

became impatient; the philosopher in him beat the experimentalist. Instead of making some more experiments which would have explained this or that detail in the mechanism of a living body, he wanted to devote himself right away to "general physiology" and began to expound comprehensive theories, which transcended his knowledge and experience immeasurably, and were therefore absolutely futile. How did he fail to see that, who had seen so clearly the need of experiment? The deviations of a man's intelligence can never be accounted for, because they stem from irrational feelings and desires. Galen was primarily a writer, who craved philosophical and literary fame. He got what he dreamt of (as we often do); he might have aimed much higher but, unfortunately, he did not [pp. 48-49].

Let us all heed these forceful warnings!

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. . . Was Galileo a moral coward or a martyr in the cause of science? Arthur Koestler, in an article in the *London Observer* of 2 February ("The greatest scandal in Christendom"), suggests that the late medieval popes, far from being persecutors of science, were its patrons. As may be seen in a surviving manuscript copy, dated 1606, of a lecture by Galileo ["Trattato della sfera," *Opere* (Edizioni Nazionale, Florence, 1929-30), vol. 2, p. 203], Galileo feared being hissed off the stage, like poor Copernicus, not by the Jesuits but by his fellow professors. Events proved his fears well founded. Galileo developed his Copernican convictions in his early 20's, but until he was 46 kept very quiet about them and taught the Ptolemaic astronomy; he clearly felt undisposed, for the best part of 20 years, to wage his much-romanticized "passionate fight against authoritarian dogma."

In the widely circulated "Letter to Castelli," cited by Koestler, Galileo dogmatically assumed the scientific truth of the Copernican hypothesis—which is all it then was—and forced a showdown by demanding that the Church either endorse it or condemn it altogether. In his *Dialogue of the Two Systems* he had the fool Simplicio repeat Pope Urban's escape clause for the believer—that a hypothesis may explain the facts satisfactorily, but God may have produced the same phenomena by different means; thus he publicly cocked a snook at his old friend the Pope. In short, Galileo asked for a showdown, and he got a trial.

As to the row with Pope Urban, the point is this: Galileo had no evidence

at hand to prove the Copernican theory. Jupiter's moons proved Aristotle wrong, but not Copernicus right. Galileo's data in *Siderius Nuncius* supported Tycho Brahe's compromise system, in which the planets revolved round the sun and with the sun round the earth. The world had to wait two centuries till Bessel detected the apparent shrinking and expansion of the fixed stars because of the earth's motion in orbit. (Foucault's pendulum, to which Gibson refers, did not show the orbiting of the earth.)

It is true, as Gibson says, that lazy people buy, or just lift, their mental inventory secondhand—including, I would add, the schoolmen's outworn ideas about Galileo's martyrdom. (Incidentally, the schoolmen were the only intellectuals of *their* day, and shouldn't be sneered at even if their ideas no longer stand up.) Even history has a rigorous discipline; science has no monopoly of this attribute. A historian would want to see some exact evidence before linking Galileo's concepts with the Declaration of Independence.

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Grants and University Authority

American universities are undergoing considerable change as a consequence of large-scale support of research and related enterprises by outside agencies. Although some of these changes are desirable and are generally conceded to improve the institutions, others appear to be disadvantageous. Among the latter is the tendency toward loss of control by university administrators, individually and collectively, who are responsible for the organizational and fiscal integrity of their institutions. This problem was enunciated by President Pusey when, in his *1961 Report to the Faculties and Governing Boards of Harvard University*, he wrote:

The availability of Federal Grants for project research tends in any university to divide the responsibility of the faculty, and to weaken the influence of the president and deans, in planning the content, emphasis, and direction of research and teaching.

Although grant agencies have been careful not to exercise control, nevertheless they certainly exert influence, if only through the power of the purse. The loyalty of the faculty member

tends to veer away from his institution and dean to the funding agency and its program director. One hears also of the disappearance of the "local" and the emergence of the "cosmopolitan," whose loyalties are to his field and to the agency which supports it and who feels little compunction about "picking up his grants" and moving from institution to institution. And always the finger is pointed at the federal agency, as though this influence were peculiar to it. That is not the case. Similar influence certainly may be attributed to private foundations and voluntary health agencies which award grants aimed primarily at the individual faculty member. And many agencies, non-federal as well as federal, frequently ignore the institution altogether and deal directly with the faculty member or fellowship recipient, particularly in relation to awards which take the recipient away from his institutional functions.

Every institution can document this. Recently one smallish institution, within a very short period, experienced at least ten instances in which awards were made without any prior consultation with the institution and apparently without considering whether it would be benefited or harmed. The awards emanated from six different agencies, one federal and five nonfederal, and consisted of "leave" fellowships for faculty members, research grants, and fellowships for foreign visitors invited by the agency. In none of these instances was any contact made with an institutional representative before the arrival of the letter announcing the award. In some instances, the institution was not even informed that the award had been made. It is easy to reply that the institution could, if it chose, refuse the tendered grant or refuse to permit the recipient to accept it. But imagine the consequences of so doing if a leading faculty member were concerned.

It is clear that thoughtless actions such as these by either government or private agencies may contribute very considerably to loss of control by the university or its departmental chairmen, deans, or president. And with weakening of local controls comes increased private-entrepreneurism and even anarchy. Surely this is not the intent of the donor agencies. It is apparent that more care and consideration is required.

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