

# Tragedy Without Tears? Confronting the Temporal Contradictions in C.P. Snow's Understanding of Tragedy in a Scientific World

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Highly controversial at the time of its first publication in 1959, *The Two Cultures* by physicist and novelist C.P. Snow continues to affect thinking about the cultural relationship between the literary arts and the scientific-technological world. Almost forty years after the publication of Snow's book, critic Stefan Collini remarked, "Whatever reservations we may now have about the adequacy of Snow's original formulations, it is impossible to feel that the confusing and distressing period of history that divides us from that apparently more confident world of 1959 has rendered [Snow's] questions any less urgent or any more tractable".<sup>1</sup> Likewise stressing the enduring relevance of Snow's book, critic Guy Ortolano acknowledged in 2003 that Snow's book "continues to shape our perceptions of intellectual life".<sup>2</sup> And evidence of Snow's persistent presence in shaping our intellectual perceptions surfaces in the work of researcher Christoph Klütsch. Klütsch relies on "C.P. Snow's widely discussed 'two cultures' thesis" as one of his basic "theoretical frameworks" in his 2007 analysis of new experimental techno-aesthetic initiatives.<sup>3</sup>

One of the reasons that Snow's lecture has enjoyed such remarkable longevity is that it has stirred considerable debate. Much of that discussion has swirled around the progressive social role that Snow assigns to scientists in improving the lot of the poor and around the indictment Snow proffers in damning literary intellectuals for obstructing this work of social amelioration. Lauding "industrialisation [as] the only hope of the poor", Snow enumerates the great benefits society has realized as a result of the Industrial Revolution: "Health, food, education;" he writes, "nothing but the industrial revolution could have spread them right down to the very poor".<sup>4</sup>

And as he surveys the potential benefits available through "the application of real science to industry", Snow expresses high hopes that science can improve society's future. "I believe," Snow ventures, "the industrial society of electronics,

atomic energy, automation, is in cardinal respects different in kind from any that has gone before, and will change the world much more". Praising scientists as pioneers "with the future in their bones", Snow hails them as the agents who will transform "the material basis for our lives: or more exactly, the social plasma of which we are a part".<sup>5</sup> In the products of applied science, Snow sees solid grounds for society's long-term hopes.

When Snow shifts his attention from scientists to literary intellectuals, his attitude changes dramatically. Characterizing these literary intellectuals as "natural luddites", Snow asserts that they have responded to the industrial miracles of applied science "by wishing the future did not exist". Snow comments that these literary scholars not only had nothing to do with the industrial revolution, but had failed to realise that society "needed to train some of its bright minds in science, particularly in applied science". These are individuals, Snow complains, for whom "industrial production is as mysterious as witch-doctoring".<sup>6</sup> Blind to the potential benefits of applied science, literary intellectuals have—in Snow's opinion—left themselves open to the charge of having adopted reactionary and politically retrograde opinions.<sup>7</sup>

Yet even as he praises scientists for applying their disciplines to the cause of social progress and indicts literary intellectuals for failing to understand or appreciate the social benefits they have achieved, Snow realizes that the literary intellectuals are in return leveling their own harsh criticism at scientists. He observes that these intellectuals are astonished at the illiteracy of scientists, whom they regard as blinkered specialists.<sup>8</sup> Grudgingly, Snow concedes the justice of some of this criticism. Though he insists that some scientists are well read, he admits they are not numerous.<sup>9</sup> Most scientists, Snow acknowledges, know very little about books; they are, as a consequence "self-impooverished" in their imaginative outlook on life.<sup>10</sup> However, when literary intellectuals broaden their indictment of scientists by alleging that "scientists are shallowly optimistic, unaware of man's condition", unable to confront tragedy squarely, Snow rises to their defense.<sup>11</sup> About the scientists' optimism, Snow offers a carefully worked out rejoinder:

. . . This is an accusation which has been made so often that it has become a platitude. It has been made by some of the acutest non-scientific minds of the day. But it depends upon a confusion between the individual experience and the social experience, between the individual condition of man and his social condition. Most of the scientists I have known well have felt—just as deeply as the non-scientists I have known well—that the individual condition of each of us is tragic. Each of us is alone: sometimes we escape from solitariness, through love or affection or perhaps creative moments, but those triumphs of life are pools of light we make for ourselves while the edge of the road is black: each of us dies alone. Some scientists I have known have had faith in revealed religion. Perhaps with them the sense of the tragic condition is not so strong. I don't know. With most people of deep feeling, however high-spirited and happy they are, sometimes most with those who are happiest and most high-spirited, it seems to be right in the fibres, part of the weight of life. That is as true of the scientists I have known best as of anyone at all.

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. Each of us is solitary: each of us dies alone: all right, that's a fate against which we can't struggle—but there is plenty in our condition which is not fate, and against which we are less than human unless we do struggle.

Most of our fellow human beings, for instance, are underfed and die before their time. In the crudest terms, *that* is the social condition. There is a moral trap which comes through the insight into man's loneliness: it tempts one to sit back, complacent in one's unique tragedy, and let the others go without a meal.

As a group, the scientists fall into that trap less than others. They are inclined to be impatient to see if something can be done: and inclined to think that it can be done, until it's proved otherwise. That is their real optimism, and it's an optimism that the rest of us badly need.<sup>12</sup>

Snow lays out this line of reasoning as his response to the charge that scientists are shallowly optimistic. But then he adds more, asserting because they are "tough and good and determined to fight it out at the side of their brother men," scientists are much more committed to the common good than literary intellectuals. Snow thus lauds scientists as resolute soldiers who refuse to let the tragedy of their individual fate push them into their own "egocentric chill".<sup>13</sup>

But in defending scientists against the charge of shallow optimism, Snow pursues a line of reasoning that raises some difficult questions for his own position. To be sure, most readers will grant that there is little reason to think

scientists do not understand the tragic fate that awaits the individual and that the reality of this tragic fate is not a mysterious secret penetrated only by literary intellectuals. It may even be thought that in defending what he calls scientists' real optimism about the human social condition, Snow makes a shrewd rhetorical move. He turns his readers' attention away from the allegedly retrograde and "politically wicked" social attitudes of literary intellectuals and toward the progressive social views of scientists who bravely champion the well-being of the species. In this way, Snow depicts scientists as cultural heroes who help us all in "seizing on the possibilities of hope" and so in becoming fully human.<sup>14</sup>

Yet readers may pause when they realize that both in his original Rede Lecture published in 1959 and in his retrospective on that lecture published in 1964, Snow can only defend scientists through this rhetorical ploy by ignoring the temporal implications of scientific cosmology. Familiarity with the conclusions of this branch of science makes it very difficult to accept Snow's simple justification of scientists' meliorist optimism. For serious contemplation of scientific cosmology makes Snow's "real optimism" look philosophically shallow and groundless and makes the darkest pessimism of modern literary figures look fully—even scientifically—warranted.

Snow complains about the ignorance of basic scientific principles that he believes prevails among literary intellectuals. But in defending scientists' optimism as a social attitude superior to the political wickedness of literary intellectuals, Snow actually seems to be guilty of the same incomprehension. His arguments would ring false with readers familiar with the scientific study of the origins, dynamics, and eventual destiny of the universe. For that science makes implausible the distinction Snow tries to make between the tragic fate of the individual and the supposedly more hopeful future that scientists can create for the human species.

In the study of cosmology, we soon learn that the ultimate future science offers the human species is not one that sustains "real optimism," not one suffused with what Snow calls "the colour of hope." Rather, the ultimate future science offers humans makes their species' ultimate fate look just as dark and bleak as the

fate of individual humans. Writing almost half a century after Snow delivered his Rede Lecture, physicist David Park limns this future for the cosmos:

[D]ark energy will win [out over the contractive pull of gravity] and the universe will expand forever. Stars will die and after a while no more will be born. . . . After about 35 billion years the Milky Way will disband, and then the Solar System. The Sun will go out and after that things will happen quickly. The Earth will come apart, its molecules and atoms (held together by electric forces) will break up . . . .<sup>15</sup>

Drawing on the same cosmological paradigm, physicist Lawrence Krauss has recently spelled out the reasons that “in an eternally expanding universe, life cannot persist forever”. In grim perspective Krauss unfolds, “the very processes that created the matter that makes up the universe of our experience will one day slowly return our dust to nothingness”.<sup>16</sup>

Also writing from a 21<sup>st</sup>-century point of view, physicist John Polkinghorne acknowledges that not all cosmologists anticipate a distant cosmic future in which the universe grows “steadily colder and more dilute,” finally ending in a state in which “all will decay into low-grade radiation.” He explains that a few cosmologists hold out for a distant future in which “gravity predominates,” so reversing the present expansion and causing a cosmic “crunch, as the universe implodes into a cosmic melting pot.” In either case, the universe’s end will be grim, “However fruitful the universe may seem today,” Polkinghorne remarks, “its end lies in futility”.<sup>17</sup> Scientific cosmology thus offers little of the “colour of hope” that Snow believes he sees in science. Rather, scientific cosmology looks like a solid justification for the words of philosopher Samuel Gregg: “It is difficult to see how the conclusion that man is ultimately destined for dissolution can lead to anything except despair”.<sup>18</sup>

One problem for Snow is that he does not bracket or set aside the questions science cannot answer. He simply does not confront or even acknowledge them, apparently believing that science itself can provide the answers to all the extra-

scientific questions that matter to society. At a time when science has already smashed the atom and is on the verge of stunning breakthroughs in space travel, computer technology, and medicine, Snow aggressively pushes its agenda, nowhere acknowledging that there is a fundamental need for literature, philosophy, and religion as potential sources of truths beyond the reach of the science, or as vital parts of human culture.

As already noted, Snow himself suggests that perhaps “the sense of the tragic condition [of the individual human] is not so strong” among those scientists he has known who have professed “faith in revealed religion”.<sup>19</sup> So for example Polkinghorne, who is not only an accomplished physicist but also an Anglican priest, finds hope in the Christian religion, believing that God will “create new heavens and a new earth” (Isa. 65:17) to replace the doomed heavens and earth that humans now occupy.<sup>20</sup> But Snow confesses that he does not know for certain whether religious scientists actually do feel less oppressed by the shadow of tragedy—presumably not only because he thinks religion has little value, but because of the difficulty of comparing the feelings of religiously-minded scientists with those who belong in the same non-religious camp as Snow.<sup>21</sup>

Snow does not take into account the possibility that he would not need to whistle in the cosmic dark if he formulated or adopted a metaphysics that transcended naturalistic science. A metaphysics would provide a theory of transcendent meaning which might take into account the cosmological formulae for a universe apparently doomed to end in cold oblivion, but which would offer a means of living despite this existential problem. The Nobel laureate Peter Medawar has argued that because “science cannot answer . . . ultimate questions and no conceivable advance of science could empower it to do so” (59), we must move beyond “the limits of science” by consulting other “domains,” such as “metaphysics . . . or religion”.<sup>22</sup> However, Snow does not investigate this possibility. To be sure, neither Medawar nor any other successful modern scientist would invoke metaphysics to explain how matter behaves in space and time. While the mathematical and empirical explanations they develop for physical phenomena are the very stuff of science, they will never answer metaphysical questions.

Snow's confidence in the self-sufficiency of science is, in fact, one of the prime reasons that F.R. Leavis strongly criticizes Snow's *Two Cultures* in his own much-discussed Richmond Lecture of 1962. Leavis is contemptuously dismissive of Snow as a creative writer ("as a novelist he doesn't exist; he doesn't begin to exist"), as a thinker ("He doesn't know what he means, and doesn't know that he doesn't know"), and as a stylist ("Snow rides on an advancing swell of cliché").<sup>23</sup> But Leavis's chief objection to Snow's argument is finally that he finds it too narrowly focused on science and scientists. Leavis resists Snow's attempts at "a superiority to be recognised in the scientists", and he even more strongly resists Snow's desire to make science the basis for a major reform of the university curriculum. Leavis insists that he is far from saying that Snow is wrong in "advocating improvements in scientific education". "What I *am* saying," Leavis clarifies, "is that such a concern is not enough—disastrously not enough. Snow himself is proof of that, product as he is of the initial cultural consequences of the kind of rapid change he wants to see accelerated . . . ". Leavis fears the cultural poverty of a world governed by thinkers who share Snow's high confidence in science as the engine driving "the accelerating movement of external civilization" and who, with Snow, dismiss as Luddites those who devote themselves to the study of literature.<sup>24</sup>

Because Snow does not entertain the possibility that extra-scientific investigations provide worthwhile information, he should in the interests of consistency tackle the cruel ultimate predictions of scientific cosmology on a purely scientific basis. He may well have lived by an unarticulated metaphysics giving his social progressivism a basis that defied the bleak universal death sentence of cosmology. The possibility that he lived by such an unarticulated metaphysics is underscored by Aldous Huxley's insight on this point: "It is impossible to live without a metaphysic. The choice that is given us is not between some kind of metaphysic and no metaphysic; it is always between good metaphysic and a bad metaphysic".<sup>25</sup> But there's the rub: Snow never develops a metaphysics that might enable him to stare down the dark shadows of scientific cosmology, and at the same time he does not acknowledge the significance to our existential outlook of the universe's ultimate fate. This creates the impression that

his insistence upon optimism with respect to the future of humanity, and his dependence for this attitude upon scientific progress, is a subtle type of self-deception.

Snow's apparent refusal to come to grips with the sterner implications of scientific cosmology renders deeply ironic his condemnation of literary intellectuals who cannot even "describe the Second Law of Thermodynamics" even though familiarity with this law is—in his opinion—"the scientific equivalent of . . . [familiarity with at least one] work of Shakespeare's" (15).<sup>26</sup> For the Second Law of Thermodynamics—which predicts the eventual entropic dissipation of all available heat energy in the universe—is integral to the prevailing scientific understanding of how the universe will die. We should not be surprised that cultural historian William R. Everdell reports that one of the two co-discoverers of this inflexible law of physics, Ludwig Boltzmann, hanged himself at least in part because he grew depressed over what he perceived as the ultimate human implications of the law he had discovered.<sup>27</sup>

In most writers, a failure to limn a personal metaphysics counts as no particular defect. But things are different with an explicitly non-religious or non-philosophical writer who holds up science as the fountainhead of social hope, who scolds intellectuals who have not studied science seriously, who does not reckon with essential scientific ideas, and who yet asserts that scientists have avoided shallow optimism by coming to understand fully the tragic dimensions of human existence. That writer creates for himself or herself the very conditions requiring an articulation of a system of metaphysics that can answer the hard existential questions he or she has raised. The need for such an articulation only grows when he or she presses as the prime example of essential scientific knowledge the one scientific principle, the Second Law of Thermodynamics, that raises most insistently the metaphysical questions the ancient Romans once approached through their myth of Chronos, god of Time, eating all of his children. The failure of Snow to do this, given his other views, makes it seem as though his attitude to the *literati* of his day is simply dogmatic and prejudicial. For he is not in a position, under the circumstances, to criticise literary writers from the perspective of a



general outlook on life which accommodates the existential implications of cosmology.

True, scientific confidence in the grim ultimate predictions of Big Bang cosmology was less firm in 1959 than it would be by the end of the 1960s. But even in the 1950s, many astrophysicists were already considering the “ultimate heat death of the universe” implicit in scientific principles that were gaining theoretical and empirical support.<sup>28</sup>

Snow should have been aware not only of the research being done on this front by contemporary cosmologists, but also of the earlier work of prominent physicists. It is hard to imagine that Snow did not know about Lord Kelvin, who in the 1880s was already capturing widespread attention with his public remarks to the effect that “the second great law of thermodynamics” reveals “a universal tendency to [mechanical energy’s] dissipation, which produces gradual augmentation and diffusion of heat, cessation of motion, and exhaustion of potential energy through the material universe”—an exhaustion which can only mean that the “inhabitants of the earth cannot continue to enjoy the light and heat essential to their life”.<sup>29</sup> Even if Snow ignores such pronouncements in his confident advocacy of science as a source of social hope, it is hard to avoid the supposition that he was aware of imaginative writers who had *not* ignored them.

As Gillian Beer has pointed out, scientific reasoning about the universal “heat death” implicit in the Second Law of Thermodynamics was fully available in the late Victorian era to “untutored readers in an accessible form,” thanks to prominent 19<sup>th</sup>-century scientists (such as Kelvin) who wrote “not only for technical but for general cultural journals.” Many late-Victorian readers realized that “the death of the sun, according to Thomsonian physics [i.e., the physics of Lord Kelvin] . . . was . . . historically foreseeable.” In fact, these 19<sup>th</sup>-century readers were subject to “anxieties generated by early solar physics” precisely because they were aware that “physicists were busy computing the number of years left for life on earth—they ranged from twenty one years more to several million”.<sup>30</sup>

In indicting contemporary literary intellectuals for their alleged ignorance about the Second Law of Thermodynamics, Snow is ignoring what his

contemporaries had in fact learned from their predecessors about the merciless cosmological implications of that law. Many of Snow's contemporaries would certainly have remembered that H.G. Wells explained the Martian invasion of the earth chronicled in *War of the Worlds* as being the consequence of the Martians' fleeing a "world . . . far gone in its cooling," far gone in a "secular cooling that must someday overtake our own planet".<sup>31</sup> Some of Snow's more perceptive contemporaries probably anticipated 21<sup>st</sup>-century critic Michael H. Whitworth in discerning a "line of connection to popular scientific writings about entropy" behind the "vision of dissipation" that Virginia Woolf unfolds in the "Time Passes" section of *To the Lighthouse*.<sup>32</sup> In this section of Woolf's novel, published in 1927, readers are invited to contemplate the decay of a particular family home against the backdrop of "the universe . . . battling and tumbling, in brute confusion and wanton lust aimlessly by itself" in "the chaos and tumult of the night".<sup>33</sup>

Snow's assertion that literary intellectuals of his day are culpably ignorant of the Second Law of Thermodynamics rings especially false when assessed in the context of an 1897 letter Joseph Conrad wrote while mulling over thoughts about the social and political dynamics of entropy. In this letter Conrad—pondering perspectives that would surface a decade later in *The Secret Agent*—spoke of "the curse of decay—the eternal decree that will extinguish the sun, the stars one by one, and in another instant shall spread a frozen darkness over the whole universe".<sup>34</sup>

Snow thus adopts a dubious rhetorical position when he identifies science as the source of long-term social hope, while attacking literary intellectuals as scientific illiterates. It is a rhetorical position that makes both his social hope and his science seem shallow. As astrophysicist William Stoeger has remarked, "[I]f we are to take the truth discovered by the sciences seriously, denying . . . the more reliably supported accounts of eventual life-ending and earth-ending catastrophes is really not an option".<sup>35</sup>

Scientific cosmology—at least in its strictly secular forms—thus puts readers in a quite unexpected situation. The question we face as readers is ultimately not, as Snow would have it, whether scientists or literary intellectuals offer us more social hope. Rather, the question is whether the scientists Snow praises for their

optimism or the literary intellectuals he damns for their political wickedness are actually more in harmony with the practical significance for human life of hard science. Who, in truth, is more in harmony with the ultimately grim predictions of universal death and cosmic futility offered by scientific cosmology: Snow or the literary figures he attacks? Snow seems to be simply ignoring such predictions when he speaks glowingly of the social progress available through “electronics, atomic energy, [and] automation”.<sup>36</sup> But those dark predictions seem to be very much matters of concern for W.B. Yeats (named specifically as a representative of the benighted literary culture by Snow in his *Two Cultures*) when he depicts a universe in which “Things fall apart; the centre cannot hold” (“The Second Coming,” line 3); and when he elsewhere characterizes the humans in that universe as creatures doomed to “days [that] are dragon-ridden, [as] the nightmare/ Rides upon sleep,” as creatures essentially like “weasels fighting in a hole” (“Nineteen Hundred and Nineteen,” I: 25-26, 32).<sup>37</sup>

To be sure, Yeats is not making a scientific or even quasi-scientific observation about cosmology. Yeats’ own mythical cosmology of ever-repeating gyres makes no scientific claims. The darker passages of his poetry connect most directly with particular historical, political, and even personal circumstances,. Still, a reader who supposed that the lines just cited *were* Yeat’s response to the grim ultimate predictions of cosmology would not find them inapt. Indeed, these grim ultimate predictions appear more compatible with Yeats’s imaginative perspective on collective human tragedy than does Snow’s cheery-minded confidence in science as a wellspring of collective optimism for the species.

Yeats is only one of the prominent modern literary figures whose imaginative vision harmonizes with modern cosmology, when Snow’s does not. Hardy is another example of this kind of creative thinker. Indeed, it is hard to suppose that Hardy would hold such a prominent place in the literary canon were it not for his unflinching insistence, in both his fiction and his poetry, on the inexorable and merciless dynamics of “Time . . . sweep[ing] off woeful things with prime,/Things sinister with things sublime” (cf. Hardy, “According to the Mighty Working,” III.1-5).<sup>38</sup>

In his context, we may consider how the literary intellectual T.S. Eliot—who traces the cycle of “the living seasons” into “dung and death” (“East Coker,” I.42, 47)—offers his own bit of cosmology with this ultimate announcement:

*This is the way the world ends*  
*This is the way the world ends*  
*This is the way the world ends*  
*Not with a bang but with a whimper* (“The Hollow Men,” V. 28-31).<sup>39</sup>

Though the mature Eliot’s cosmology, mythic and imaginative, is rooted in traditional Christian orthodoxy, not scientific formulae, and though it differs from the imaginative perspectives developed by Yeats and Hardy, it is in harmony with the ultimate cosmological predictions cited by Park, Krauss, and Polkinghorne. Or at least it harmonizes with these predictions in a way that Snow’s assurances about science do not. It is therefore astonishing beyond measure that Snow would dismiss this very passage of Eliot’s poetry as “one of the least likely scientific predictions ever made”.<sup>40</sup> It would appear that Snow is actually much more resistant than Eliot to the ultimate implications of the Second Law of Thermodynamics, which he supposes himself to understand more completely.

Should readers test the vision of some of the more tough-minded literary intellectuals of the 20<sup>th</sup> century, again and again they will be able to see them as being more in line with the ultimate temporal contours of scientific cosmology than are the progressive social views that Snow tries to represent as the natural outgrowth of modern science. We must recognize a piquant irony in Snow’s condemnation of literary intellectuals judged guilty of “wishing the future did not exist” when it is finally modern *science* that informs us that—at a fundamental level—the future *does not* exist.<sup>41</sup> That irony deepens as we realize that some poets living long before modern scientists had developed the paradigm of modern cosmology seem to have anticipated—at least in mood and tone—science’s harsh final predictions for the human species.

Consider, for instance, the despair 19<sup>th</sup>-century poet James Thomson expresses as he contemplates how “We [humans] bow down to the universal laws,” laws that predict that “our wretched race/shall finish its cycle” when “the last man/Has joined the mammoth in the earth’s tomb.” Is it any wonder that in “the dreadful mysteries of Time” Thomson discerns the “tenfold gloom [of a] moonless night unstarred,/A sense more tragic than defeat and blight/More desperate than strife with hope debarred,/More fatal than the adamantine Never,” leaving him with “The sense that every struggle brings defeat/Because Fate holds no prize to crown success” (*City of the Dreadful Night*, XX, lines 55-56, 59-61; XXI, lines 58-61, 64-65).<sup>42</sup>

Although he is responding not to scientific ideas but rather to cultural tendencies in his own 18<sup>th</sup>-century milieu, the poet Alexander Pope still evinces an imagination remarkably in accord with the predictions of 21<sup>st</sup>-century cosmology when he envisions a future in which “The sick’ning stars fade off th’ ethereal plain” as “light dies . . . / And Universal Darkness buries All” (*The Dunciad*, IV, lines 636, 653, 656).<sup>43</sup>

We may not be able to agree fully with Gertrude Himmelfarb’s claim that, at least with regard to the mathematical and conceptual principles of modern cosmology, literary intellectuals have generally known more about science than Snow has given them credit for.<sup>44</sup> But it does appear that these intellectuals have been more imaginatively open to the tragic collective implications of scientific cosmology than Snow. They seem to have felt what Snow does not recognise by rational investigation. Himmelfarb is justified in expressing doubts about the confidence with which Snow expresses “a benign view of nature” while articulating a vision of “progress in linear . . . terms, proceeding . . . by the steady, cumulative advance of knowledge and the steady, cumulative application of knowledge”.<sup>45</sup>

Given the stress he lays on social improvement, it seems likely that Snow would argue that he is justified in ignoring the ultimate predictions of cosmology because they do not foster such improvement. Snow’s rationale to this effect is implicit in a revealing passage in the “Second Look” retrospective that Snow published four years after *The Two Cultures*. In this passage, Snow explains his

attitude toward science as an inevitable concomitant of his devotion to social progress:

. . . It seems to me better that people should live rather than die: that they shouldn't be hungry: that they shouldn't have to watch their children die. Here, if anywhere, we are members one of another. If we are not members one of another, if we have no sympathy at this elemental level, then we have no human concern at all, and any pretence of a higher kind of sympathy is a mockery. . . .

Therefore the social condition is with us, we are part of it, we cannot deny it. Millions of individual lives, in some lucky countries like our own, have, by one gigantic convulsion of applied science over the last hundred and fifty years, been granted some share of the primal things. Billions of individual lives, over the rest of the world, will be granted or will seize the same. *This is the indication of time's arrow.* It is by far the greatest revolution our kind has known. We have been living through rapid change for three or four generations. Now the change is going faster. It is bound to go a great deal faster still. This is the condition in which we are both agents and spectators. Our response to it affects, and often determines, what we like and dislike in our world, what action we take, the nature of the art we value or practice, *the nature of our appreciation of science.* . . .<sup>46</sup>

Here Snow re-appropriates the metaphor of time's arrow, which astrophysicist Arthur Eddington originally used to designate the one-directional flow of entropy in the universe. Having re-appropriated this metaphor, Snow asserts the right (a right he is no doubt quite willing to share) to make the commitment to social progress be the standard by which he will determine which parts of science he will appreciate and which parts he will not.

In his original *Two Cultures* lecture, Snow confesses that as a young man he shared the views of those pure scientists who were "dim-witted about engineers and applied science." "We prided ourselves," Snow writes, "that the science we were doing could not, in any conceivable circumstances, have any practical use. The more firmly one could make that claim, the more superior one felt".<sup>47</sup> However, in the attitude expressed in his "Second Look," Snow veers to the other extreme, making immediate social utility the standard by which he will determine

which parts of science he will “appreciate” and which parts he will devalue or neglect.

But what kind of scientist makes social commitments the standard for evaluating scientific principles in this way? Does this kind of thinking not lead straight to errors of the sort that made a generation of Soviet scientists wrongheaded defenders of Lysenko’s non-Darwinian science because of its perceived social benefits? How could this kind of thinking ever justify the particular emphasis that Snow gives to the Second Law of Thermodynamics in scolding literary intellectuals for their scientific illiteracy?

Snow could argue (and the modal subjunctive becomes inescapable in the absence of explicit statements by Snow himself) that he intellectually accepts the grimmest ultimate predictions of theoretical science while still advocating the immediate use of practical science as a means of alleviating human suffering. In this context, it should be remembered that Snow indicts literary intellectuals for their social and political insensitivity at least as severely as he indicts them for their scientific ignorance. Thus, social attitudes are more of an issue than is scientific knowledge in a passage in which Snow attacks major 19<sup>th</sup>- and 20<sup>th</sup>-century writers on both sides of the Atlantic for resisting and ignoring the industrial revolution catalyzed by applied science:

Almost everywhere . . . [literary] intellectual persons didn’t comprehend what was happening. Certainly the writers didn’t. Plenty of them shuddered away, as though the right course for a man of feeling was to contract out; some, like Ruskin and William Morris and Thoreau and Emerson and Lawrence, tried various kinds of fancies which were not in effect more than screams of horror. It is hard to think of a writer of high class who really stretched his imaginative sympathy, who could see at once the hideous back-streets, the smoking chimneys, the internal price—and also the prospects of life that were opening out for the poor, the intimations, up to now unknown except to the lucky, which were just coming within reach of the remaining 99.0 per cent of his brother men. . . .<sup>48</sup>

The degree to which readers assess Snow's indictment simply on the basis of progressive social and political views is the degree to which they will join Snow in his indictment of major writers whom he thinks are guilty of holding retrograde views. But such a simple one-dimensional assessment is not finally sustainable, for Snow appears intent upon damning literary intellectuals both for their retrograde social views *and* their scientific ignorance. Because Snow insists upon knowledge of science as the basis for social hope and optimism, readers cannot analyze his indictment of literary intellectuals for their social views apart from his indictment of their alleged scientific ignorance. Quite aside from the fact that Snow seems to forget the socially beneficent work of literary luminaries such as Charles Dickens, George Eliot, and Arnold Bennett, he seems to be ignoring the difficulty of grounding *anyone's* progressive impulses upon an in-depth knowledge of a science laden with cosmic hopelessness.

It is possible that, at some level, Snow adopted a Camus-like stance of affirming his solidarity with human sufferers *in spite of* the ultimate absurdity of a doomed universe. However, nothing in Snow suggests such intellectual sophistication. For though Snow appears sincere in his solidarity with human sufferers, and in his belief that "people should live rather than die: . . . that they shouldn't have to watch their children die", this advocate of science as the means of alleviating suffering and of understanding the world never confronts a painful reality: scientific orthodoxy entails the impossibility of avoiding a final scene in which all humans die, a final scene in which the last parents may well see their children die, not long before they also perish.<sup>49</sup>

Readers may see much to laud in Snow's deep commitment to using science to alleviate human suffering *now*, regardless of what science may predict about the ultimate fate of our species. But that ultimate prediction cannot be lightly set aside when Snow begins to berate dark-visioned literary intellectuals for their alleged lack of scientific understanding. Nor can it be ignored when Snow defends scientists against the charge that they are "shallowly optimistic, unaware of man's condition," while he himself remains silent about the hard questions that cosmology raises about man's *ultimate* condition and about the kind of metaphysics that might justify him in setting such questions aside .



Because Snow never unfolds a supra-scientific metaphysics, readers may be forgiven for assuming that his advocacy of science as the source of human hope entails no metaphysics except that of scientific naturalism. Readers could then reasonably suppose that Snow never confronts the ultimate predictions of scientific cosmology simply because such naturalism offers him no response to these predictions. But if scientific cosmologists dictate the script for mythologists, then Chronos finally eats his very last child—only to expire himself in cosmic gloom. In that ultimate cosmic gloom, the last echoes of everything that Snow says about how science can push through the darkness of individual tragedy to the abiding social hope of collective human progress will die away. The voice of the literary culture that Snow derided as scientifically ignorant will then deserve—as a matter of scientific justice—the last word: “Life you may evade, but Death you shall not”.<sup>50</sup>

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- <sup>1</sup> Collini, Stefan, Introduction, *The Two Cultures* by C.P. Snow (Cambridge: Cambridge University Press, 1959; rpt. Cambridge: Cambridge University Press, 1998), viii.
- <sup>2</sup> Ortolano, Guy, "Two Cultures, One University: The Institutional Origins of the 'Two Cultures' Controversy", *Albion: A Quarterly Journal Concerned with British Studies* 34.4 (2002), 606.
- <sup>3</sup> Klütsch, Christoph, "Computer Graphic-Aesthetic Experiments between Two Cultures," *Leonardo* 40 5 (2007), 421.
- <sup>4</sup> Snow, C.P., *The Two Cultures* (Cambridge: Cambridge University Press, 1959; rpt. Cambridge: Cambridge University Press, 1998), 25 & 27.
- <sup>5</sup> Snow, 29, 30, 11 & 30.
- <sup>6</sup> Snow, 22, 11, 23 & 30.
- <sup>7</sup> Cf. Snow, 7-8.
- <sup>8</sup> Snow, 14.
- <sup>9</sup> Snow, 12.
- <sup>10</sup> Snow, 13 & 14.
- <sup>11</sup> Snow, 5.
- <sup>12</sup> Snow, 5-8.
- <sup>13</sup> Snow, 76.
- <sup>14</sup> Snow, 77.
- <sup>15</sup> Park, David, *The Grand Contraption: The World as Myth, Number, and Chance* (Princeton: Princeton University Press, 2005), 289.
- <sup>16</sup> Krauss, Lawrence M., *Atom: An Odyssey from the Big Bang to Life on Earth . . . and Beyond* (Boston: Little, Brown, 2001), 278 & 281.
- <sup>17</sup> Polkinghorne, John, *The God of Hope and the End of the World*, ( New Haven: Yale University Press, 2002), p. 9. See also Eire, Carlos, *A Very Brief History of Eternity* (Princeton: Princeton University Press, 2009), 3-5 & 222.
- <sup>18</sup> Gregg, Samuel, *On Ordered Liberty: A Treatise on the Free Society*, (Lanham: Lexington Books, 2003), p. 116. See also Silver, Lee M., *Challenging Nature: The Clash of Science and Spirituality at the New Frontiers of Life* (New York: Ecco, 2006), 214.
- <sup>19</sup> Snow, 6.
- <sup>20</sup> Polkinghorne, 59.
- <sup>21</sup> Snow, 6.
- <sup>22</sup> Medawar, Peter, *The Limits of Science* (Oxford: Oxford University Press, 1984), 88.
- <sup>23</sup> Leavis, F.R., *Two Cultures? The Significance of C.P. Snow* (New York: Pantheon, 1963), 31, 29 & 38.
- <sup>24</sup> Leavis, 77 & 45.
- <sup>25</sup> Huxley, Aldous, *Ends and Means: An Inquiry into the Nature of Ideas and into the Methods Employed for their Realization* (London: Harper & Brothers, 1937), 291 .
- <sup>26</sup> Snow, 15.
- <sup>27</sup> Cf. Everdell. William R., *The First Moderns: Profiles in the Origins of Twentieth-Century Thought*, (Chicago: University of Chicago Press, 1997), 47-52..
- <sup>28</sup> Berenda, Carlton W., "Notes on Lemaitre's Cosmogony", *The Journal of Philosophy* 48 10 (1951), 338.
- <sup>29</sup> Quoted by Whitworth, Michael H., "Things Fall Apart: The Secret Agent and Literary Entropy", *Einstein's Wake: Relativity, Metaphor, and Modernist Literature* (New York: Oxford University Press, 2002), 59.
- <sup>30</sup> Beer, Gillian, "'The Death of the Sun': Victorian Solar Physics and Solar Myth'", *Open Fields: Science in Cultural Encounter* (New York: Oxford University Press, 1999), 219 & 228-9. See also Whitworth, 61-3. The author wishes to acknowledge the apt comments of an anonymous reviewer who helped in making the connections noted in this paragraph and the next regarding the degree to which 19<sup>th</sup>- and early-20<sup>th</sup>-century anxiety about cosmic "heat death" was ignored by Snow in *The Two Cultures*.
- <sup>31</sup> Wells, H.G. *The War of the Worlds*, ed. Martin A. Danahay (Peterborough: Broadview Literary Texts, 2003), 42.

- <sup>32</sup> Whitworth, 77.
- <sup>33</sup> Woolf, Virginia, *To the Lighthouse* (New York: Harcourt Brace & Company, 1955), 152.
- <sup>34</sup> Quoted in Whitworth, 74.
- <sup>35</sup> Quoted in Polkinghorne, 9.
- <sup>36</sup> Snow, 30.
- <sup>37</sup> Yeats, W.B., *The Collected Poems of W.B. Yeats* (New York: Macmillan, 1979), 204-208, & 184.
- <sup>38</sup> Hardy, Thomas, *Selected Poems*, ed. Robert Mezey (New York: Penguin, 1998).
- <sup>39</sup> Eliot, T.S., *The Complete Poems and Plays: 1909-1950* (New York: Harcourt, Brace & World, 1971).
- <sup>40</sup> Snow, 5.
- <sup>41</sup> Snow, 11.
- <sup>42</sup> Thomson, James, *City of the Dreadful Night*, in *The Victorian Age*, eds. John W. Bowyer & John L. Brooks (New York: Appleton-Century-Crofts, 1954), 614-619.
- <sup>43</sup> Pope, Alexander, *The Dunciad*, in *Poetry and Prose of Alexander Pope*, ed. Aubrey Williams (Boston: Houghton Mifflin, 1969), 295-378.
- <sup>44</sup> Himmelfarb, Gertrude, "Social Darwinism, Sociobiology, and the Two Cultures", *Marriage and Morals among the Victorians* (New York: Alfred A. Knopf, 1986), 86.
- <sup>45</sup> Himmelfarb, 87.
- <sup>46</sup> Snow, 84-5, emphasis added.
- <sup>47</sup> Snow, 32.
- <sup>48</sup> Snow, 25.
- <sup>49</sup> Snow, 85.
- <sup>50</sup> Eliot, "Choruses", III, 114.