Careers in Science and Politics

The Visible College. The Collective Biography of British Scientific Socialists of the 1930s. GARY WERSKEY. Holt, Rinehart and Winston, New York, 1979. 376 pp., illus. $12.95.

No scientists have been more controversial in their day than the subjects of Gary Werskey's engaging study. J. D. Bernal, J. B. S. Haldane, Lancelot Hogben, Hyman Levy, and Joseph Needham: their names loom large in the pages of 20th-century science. However it is not their natural science but their social philosophies, their political actions, and their polemical writings that lie at the focus of this "Collective Biography of British Scientific Socialists of the 1930s."

Those scientific socialists were an unlikely lot to find together. One was the son of a Jewish refugee from Tsarist Russia, a member of a crowded family brought up in an Edinburgh slum. Another was Captain of the School at Eton, as befitted the scion of an ancient, liberal house secure in its position among the intellectual aristocracy. A third was the offspring of an Irish gentleman farmer and one of the first women graduates of Stanford University (his mother was "a little like a character out of Henry James —expatriate, literary, cultivated" [p. 69]). In startling contrast, the fourth knew "the discomforts of rubbing shoulders with a large family on a small parental income" (p. 60). An unhappy son of a Plymouth Brethren evangelist, he was dedicated from birth to be a medical missionary for that fundamentalist sect. The final member of the group was the only child of a noted Harley Street physician and pioneer anesthesiologist, who was married to a composer of salon music and popular songs. What did such diverse actors have in common? A great deal, according to Werskey.

For a start, all five were white males from one era (their birth dates range from 1889 to 1901). All five were brought up within the confines of British culture. All were gifted with precocity and intellectual depth. And all were attracted to the natural sciences. J. B. S. Haldane quickly devoured everything that Oxford and Cambridge could offer. At the age of 40, he was appointed professor of genetics at University College, London, in recognition of his brilliant mathematization of Darwin's metaphor of natural selection. By the same age, Hyman Levy was a professor of mathematics at nearby Imperial College. Lancelot Hogben's scientific itinerary took him to Edinburgh, to McGill, and to Cape Town before—at the ripe old age of 34—he was called to fill the new chair of social biology at the London School of Economics (a chair financed by the Rockefeller Foundation). Still greater precocity was shown by Joseph Needham and J. D. Bernal. Before his 32nd birthday, Needham was deeply entrenched in Cambridge University's Biochemical Institute. His three-volume classic *Chemical Embryology* had helped secure the Sir William Dunn Readership for him, at the urging of his mentor, Gowland Hopkins. Bernal suffered rather than enjoyed the attentions of Cambridge's other scientific baron, Ernest Rutherford. Nonetheless Bernal was recalled from exile to the great redoubt of Cambridge science, the Cavendish Laboratory. He was installed as head of the new subdepartment of crystallography there, at the age of 26.

"An experiment that backfired. In 1938 the Cambridge Scientists' Anti-war Group attempted to confirm a report from Spain that an incendiary bomb could set alight a multistory building by burning through several floors in succession. The experiment was entrusted to Maurice Wilkins, then an undergraduate protégé of J. D. Bernal and W. A. Wooster. Wilkins set up his apparatus in Wooster's garden. But, as the photographs show, Wilkins' wooden planks were more than a match for his 'bomb.' " [From *The Visible College*, courtesy Maurice Wilkins]

The many scientific achievements of these "five highly atypical academic scientists" (p. 20) are treated tangentially, if at all. Werskey has other concerns. His aim is to trace the different routes by which each of the five awoke to a social conscience and struggled to an "advanced" socialist position before, or during, the 1930's. Three of the five (Bernal, Haldane, Levy) became closely identified with the Communist party of Great Britain. All contributed heavily to that strain of thinking on science and society which characterized the 1930's and '40's, and which—by reaction—helped to shape much of the English-language discourse of the 1950's and '60's on that subject. J. D. Bernal's brilliant tract *The Social Function of Science* (1939) may be taken as the central text of the group. When published it was heretical and disturbing in its bold arguments for government support of, and involvement with, science. Today it seems charmingly antique in the modesty of its vision. One realizes with a shock how strongly Bernal's objective, socialist stance was shot through with the assumptions of that "string and sealing wax" tradition of Cambridge physics which he loved to hate.

Werskey traces out the class bases, social assumptions (for example that a few safely married women scientists might be permitted in the biology labs), and intellectual styles of Cambridge high science with great verve. He explores

the widely differing careers of his five actors and the way they accommodated to or rebelled against the dominance of Cambridge in British science. He shows a fine eye for the telling detail and the choice phrase. For instance, he recites with impish glee the stories of Haldane's unconventional social behavior. Academic dinner parties of that era did not easily accommodate a guest who might throw off some such sentence as "I have never gone in really seriously for bestial sodomy" (p. 83). Haldane was dismissed from Cambridge for "gross immorality" when in his early 30's. His crowning sin was the staging of the sort of adulterous situation then required to obtain a divorce. The university board obligated to consider his offense consisted of six men—the Sex Viri or, as wags had it, the Sex Weary. (Subsequently, and thanks to Haldane, the university had Septem Viri.)

The book has a complex, finely crafted structure of nine chapters in three parts. The first of these parts (117 pages) develops a stage setting by considering in detail the careers and contexts of the chosen heroes before the '30s. The second (126 pages) treats their theory and practice in the '30's. The importance of the Cambridge Scientists' Anti-war Group is stressed, together with the development of "Bernalism." Bernalism was "the deeply held conviction that there was just one international science, and [that] it could only be fully practised and humanely applied in a socialist society" (p. 300). More than that, it was a belief in science as the exemplar of human progress and the pattern for all thought. The theoretical articulation of this belief had obvious appeal and succeeded in "making the left safe for science." The brief third part (65 pages) considers the mixed careers of the actors, and of their ideas, since the '30's.

Though engrossing and often funny, the book Werskey has written is basically a sad one. On the positive side, it shows how the British educational system could work to identify extraordinary talent among the lower classes and escalate the possessors of that talent to the pinnacles of academe, even before World War I. But it also shows how certain social and psychological outsiders (Levy, the Scottish Jew; Bernal, the Irish Catholic; Hogben, the lower-middle-class provincial; Haldane, the temperamental rebel) never felt fully at home within the scientific establishment of their day. More than that, it shows how brilliant scientific minds were—in the end—dupes of those with more subtle and single-minded purposes. J. B. S. Haldane was for many years the leading geneticist in the British Communist party. He found himself forced into an agonized "phased withdrawal" from the party following the Lysenko affair. He eventually retreated to a self-imposed exile in India. Hyman Levy had been a loyal party member for more than a quarter of a century when he belatedly awoke to the reality of the persecution of Russian Jews by the Soviet state. What he never comprehended was his own subsequent expulsion by the party. J. D. Bernal ended his days less noted for his brilliant work in crystallography than for his unflinching defense of Stalinism. Lancelot Hogben became "a recluse, politically isolated, bereft of family and far removed from his old, too often estranged friends" (p. 211).

The common fate seems to have been avoided only by Joseph Needham. It is interesting to speculate why. Unlike the others, Needham from the first insisted on a stance that respected the complexity and the essentially religious nature of life. His Marxism always marched hand in hand with his Anglo-Catholicism. The culture of professional life was in his birthright, and—unlike Haldane—he took easily to, and never really strayed from, the ethos of a Cambridge existence (over a 60-year span he moved from undergraduate through fellow to master of a major college, Gonville and Caius). More than that, he was the only one of the group to abandon his science and to commit himself full time to the study of a facet of those social phenomena about which they all wrote so easily. The complex, tempered humanity of the resultant insights are displayed in his monumental, continuing study *Science and Civilisation in China*.

Werskey's book is sad for additional reasons. The central dogma of the scientific socialists was that a communistic form of society would prove best able to nourish abstract science. This particular triumph over capitalism has not been proven by events. The belief that there can be only one objective, international science (a faith shared by the liberals of the era) has also failed to hold up under scrutiny, or to spark a significant research program in the history and sociology of scientific knowledge. The more provocative, fruitful insights of the last quarter-century have come not from Marxist theorists of science and society but from historians, philosophers, sociologists, and anthropologists who owe nothing to "Bernalism."

Werskey himself has been heavily influenced by the rather different radicalism fashionable in "the other Cambridge" a dozen years ago. His Harvard experience has shaped a determination to find ways forward for the New Left in a critique of the Old. Werskey makes no secret of his desire to tackle "the impact of the thirties generation of socialists on my own" (p. 15). The result is that he sometimes detours into the subtleties of Marxist exegesis. His time would have been better spent exploring the masses of manuscript evidence on which any full and final accounting of his scientific socialists will have to rest. Instead, he relies almost entirely on printed documents and personal reminiscences. Nonetheless, Werskey is a highly capable historian. He has produced an eminently enjoyable book. To read it is to be entertained. To read it is also to be sobered by the difficulties inherent in any passage from scientific knowledge to political wisdom.

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Recollections and Visions

Disturbing the Universe. FREEMAN DYSON. Harper and Row, New York, 1979. x, 284 pp. $12.95.

A book of recollections by a scientist of Dyson's caliber should make good reading, and this one does. He writes skillfully of his youth in England with his composer father and lawyer mother, of his studies of field theory with Bethe at Cornell, of his formulation of quantum electrodynamics while on a bus tour of the United States, and of his career at the Institute for Advanced Study. Physicists will particularly enjoy his vivid sketches of Bethe, Feynman, Oppenheimer, and Teller.

Dyson's wartime work in operations research stimulated a lifelong interest in technology. At the age of only eight, reading Edith Nesbit's *The Magic City*, he became fascinated with machines. In the book a boy builds a toy city out of bric-a-brac. One night the city grows magically to full size. Moving through it, the boy finds an inexorable rule: one can get any new machine one wishes for, but only on the condition that one keeps it and goes on using it for the rest of one's life. Dyson points out that we in fact inhabit such a magic city and that the survival of the human race may depend upon how we handle the overgrown toys produced by modern technology.

In the summer of 1958, Ted Taylor in-