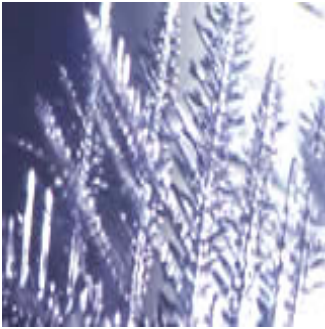


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Galileo Now and Then

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The aim of this paper is to stimulate discussion on how shifts in philosophical fashion and societal moods tell us not only what to read but how to go about it, and how history and philosophy of science can jointly deepen our grasp of the issues at stake.

The first part highlights some of the things that have occurred in the field of Galileo studies between the monumental edition of Galileo Opere in twenty volumes, edited by Antonio Favaro between 1890 and 1909, and the new enlarged edition that will be published from 2009 onwards by a team of scholars working under Paolo Galluzzi. "Publish or perish" is an injunction that resonated as clearly in the ears of assistant professors at the end of the 19th century as it does in the first decade of the 21st. But publishing can also mean perishing when what is being edited is the work of an eminent scientist of the past. It simply does not do to offer material that is below what readers expect even if it was written by someone as famous as Galileo. Well authenticated sources are sometimes disregarded when they would be of no interest to the present generation. It is largely for this reason that a new national edition of Galileo's works is required. Of course, over the last hundred years, a number of letters from and to Galileo as well as a few laudatory or damning comments about his personality or his work have been uncovered, but this would not have been enough to drum up financial and scholarly support for a major editorial project. Funds were found and expert advice was secured by what Favaro had left out. Before mentioning what this material is, allow me a disclaimer. I'm not focusing on Favaro because he is a singularity, but because he illustrates how a conscientious historian can ride slipshod over evidence because of a philosophical commitment that he is only vaguely aware of, in this case naïve positivism. So what did Favaro leave out? The answer is large parts of three collections of manuscript notes that are bound in some of the 347 volumes of the Galilean material in the National Library in Florence. The first collection deals with Galileo's laboratory notes on the experiments that he carried out on inclined planes and with the pendulum; the second with logical treatises and related essays on Aristotelian philosophy; and the third with astrological computations. Favaro gave only a sample of the first collection of notes on motion because he had trouble making sense of them. He rejected the second set because they were "pre-Galilean" and hence could only have been trite scholastic exercises that "poor" young Galileo had to undergo in high school. The third, astrological collection, was set aside with more trepidation since Galileo cast horoscopes for himself (at least twice), his children and his friends. But the fact that they were, epistemologically speaking, "pre-Galilean", was enough to cast them into the outer darkness (in this case a dimly lit corridor of the Florence National Library).

In the second part of this paper, I shall show how the retrieval of this material has contributed to Galilean studies. Galileo's notes on motion were ordered by Stillman Drake and have given rise to fascinating work, notably by the Berlin group under Juergen Renn, and more recently by Paolo Palmieri here in Pittsburgh. The Aristotelian treatises lent support to the claim that Galileo was an Aristotelian at heart, and the astrological notes may well revive interest in what Galileo thought astronomy had to offer.

The Aristotelian notes that Favaro had neglected were made available by William Wallace, who showed that Galileo culled long passages from professors at the Roman College. Galileo attacked several of Aristotle's ideas, but he never queried Aristotle's scientific realism -- namely, the view that there is a uniquely true physical theory, discovered by human powers of reason and observation, and that alternative theories

are consequently falls. Wallace made this the basis of his claim that Galileo created, in the heaven above and here on earth, a new science of motion by following the Aristotelian cannons laid down in the Posterior Analytics. On this view, Galileo used Aristotle's logic to subvert Aristotelian physics. It is interesting to contrast Wallace's thesis with that of philosophers of different allegiance, who offer a reconstruction of Galileo's methodology along lines that are much more modern and in which the epistemological core is no longer Aristotelian logic, but common sense instrumentalism. This is not to deny that experiments sometimes speak with a forked tongue, but to stress that methodological rules have also been known to be no more than clashing cymbals. Recent writers have also stressed that Galileo aimed his arguments at a specific audience, and that we must take cognizance of the values and whims of the society in which he operated. The sociology of science can help us understand the background against which Galileo's arguments were assessed and the reasons why he favored some rhetorical strategies over other ones. Mario Biagioli's *Galileo Courtier* sheds light on the Tuscan court and the Roman famiglia (as the popes styled their entourage), where Galileo found many of his readers and most of his critics. But Galileo was much more than a courtier, and I shall argue that we should use our enhanced knowledge of Galileo's education, his language, his style, and his emoluments to understand his science, not to supplant it. History and philosophy of science can combine their insights to achieve a more critical and balanced view of what actually occurred and why.



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