

John P. Sisk

WRITERS & SCIENTISTS:

THE TWO CULTURES

“UNTIL RECENTLY,” Alfred North Whitehead wrote in 1925, “nearly all writers have been soaked in classical and renaissance literature. For the most part, neither science nor philosophy interested them, and their minds were trained to ignore them.” The implication was that the rift between the scientist and the literary intellectual was beginning to close. This is not the impression one gets thirty-five years later from C. P. Snow’s little book, *The Two Cultures and the Scientific Revolution*.

Snow’s book—originally a series of lectures delivered at Cambridge—made no best-seller list when it appeared in 1960, but it was surely one of the important publishing events of that year. We are indebted to its author not only for the lucidity with which he has called our attention to the rift but for being himself (as was Whitehead before him) a living proof that fruitful communication between the worlds of the scientist and the writer is possible. It can be argued however that its sympathies lie much more with the “optimistic, brash and boastful” scientist than with the “pessimistic,” “anti-social” and “politically silly” literary intellectual. I think something more needs to be said for the literary man. At least it might be useful to examine in some detail his suspicion of the scientist.*

*Since these words were written, F. R. Leavis, distinguished British critic, has come rather sensationally to the defense of the literary man. In a lecture delivered in March 1962 at Cambridge Leavis spoke of C. P. Snow’s “Two Cultures” lectures as exhibiting “an utter lack of intellectual distinction” and asserted that as a novelist Snow “doesn’t begin to exist.” The full text of Leavis’ lecture has been printed in *The Spectator*. There is a rather neu-

FOR ONE THING, the literary man’s attitude towards the scientist is likely to be determined not only by classical and Renaissance literature but by the reaction of the romantics to the mechanistic philosophy of the seventeenth and eighteenth centuries—a reaction that Whitehead himself has presented brilliantly. At the turn of the century Wordsworth wrote:

*Sweet is the lore which nature brings;
Our meddling intellect
Missshapes the beauteous forms of things;
—We murder to dissect.*

Fifteen years later he was writing to Coleridge out of the same conviction that the philosophy of mechanism “in everything that is most worthy of the human intellect, strikes Death, and cheats itself by mistaking clear images for distinct conceptions.” And more than a hundred years later, when D. H. Lawrence wrote in *Lady Chatterley’s Lover* that “the devil himself had lent fiend’s wits to the technical scientists of industry” the tune had not changed materially. A little later still E. E. Cummings only put it more quotably:

*I’d rather learn from one bird how to sing
Than teach ten thousand stars how not to dance.*

Between Wordsworth and Cummings the catalogue of literary men who were uneasy, skeptical or pessimistic about science, either for what it ac-

tral discussion of this controversy by Walter Allen in *The New York Times Book Review* for April 1, 1962, and a decidedly pro-Snow follow-up by Edmund Fuller in the same publication for April 22. *The National Review* for March 27, 1962, enters the lists on Leavis’ side. *The National Review* is convinced (as apparently Leavis is also) that the real meaning of Snow’s lectures is that scientists should rule the world.

tually was or for what it aspired to be, is a catalogue of the great names: Keats with his conviction that Newton had taken the poetry out of the rainbow; Tennyson tormented by the stars that blindly ran; Emerson with his "law for thing" running wild and unkinging man; Thoreau with his scorn of the railroad and cable; Morris and the Pre-Raphaelites with their pastoral cult of craft and beauty; Arnold with his nostalgia for the clarity of the Scholar Gypsy; Housman with his weltschmerz of golden lads doomed in a cold, heartless universe; and Henry Adams with his appalling dynamo. Even Whitman, who in "Passage to India" could celebrate the scientific revolution in a way few poets have been able to, had his no less typical moments when, anticipating Cummings, he preferred directly communication with the stars to what the learned astronomer had to say about them.

Writers like Wordsworth, Coleridge, Shelley and Emerson were able to reject the mechanistic vision of the scientist as inadequate and still avoid the disastrous disjunction of Keats that if science was true poetry was not. Wordsworth and Shelley, Whitehead is able to say, were even closer to the scientific truth of the matter than the mechanistic scientists. But much more often the literary man in the past, as now, was less inclined to question or distinguish when the scientist pronounced as he was to be appalled by the announcement.

At the end of his book *The Universe and Dr. Einstein* Lincoln Barnett makes one of these appalling pronouncements: "And what the scientist and the philosopher call the world of reality—the colorless, soundless, impalpable cosmos which lies like an iceberg beneath the plane of man's perceptions—is a skeleton structure of symbols." If we may take our sanction from the physicist and ignore chronological time, we can find a typical literary man's reaction to this passage in the wonderful and terrible lines from *Moby Dick*:

"And when we consider that other theory of the natural philosophers, that all other earthly hues—every stately or lovely emblazoning—the sweet tinges of sunset skies and woods; yea, and the gilded velvets of butterflies, and the butterfly cheeks of young girls; all these are but subtle deceits, not actually inherent in substances, but

only laid on from without; so that all deified nature absolutely paints like the harlot, whose allurements cover nothing but the charnel house within . . . pondering all this, the palsied universe lies before us a leper . . ."

Still ignoring clock time, one hears echoing behind this Pascal's anguished reaction to Newton: "The eternal silence of these infinite spaces frightens me," or Henry Adams' more subdued anguish when Arthur Balfour announced in 1904 that the human race until that time had lived and died in a world of illusion: "he [Adams] was henceforth to be a conscious ball of vibrating motions traversed in every direction by infinite lines of rotation or vibration, rolling at the feet of the Virgin at Chartres or of M. Poincaré in an attic at Paris, a centre of supersensual chaos."

Adams might prefer his "eighteenth century education when God was a father and nature a mother," but the trouble had started long before that. As Professor Dobzhansky of Columbia puts it: "Copernicus and Galileo so altered man's image of himself that they started the process of his alienation from his world." The result is that, especially in the last one hundred and fifty years, the literary artist has been fighting for his life—or, more specifically, fighting for a view of the universe that would validate his literary vision. In the simplest terms this means fighting for the belief that to say that a rose is crimson is to touch the reality of the rose just as closely as when the physicist defines crimson "in terms of wave length," as Barnett puts it, or "as the value of the energy content of photons."

There was of course the way out of naturalism: the literary man's attempt to get back order and meaning by accepting as ultimate the blind running of the stars. But the literary mind that can sustain itself with creative confidence in the philosophy of naturalism is rare indeed. Perhaps in the strictest sense it is non-existent, for the artist is driven to mythologize, and as soon as he does he leaves naturalism behind him. This is why historical naturalism so often strikes one as romanticism trying to salvage something from its lost faith in the imagination. To the philosophy of naturalism the more understandable literary reaction is in *Dover Beach* or *In Memoriam*—elegiac regret for

the passing of the good old order—or in *The Shropshire Lad*—elegiac bitterness that the good old order was a lie.

THE BASIC ISSUE with the artist is epistemological. He has a great need to believe in the reality of the sensible universe, however he may believe that universe to be symbolically or mystically involved with a supersensible order of reality. Whatever undermines his confidence in the validity of his senses is a threat to his art. That is why it was said of Descartes that he had cut the throat of poets and why Keats believed that Newton's *Optics* had destroyed the poetry of the rainbow. The paradox is that so many literary artists, with their fondness for transcendental or idealist explanations of reality, have tried, often with considerable success, to be their own Descartes. Just as Poe believed that the most poetic subject is a beautiful dead woman, so there is a kind of writer who seems congenitally disposed to believe that the most poetic of philosophies is one that assumes a universe in which, as Shelley puts it in *The Sensitive Plant*, "... nothing is but all things seem,/ And we the shadows of the dream. . . ."

In the optimistic religious or mystic phase of this belief the artist may be sustained by a reality glimpsed behind the illusion, while the illusion itself may be dignified by its symbolic connection with the real. But it is a precarious balance, as one can see in the Platonically infected romantics: at any moment the sensible mirage may dissolve completely and leave the artist in a vacuum, or the noumenal meaning behind the phenomenal veil may cease to make its presence felt. The most fortunate transcendental artists are, I suspect, weak in the affective side of their natures, like Emerson, or blessed with a protective confusion of sex with metaphysics, like Shelley.

The artist, at least as we know him in western civilization, also has a strong need to believe in the worth of the individual, in the importance of his purely private experience in the universe and in the validity of his conviction that he can be a maker of history and is not simply its product. This makes up something like an artist's creed (it is also the creed of common experience). Obviously all sorts of artists, especially since the eight-

eenth century, have been skeptics, agnostics or downright atheists with regard to this creed, and some of them have made great art out of their uncertainties, their gropings and their existential agonies.

But there appears to be a point beyond which loss of faith cannot be separated from technical deterioration. Yvor Winters offers this explanation for what he considers the deterioration of the poetry of Wallace Stevens. Stevens' universe, Winters says, "is impersonal and devoid of any comfort except that which one may derive from the contemplation of the mute bare splendors." In *Moby Dick* Melville could contemplate the possibility of a universe of mute bare splendors and produce an exuberant and passionate novel, but he had other possibilities to contemplate as well, and besides, he had young nerves.

FROM LUCRETIVS TO ROBINSON JEFFERS no artist of any consequence has been able to accept as a fact and contemplate with equanimity a mute bare universe in which the individual has no meaning beyond that of a blindly driven particle. Either he has mythologized the blindly driving force (which is a kind of religious identification); or he has reacted to it with anger, pity or elegiac regret; or by the very act of making art out of what seems to him to be a chaotic, determinist or malign universe he has demonstrated the possibility of a very real kind of control and so has dignified the individual as controller. This is the irony that undercuts all relativist, materialist, determinist and positivist positions. Purely considered, they are humanly unacceptable and assume a universe radically out of rapport with man's capacity to apprehend it. The artistic act itself, then, implies a philosophic judgment that often denies the explicit statement in the thing made.

Even the scientist needs a heroic kind of self abstraction to stand on these positions—or something like Coleridge's temporary suspension of disbelief. What supports him in the attempt is no doubt what Snow calls the "moral component right in the grain of science itself," and the quasi-religious nature of his commitment to what he considers to be the truth. When Laplace told Na-

poison that in his studies of celestial mechanics he had found God an unnecessary hypothesis he was talking not so much about his atheism as his conversion to a new religion. Einstein was more explicit about it when he said that "the cosmic religious experience is the strongest and noblest mainspring of scientific research."

Now science at its best or rightly understood may not represent any threat to the artist's need to believe in the validity of the sensible universe and in the worth and importance of the individual's history in it. But historically science has often presented such a threat and has thus understandably gotten a reputation among artists generally, and certainly among writers, as being the enemy. The stature of science in the post-Renaissance world has been such that one is always tempted to accept as the truth of the matter what is true in the scientist's frame of reference. One measure of the success of science is the extent to which it has forced the disjunction, either science or poetry, on the world and then compelled a choice for itself.

Thus to get to reality one leaves the illusory world of the senses and descends through the microscope or ascends through the telescope, taking quantum theory or relativity theory like alternate trains to the same destination. A book like Barnett's, which is exactly the sort of account a literary man might turn to in order to find out what is happening in the enemy's camp, is full of this platonic bias: "It is as though the true objective world lies forever half concealed beneath a translucent, plastic dome . . ." and "in place of the deceitful and chaotic representations of the senses since has substituted varying systems of symbolic representation." Inevitably, the references to Plato in the last and summarizing chapter are numerous—for man, as Plato said, "will not rest at those multitudinous phenomena whose existence is appearance only." Ironically, western literature's long love affair with Plato has left it particularly vulnerable to this use of its idol.

A DEVALUATION OF THE REALITY of the sensible universe inevitably devalues man, the sensible poetic observer. Again, I am not concerned with whether science as such concedes validity to

the writer's frame of reference but with the historical effect of science on man's understanding of himself and his place in the universe. As interpreted by men like Whitehead, Noüy or Teilhard, the genuine advances of science, however momentarily upsetting, are humanly enriching and end in, or ought to end in, an enrichment of the writer's vision. Nevertheless, in its total effect on countless laymen, writers and readers alike, science has had a belittling effect on the purely personal experience of life similar to that of the first book of *Gulliver's Travels*.

That there is some hope for free will in the indeterminism of quantum physics is cold comfort to the literary man. His belief in the importance of the purely personal life with its joys, agonies, tragedies, absurdities and dilemmas is, as we can see in modern literature, easily unnerved. It is of course partly his own fault, not only for failing to understand science but for having lost faith in his ability to understand himself. "Is not the conveying of the quality or value of an experience, therefore, a contribution to knowledge no less useful than the analysis of that experience in terms of physical fact and natural law?" asks C. Day Lewis in *The Poet's Way of Knowledge*. The writer knows that unless he can say yes to this with all his heart he is nothing, but too often he can only half believe it.

Snow depicts the scientist as accusing the literary intellectual of pessimism and the literary intellectual as accusing the scientist of optimism. The pessimism of the one is of course relative to the optimism of the other, but there is a great deal of pessimism built into the writer's purely human frame of reference. It is partly a matter of time, which the writer must come to terms with in quite a different way than the scientist as scientist does. The space-time of the processes of the universe is not the existential time of the human microcosm, in which a complexity of issues must be faced in a degree of isolation and with a deadline that would make science impossible.

Indeed, what feeds the scientist's optimism—the apparent convergence of all lines of scientific effort on a grand unified field theory—may only increase the writer's pessimism. For as the lines of science converge the media of communication

multiply and accelerate, and the individual is confronted with the need to organize an ever increasing flood of information in an effort to arrive at something like a unified field theory of his own.

The writer, in fact, is inclined to suspect that the scientist can be optimistic largely because he has abstracted himself out of his human condition, and this often strikes the literary man as a kind of betrayal. Snow believes that most scientists are aware that "the individual condition of each of us is tragic. . . . But nearly all of them—and this is where the colour of hope genuinely comes in—would see no reason why, just because the individual condition is tragic, so must the social condition be." What the scientist is interested in, Snow continues, is the human condition: men, for instance, are underfed and die before their time, and the scientist is optimistic about his ability to do something about it. The literary man may applaud this ambition and be grateful that there are men to act on it. But at the same time it may seem to him equivalent to saying that while the private tragedy of the individual may be a fact it is not really a very important one when put in the scale with more cosmic issues. The writer in our time has good reason to be suspicious of those who ask him to weigh himself in the scale with cosmic issues. He knows, if only obscurely, that there is a kind of selflessness the opposite of which is not selfishness but ignorance, fear or hatred of the self.

ABOUT THE SAME TIME that a handful of Americans were being introduced to C. P. Snow's book, *This Week* magazine was serializing a popular example of scientific optimism and selflessness in the form of Werner von Braun's "novel," *Life on Mars*. In this story a group of dedicated American scientists arrive on Mars and find there an unbelievably advanced civilization. The Martians, however, have been enervated by ignoble ease. They are not corrupt (genuine corruption or evil is inconceivable in terms of this story); there is, in fact, a kind of Adamic innocence about these Martians. They have ceased to struggle, to explore, to push courageously into the unknown, one of their elders explains, and he warns the earthmen that a similar fate may await them. At the end, however, it is clear that the courageous

example of the earthmen has had a rejuvenating effect upon the Martians, who, as the earthmen depart, are launching their first artificial satellite.

Now it may not be fair to judge Dr. von Braun's naïve bedtime story as fiction. He claims only to be relaxing from the rigors of rocket making with a moral allegory, the import of which is that we need to "keep our minds open to new worlds and new wonders in the expanding conquest of our universe." But the significant thing here is the quality of innocence and optimism in this pseudo novel. It belongs with the world of Tom Swift, Buck Rogers and Space Cadets, except that these equally selfless heroes have the advantage of conventional tension-creating plots. There is in it absolutely no sense of the human person; the characters are hardly even conventional types.*

This is of course part of the secret of its optimism. One can be optimistic about doing something with men en masse or about the application of atomic energy to industry or about lighting up the remote dark corners of the universe, and it is doubtless a good thing one can. But it is best first to take a stand somewhere outside the world of the lonely, confused, tragic individual. When Aldous Huxley wrote *Brave New World*, a novel that superficially has a good deal in common with *Life on Mars*, he was writing a novel of ideas that nevertheless was oriented to the human person, and so the result was what the scientist might call a typically pessimistic literary performance.

Indeed, the comparison of Huxley and von Braun only emphasizes what some writers suspect about scientists: that their optimism is in direct relation to the abstraction of their world—a world

*Von Braun's failure as a fiction writer cannot of course be separated from his lack of familiarity with the necessary technique. A similar case can be urged against C. P. Snow: that having as a novelist cut himself off from the mainstream of twentieth century fiction he lacks the technical equipment necessary to do justice to his material. In this connection I find significant a remark made by Robert Gorham Davis in an otherwise favorable review of Snow's novel *The Affair* (*The New York Times Book Review*, May 8, 1960). After speaking of Snow's rejection of prevailing literary modes because they "went hand in hand with social attitudes either wicked, or absurd, or both," Professor Davis goes on to say: "Though [Snow] fully acknowledges the dark areas of the individual psyche and the more nightmarish aspects of history in our time, he has not found ways of dealing with them, from his own perspective, that represent an imaginative advance beyond the work of those writers he condemns."

that however sophisticated and complex it may be is still less agonizingly complicated than that in which the flesh-and-spirit individual must find his way to some meaning. The scientist, like that other congenital optimist, the business man, is able to escape from the uncleared jungle of his own personality into a universe of relatively clear-cut "larger" and non-human issues. Thus in his more pessimistic and rancorous moments the literary man writes scientist and business man into versions of the Faust story, in which, as over-reachers who have aspired above common humanity, they are made to suffer the pratfalls that afford the literary man both comfort and revenge.

SCIENTIFIC STYLE is itself a technique designed to cut the complicated and unique person out of the picture, so far as that is possible. V. S. Prichett, commenting on scientific prose, once wrote that its preferences for passive constructions was intended to create the "bureaucratic impression that things 'were done' and that nobody 'did' them." Such a style, he added, aimed at keeping out the "frivolous and unstable ego." But such a style, even if assumed consciously and temporarily, has a tendency to act back against the user and to confirm in him the world-view it implies: the letter giveth life.

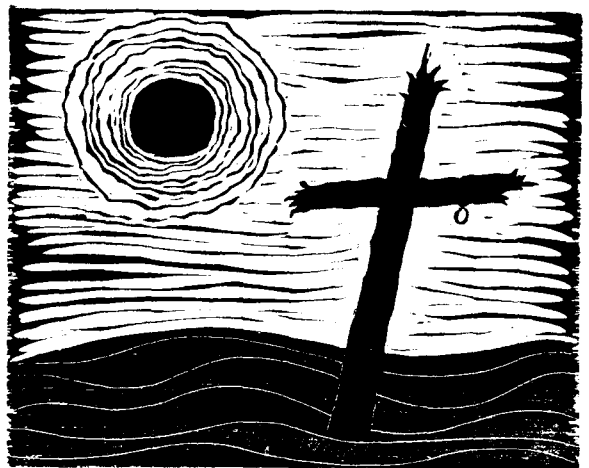
What the literary man objects to is the impression many scientists give of having found the only precise way to use language, when at best they have only found the most precise way to use it in their own frame of reference. In the world of the "frivolous" and "unstable" ego, where the most precise kind of communication is poetic, the scientist's kind of precision may miss the meaning entirely. So the rift between Snow's two cultures, then, might be described as a difference of styles, but few differences can be more divisive.

Nevertheless, Snow is certainly right in exploring the rift and in seeing in it the direst consequences for our culture. It is bad for the scientist, for if science is not for persons for whom is it? Science cut off from a sense of and a regard for the unique human person becomes a form of hubris, a Faustian rage for order, dominated, like Fascism or Communism, by a monstrous esthetic of its own.

And the rift is bad for the literary man, for it can only increase his sense of being cut off from reality, his sense of incipient chaos, thus driving him into patterns of stoicism, cynicism or irrationalism that are always available in our culture. He needs to know more about science, not only to defend himself against its false claims but to enrich his conception of reality. "The living world," writes Teilhard de Chardin, "can be summarized as the elaboration of ever more perfect eyes within a cosmos in which there is always something more to be seen." For the literary man and the scientist it is finally a question not only of time and style but of vision.

JOHN P. SISK, a Professor of English at Gonzaga University (Seattle), has published articles in *Commonweal*, *America*, *Critique*, *Thought*, and *Prairie Schooner*. He won the 1961 Carl Foreman Award for the best short novel in a contest sponsored by Harcourt, Brace, & World, Inc.

The Ballad of Sir Patrick Spens



Illustrated by Ronald Hughes