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Science vs. Humanities: The Legacy of C. P. Snow

Author(s): Joan Baum

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scholar, whose identity cannot be concealed, may be exempted from an inevitably ritualistic refereeing process. And yet, there is a real danger that the number of these rare individuals will be increased to the point of creating a new two-class system, that the most insignificant work of the celebrated will be treated as oracular, or, as we are witnessing ever more frequently today, that journals will publish nothing but commissioned articles. More important, however, is the fundamental speciousness of an argument that cites the exception to condemn egalitarian practices for the many, a logic that would be disastrous if applied to the body of law of any civilized society.

Finally, opponents of author-anonymous reviewing argue that instances of bias are grossly exaggerated. In the absence of existing studies that compare results before and after adoption of author-anonymous reviewing procedures, the basis for such a statement is clearly subjective. However, the one case that has been documented suggests radically different facts. In the annual proceedings of the American Philological Association, the Committee on the Status of Women and of Minority Groups reported that the percentage of papers written by women and accepted for presentation at the association's annual convention almost tripled (from 6.7 percent to 19.5 percent) within two years after author-anonymous reviewing had been put into practice, whereas during the same period journals in the

field not using this policy showed, if anything, a slight decrease in the number of published articles by women. As classicist Mary Lefkowitz has said, the results were even more dramatic than activists had anticipated.

Although such results may not always reveal dramatic differences, I believe that author-anonymous reviewing procedures should be instituted in all academic journals, and moreover, that they should be extended to include the evaluation of papers for academic congresses, of grant applications, and of book-length manuscripts. These procedures, like laws in our society, are important signs that we subscribe to egalitarianism both in theory and in practice. They bespeak the effort to ensure a fair and impartial judgment of our colleagues, which is, perhaps, the most that imperfect beings can hope for in an imperfect world. Author-anonymous reviewing policies declare our commitment to reason and humanism over and against the irrational and dehumanizing impulses that we all possess and that can still be catalyzed by a mere name.

The institution of author-anonymous reviewing in all forms of publishing constitutes a specific means for combatting prejudices against women and the powerless. The policy is founded on the incontestable premise that the decisions that determine who speaks and who remains silent in institutional and professional contexts involve a dialectic of power and thus the ideology of the culture. That wo-

men's committees and commissions in associations such as the APA or the MLA have achieved the institutionalization of author-anonymous reviewing can serve as a signal to others that change can be effected and that the status of the relatively powerless can be ameliorated.

Some observers may interpret these efforts on the part of female scholars as a paradoxical valorization and perpetuation of the anonymity imposed on women writers throughout the centuries. As Virginia Woolf wrote in *A Room of One's Own*: "I would venture to say that Anon, who wrote so many poems without signing them, was often a woman." But author-anonymous reviewing promotes a different mode of anonymity, one that functions only at the beginning of a process and that affirms the inscription of the female name in the end. Rather than indulge in paradoxes, we must face the realistic fact that, until women "hold up half the sky," anonymity represents a positive alternative to the negative meanings still evoked by a female name; it is a necessary, albeit artificial, measure for guaranteeing women the inalienable right to speak and thus to be. If we believe in the power of words, then it is not altogether idle to imagine that the accumulated force of women's texts can help shake the phallogocentric edifices of "masculine" and "feminine" on which the culture rests, and who knows, even change our vision of the existing sky.

## Science vs. Humanities: The Legacy of C. P. Snow

BY JOAN BAUM

C. P. Snow died this summer, one week after a conference in Woodstock, Vermont, attacked science and technology and a few months before the White House released a report that showed a widening gap between Snow's two cultures.

Obituaries on Snow suggested that at the time of his death the gap had closed,

but the facts speak otherwise. Despite a lofty tribute to Snow's ideals in an editorial on the occasion of his death (July 2, 1980), a *New York Times* editorial four months later told a different tale: the majority of students in the nation's colleges were "dropping science and mathematics courses sooner than they used to, and getting poor scores on tests." The editorial, based on a recent report of the National Science Foundation and the Department of Education, prepared for the White

House, went on to indicate that graduates were emerging with "only the most rudimentary notions of science, mathematics and technology." Thus, the *Times* concluded, in direct contradiction of its earlier optimism, "Scientists are . . . growing apart not just from other intellectually gifted people, but from the rest of society." What to do?

The *New York Times* had this to say: "Establish new curriculums aimed at students who don't plan to follow a scientific track." The minority of students planning careers in science or engineering are not the problem the editorial declared, for they are "still learning as well as they ever did," and the NSF/Department of Education report foresaw no shortage of such professionals. It is the majority, the "non-specialists" dropping out in increas-

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JOAN BAUM is associate professor of English at York College of the City University of New York.

ing numbers, that alarms the paper. Given its stated concern about the widening gap between intellectuals in the sciences and in other disciplines, however, the *New York Times* should have been as much concerned about the alienation of the nation's top scientists and technical experts from the nation's best writers, philosophers, and practitioners in the fine arts. And it should have considered the uselessness of making recommendations for curriculum reform for students without also, or first, considering the necessity of encouraging attitudinal reform on the part of many humanists.

The Woodstock Symposium on "Knowledge, Education and Human Values" suggests that scientific ignorance and hostility to technology are alive and well for many of the country's leading intellectuals. The conference, a gathering of fifty professionals representing all the disciplines, was sponsored by the Charles F. Kettering Foundation, and the Teachers College of Columbia University. In the words of one of the participants, Douglas Sloan, professor of history and education at Teachers College, the purpose of the conference was "to make available new views of how we know the world," and to discuss the reality of the world that goes beyond "a narrow empirical technique." But, according to the news report on the conference, the consensus of the conferees was that there was a "destruction of knowledge" going on, due to narrow specialization, and the fault lay with science and technology. Such "tunnel vision" the conferees declared, was causing moral and intellectual blindness and creating an issue that was "the most pressing [one] facing society today."

The charge was unmistakable, the antipathy, obvious. "Not only is the discipline [of science] emphasized to the near exclusion of all others," one member was reported to have said, "but the scientific method . . . has dictated a cognitive process, a system of values and ultimately a view of reality that has fragmented learning." Knowledge, the conferees declared, must be made "whole" again, and to that end, they recommended that art, religion, and ethics be made a "part of the school curriculums, as they were centuries ago in ancient Greece."

C. P. Snow would have been surprised at this suggestion, however, and disap-

pointed that the conference would choose a path that might be said to widen the two-cultures gap, not close it. It was, he felt, more incumbent for the humanists to familiarize themselves with science than for the scientists to "humanize" their study by studying philosophy and literature.

The conference participants would seem to have confused the words *science* and *technology* and to have indicted both as traditionally hostile to the humanities. "Education," declared one member, "has been dominated by science since the Renaissance." But this Baconian tradition, the scientific method, does not pervade Western culture until much after the Renaissance, and, in fact, many inventions and experiments simply went unnoticed or unappreciated for some time. The word *scientific* makes appearance only late in the nineteenth century. And despite the conferees' reliance on *science* as a word meaning application rather than research, the word today retains much of its etymological origin as broad theoretical inquiry.

Instead of ancient Greece, the Woodstock participants would have done better to look to the so-called Dark Ages for a model for their holistic ideal, for the period alongside evidence of obsession with art, religion, and ethics, cultivated a strong tradition of the liberal arts. Most of the tradition, it is true, was mathematically based, since the quantitative quadrivium (astronomy, geometry, arithmetic, and music) was held superior to the trivium of verbal arts: grammar, rhetoric and logic. Nonetheless, the seven stood as an integrated model for education.

In some part, the equivalence of the words *science* and *technology* is peculiarly American. As Raymond Williams has pointed out in *Keywords: A Vocabulary of Culture and Society*, "The specialization of science is more complete in English than in most comparable languages." What is telling is that the very people who equate the two words *science* and *technology* are often the same people who assume that any academic subject with the word *science* in it is therefore scientific. So they assume a scientific method for fields like political science or social science and too easily appropriate terms like statistical significance or cognitive-process research. Such distortions are

often accompanied as well by assumptions that such science is necessarily about only quantifiable things and is by definition value free.

In truth, the hard scientists, physicists and chemists and mathematicians and engineers, know such assumptions to be false. Scientific method is not a way of thinking or an attitude, but a procedure for working out a problem; how the problem is conceived and justified as significant are matters of choice and value judgment. Surely, there is much that is wrong and disturbing going on in the world, much of it in the name of science and technology, but it is difficult to believe, as conference participants would have it, that wrong is the result of a tunnel vision peculiar to those working in these disciplines. As Freeman Dyson has shown in *Disturbing the Universe*, questions of ethics are more complicated than the general public might think. But the intellectuals at Woodstock should have known that.

Although the Woodstock Conference might seem to have addressed the right questions, it did so in the wrong way and came to conclusions that seriously undermine the kind of cooperation C. P. Snow had in mind and that many of the conference participants would probably support.

It is not true, as Houston Smith, professor of religion at Syracuse, was reported to have said, that "the average person believes truth is science," or that "science has become our new religion." Were that so, scientists would not be waging front-page war on the more numerous followers of astrology and the occult. Scientists, moreover, do not assert an interest in truth, but rather in consistency. The stereotyped dichotomy between subjective and objective, the observer and the observed, was laid to rest long ago by the uncertainty principle and by the incompleteness theorem; and the clichéd divorce between technology and morality was long ago called to account by the evidence of best-seller popular expositions of science, written by scientists of moral purpose and eloquent style.

There is a simplistic and arrogant assumption at the core of some of the statements reported out of the Woodstock Conference that would have given Snow serious pause and that should also concern curriculum committees in higher

education. The assumption is that courses here and there in ethics or religion or aesthetics, as Professor Phil Phenix from Teachers College advocated, will prevent tunnel vision or moral blindness and make science specialists whole. It is a presumption as well, considering the point at which such courses are usually introduced into the undergraduate curriculum.

Victor Frankenstein did not lack for ethics. His main motive in creating man was to conquer disease and help mankind. He had a solid humanities education—"natural philosophy" it was then called—as close to the old Renaissance model as could be found. His haste in using large parts for his monster was a failure all right—but not of morality, rather of intelligence: He lacked the technician's expertise and, more like an artist than a scientist, he insisted on working alone, never subjecting his work to the scrutiny of peers.

Giving a required course on myth, metaphors, and dreams alongside a course in geometry, as suggested by Professor Peter Abbs, lecturer at Sussex, promises no better than the professor of religion's

suggestion to prevent tunnel vision. It is disappointing that neither man thought of placing the emphasis the other way around: offering a course in the history of science to show humanists how often science has been advanced by literary men, by technicians who were also artists, and by specialists in science who relied strongly on intuition. What modern man needs are not one-shot infusions of courses in art, religion, or ethics to make them sound, but courses in science and technology, theory and application, to make them knowledgeable about what threatens them. Ignorant politicians cannot manipulate an ignorant electorate.

It is significant that only one scientist was quoted in the news report on the Woodstock conclave, David Bohm, a theoretical physicist from the University of London, who movingly pointed out the dangers of modern time: "the energy crisis, the potential for nuclear war, and the destruction of the environment." But his call for man to explore first his "inner realm" before experimenting with "objective data" is in its own way, as one conferee pointed out, a kind of threat, to the integrity of the scientific discipline.

The Woodstock Conference in Vermont unfortunately shows how right Snow was: The cultures misunderstand each other at the core, but there is more misunderstanding on the part of the humanists about science than the other way around. Intellectuals in the humanities and arts often fail to appreciate the fact that political experts whom they would have legislate science and technology are ignorant. If humanists insist that technical specialists study ethics and aesthetics, what are they, the humanists, prepared to study in return?

More science, not less, and conferences on the two cultures held in developing countries, in third-world nations looking forward to the industrial revolution—that was the hope of C. P. Snow, and he looked to the intellectuals in the humanities and the social sciences to become knowledgeable and point the way. This challenge is his legacy and in appropriating the words of the Woodstock conference, it constitutes "the most pressing issue facing society today."

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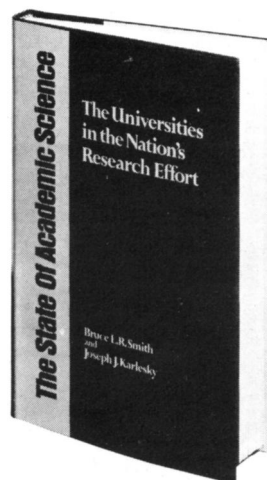
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