lunes. This study pits the views and claims for Simplicius against the earlier Aristotelian commentator Alexander of Aphrodisias. (Lloyd exonerates Hippocrates himself from any fallacy.) “The Meno and the Mystery of Mathematics” (Phronesis 37, 1992) turns to the use of mathematics in Meno 86e, where Socrates guides a slave through a mathematical exercise in order to illustrate Plato’s claim that knowledge is a process of recollection. Lloyd argues that Plato’s famous obscurity is deliberate, but does not attempt to resolve the scholarly controversies that still surround this famous passage. “Plato and Archytas in the Seventh Letter” (Phronesis 35, 1990) takes up another famous conundrum, the authorship of Plato’s Seventh Letter. Lloyd argues that Plato might be
the author, but whoever wrote the Seventh Letter tried to dissociate Plato from Archytas and Pythagoreanism (VIII, 173).

Three additional studies are reprinted (and in two cases translated) from collections published in Portugal, France and Spain. “Philosophy and Medicine in Ancient Greece: Cognitive Models and their Repercussions” casts doubt on the plausible claim that medicine and philosophy were allies, and argues instead for a rivalry between one strand of medicine (exemplified by the Hippocratic text “On Ancient Medicine”) and one strand of philosophy (Platonism). The analogy to medicine is crucial for Plato’s claims for political and moral truth and the need to obey the advice of experts in both, and Aristotle too draws on the analogies between health, morality and good government. But when we examine the pluralism of both philosophy and medicine a very different picture emerges, visible in important differences between the cognitive models proposed by Plato and by medical writers in theories of memory.

“The Pluralism of Intellectual Life before Plato” questions the category of so-called “Presocratic” philosophy. Lloyd argues on the one hand that the intellectual fluidity associated with the concerns of the physiologoi persisted well into the fourth century, and despite increasing specialization, the boundaries between many disciplines remained both contested and fluid. In mathematics, medicine, historia, and wisdom in general, “there was exceptional room for manoeuvre as to what these activities should comprise” (X.12-13). He argues on the other hand that no actual “unity” of interests characterized those termed “Presocratics” by the nineteenth-century coiners of the term.

Perhaps the most interesting piece in the entire collection in this reader’s view is “The Evolution of Evolution: Greco-Roman Antiquity and the Origin of Species.” First published in Spanish in 2001, it appears here in English for the first time. Here Lloyd reviews a range of Greek and Roman assumptions and theories about the evolution, or transformation, of animal species and their implications for theories of the origins of human beings. He emphasizes the wide range of perspective and interest of the ancient sources. Some (including Empedocles, Plato and Lucretius) introduced religious perspectives on the question. Others, Aristotle especially, preferred empirical investigation of the animal kingdom, including arcana such as the behaviour of sea squirts. Others responded to (or deliberately distanced themselves from) popular or traditional belief and the “mythologoi,” especially Hesiod.

The third section consists of four comparative papers. “Appearance versus Reality: Greek and Chinese Comparisons and Contrasts” argues that the pre-Buddhist Chinese reflective thinkers made no strong ontological distinction between appearance and reality. They did express doubts about
perceptible reality in many concrete contexts; well-known examples include Zhuangzi’s famous “butterfly” dream and Confucius and his intellectual descendants’ repeated questioning of the application of the name junzi (“gentleman”). But such questions posit no ontological divide between perception and some underlying or transcendent reality, accessible only to reason. By contrast, Lloyd argues that appearance-reality distinctions were central to Greek philosophers’ and scientists’ claims for special knowledge of hidden realities (however much they disagreed on what these were). These differences bespeak very different accounts of the nature of wisdom to which a “sage” claims access, and throw light on the aims of philosophizing in early China and Greece.

“Mythology: Reflections from a Chinese Perspective” questions whether the ostensive category of “mythology” is useful for cross-cultural comparison. This essay comes from the volume From Myth to Reason? Studies in the Development of Greek Thought (ed. R. Buxton, Oxford, 1999), a sustained and critical re-examination of Bruno Snell’s claims of a Greek progress “from myth to reason.” Lloyd argues that, as with appearance and reality, early Chinese reflective thinkers made no particular distinction between “myth” and “reason” as modes of thought or exposition. Lloyd also questions the Greek “mythos-logos” distinction in its own cultural contexts, arguing that pejorative accounts of mythos were particular to some philosophers seeking to police the boundaries of fields of inquiry and to establish “correct” methods within particular disciplines. The early Chinese reflective thinkers did their fair share of criticizing popular belief and their own opponents, but without recourse to “myth” as a category of deliberate fiction.

The next chapter turns to claims arising from the work of Jack Goody, Ian Watt and Eric Havelock that the distinctively Greek penchant for critique and polemics in philosophy and science were linked to the development of literacy and an alphabetic script. “Literacy in Greek and Chinese Science: Some Comparative Issues” argues that this hypothesis fails to account for observable differences in styles of mathematical reasoning. Lloyd argues that the characteristically Greek demand for axiomatic-deductive demonstration owes less to technologies of communication than to conflicts between competing intellectuals and their desire to secure incontrovertibility. He concludes that the importance of written texts grew over time in both societies, but for different reasons and in different ways. The differences depended less on a specific technology of the written word or on specific modes of writing (alphabetic or logographic) than on wider political, social and cultural values. This chapter also address problems taken up at length in Adversaries and Authorities (Cambridge, 1996), where Lloyd argued that early Chinese reflective thinkers preferred styles of reasoning and rhetoric based on authority, consensus and harmony, in
strong contrast to a culturally Greek predilection for competition in rhetoric and prestige in the production of wisdom.

“Is There a Future for Ancient Science?” caps the volume with Lloyd’s valedictory lecture on the occasion of his retirement from Cambridge in 2001. Where if at all, he asks, does ancient science fit amid recent developments in the history and philosophy of science? He argues that the recent revolutions of contemporary science do not change the key questions in the study of antiquity, for example, what did the ancients think was worth investigating, and why and how did they go about it? (XV, 198). He argues for the importance of a comparativist approach because no one ancient culture provided the model for how inquiry should develop. Greek and Chinese society and philosophy offer different kinds of strengths and weaknesses that mirrored each other in important ways. Lloyd concludes that a comparativist approach is essential to deparochialise our own inquiries, and that the best recent work at Cambridge in ancient science, mathematics and medicine is either explicitly comparativist or else is informed by awareness of alternative traditions (XV, 208).

This volume is beset by an ongoing tension between the breadth and quality of Lloyd’s magisterial work over many years and the limitations of Aldershot’s variorum publishing model. Only a few items in the collection are not available elsewhere. For all their excellence and importance, it must be asked whether they justify poor production and the hefty price of this volume. But a more significant problem is the contrast between these dissociated pieces and Lloyd’s subsequent work. Cognitive Variations (Oxford, 2007), published only a year later, presents an entirely new and different method for comparativism in the study of ancient science, juxtaposing balanced comparisons of Chinese and Greek evidence with detailed excursions into relevant evidence from several contemporary scientific disciplines.