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How Helpful Is Freedom?

Because science depends so immediately on freedom of inquiry, partisans of political freedom are tempted to believe that democracy, whatever its shortcomings in producing space spectaculars, must in the end be the form of government best designed to produce pure science. The argument is that the individual must be free to propose hypotheses and test them. Heinrich Schliemann in the 19th century, for example, had to be free both to believe that Hissarlik was the site of Homer's Troy and to go to the spot and dig. If some government had held, as a consequence of its metaphysics, that Troy never existed, or if some government had feared that the practice of digging for Troy might lead to a penchant for digging into other matters as well, then there would have been no archeological confirmation of the Achaean heroes.

This argument is sound, but the implications for the superiority of democracy as an environment for science are limited. For one thing, freedom by itself is not enough. Although Schliemann may have been free to dig as deeply as he liked, he had first to amass the fortune necessary to finance his digging. But what is more interesting is that science has other characteristics besides the need for freedom, and these other characteristics suggest that this need if deep may not be broad.

Besides the posing and testing of hypotheses, science is also characterized by its procedure of not attempting to answer all questions at once. Scientific knowledge is possible because it is compartmentalized, because it is possible to discover truths about one question and at the same time ignore other questions. Hydrodynamics, for example, can be studied independently of thermodynamics, and the two disciplines together have nothing to say about the sensory qualities of a cold drink of water on a hot day. It may well be that freedom of the most complete sort in one part of knowledge is entirely compatible with total bondage in another part.

Research in its later stages, it is true, has a way of breaking down the very barriers that made earlier progress possible. If science is compartmentalized, it also strives toward unity. The turn of the century saw how increased knowledge about the structure of the atom broke down the barriers between chemistry and physics, and we are now watching our growing knowledge of the structure of the gene break down the barriers between biology and the physical sciences. But unity, in turn, produces new compartments. If where once stood a fence there is now a house, the house itself is a kind of enclosure and within it lives a new group of specialists.

One point about a totalitarian government is clear. To the extent that it chooses to meddle with the methods of research, or to dictate the results of research, science will be the loser. But without claiming that the pull in science toward specialization is somehow stronger than the pull toward unity, it is still possible to say that freedom to study a particular problem is not immediately dependent on freedom to study every problem. What has yet to be fully determined is what happens when a totalitarian government chooses to support some parts of science vigorously and intelligently, because it sees the achievements of science as contributing to its own greater glory.—J.T.