

Whose Science is Arabic Science in Renaissance Europe?¹

<http://www.columbia.edu/~gas1/project/visions/case1/sci.1.html>

It is becoming more apparent to historians of science that the more they deconstruct the grand narrative of the history of their discipline, which stipulates a majestic progressive march of science from ancient Mesopotamia to Greece (with some unresolved questions and caveats on the connection between these two cultural areas), to the Islamic civilization and on to Europe with some marginal input by Indian and Chinese cultures, the more it becomes difficult to assign linguistic, civilizational and cultural adjectives to the term "science." Adjectives such as Greek, Arabic, Chinese, Indian, and more pertinently western, when applied to science as in Greek science, Arabic science, etc., are quickly becoming obsolete. Not because of any lack of interest in applying such adjectives, but because of the newly-emerging understanding of the essentially hegemonic meanings such adjectives have always harbored. There was a time when these terms were often used as analytical categories, and it was thought they imparted some significance at the time when languages, cultures and civilizations used to embody individual characteristics that could distinguish them from one another. But today more and more people are coming to realize that these same terms are no longer serving the same functions. This is especially so when the new scrutiny now being applied to such grand narratives of the history of science is making it quite obvious that these terms can no longer yield the same analytical results they used to yield. Add to that the newly-emerging realization that the terms "culture", "civilization", "language", and "science" itself, are no longer the same stable, commonly-accepted terms of reference they once were. Instead, it is becoming apparent by the day that such terms do indeed embody ambiguities of their own and embody hegemonic theoretical structures that prohibit their modification with the old adjectives as was once done. In particular the greatest challenges to the grand narrative of the history of science are surfacing as a result of the micro historical work now being done by historians of each of these cultural sciences. And as is always the case, micro history has a direct bearing, and at times a devastating effect, on the general schematics of theories of history or theorizing about history, if for no other reason than that micro history sometimes produces stubborn facts that are by their very nature impossible to explain away no matter how great is the amount of theorizing employed. More specifically as these historians try to explore the boundary issues that used to be discussed under such rubrics as the transmission of science, the influence of one cultural science on the other, or under the various schemes that were devised for diffusion of science and technology, simultaneous discoveries, indebtedness, etc., these same historians are beginning to discover that the old analytical categories are no longer adequate to explain the kind of facts that their investigations are producing. The boundaries are blurring and the very defining characteristics of cultural sciences are beginning to lose their meaning, and yet no new theoretical framework has proven to explain sufficiently well what is taking place. In what follows, I would like to illustrate the predicament that now faces historians of science, especially those who have devoted their work to cultural sciences and have tried to tackle such issues as the nature and defining characteristics of such concepts as the "Greek miracle", the nature of scientific revolutions, the nature of western science, the reason why "modern" science rose in the west and

nowhere else, and many such questions whose answers at any time seem to be contradicted as soon as they are defined. It is important to note that such investigations also have a direct bearing on the defining characteristics that have been utilized to describe "modern" science, just as those characteristics themselves were almost always conceived as constituting the ever varying essential features of modern science and were as a result constantly shifting to one or more of such descriptive but yet complex conceptual terms as mathematization of nature, experimentation, use of general symbolism and more particularly mathematical symbolism, institutionalization of science, rise of western universities, legal and cultural institutions governing science, etc. In order to illustrate the futility of the attempts to write the history of cultural sciences in this fashion, and to highlight the ambiguities so far implied by the analytical categories just listed, I will resort to some of the results that have been already established in specific micro histories, and others like them that are still being established. In particular I will focus on a set of results that has emerged from the examination of a border case that is becoming quickly blurred in between two cultural sciences. The border in question is the ever-fluctuating border "separating" Arabic/Islamic science on the one side and the Latin/western science on the other. The episode itself deals with the activities of scientists working on both sides of the border divide roughly between the thirteenth and the sixteenth centuries and delving into each others cultural and geographical territories. It also deals with the relationship between a series of texts that were written in Arabic at various periods of time within the lands that were referred to as lands of the Islamic world and another set of texts written in Latin in the lands now referred to as Europe. The results that are now surfacing from the study of the lives of the few scientists who performed those roles as well as from the texts being subjected to scrutiny have been accumulating over the last four decades or so and have recently come to the attention of those interested in border issues of cultural sciences. The significance of such massive results is still being put to the test. Their sheer quantity, as well as their sheer complexity, have not yet been fully digested in the secondary literature in order to create the kind of impact they will certainly eventually create on the manner in which histories of sciences modified by cultural, civilizational, or linguistic terms ought to be pursued. But in order to fully comprehend the significance of this problematic evidence one needs to supply the historical background that brought it about and thus reconstruct the larger investigative context that framed the problem in the first place. One can not avoid reconstructing as well the complex web of events and circumstances that produced this problematic evidence that is now forcing us to reconsider the use and significance of such terms as Arabic/Islamic science and Latin/western science. But to do that, one needs to turn the clock back by some forty years, and then attempt to come to terms with what was known then about the nature of Arabic/Islamic science, Renaissance science, "Copernican revolution", and the radical manner in which that knowledge has since then been transformed.