
ble to the laity. A trend, a long trend, began. Schwartz's book is an examination of those scientific breakthroughs—from Sadi Carnot's heat engine to the creation of nuclear physics and the "genetic revolution"—that were couched in unnecessarily complex terminologies baffling to the layperson. "The form in which understanding in physics [and other contemporary sciences] is expressed," he writes, "has been mistaken for the understanding itself." Schwartz himself wrote *Einstein for Beginners* (1979) to demonstrate how technical scientific theories can be made comprehensible to the general reader.

Is there a solution to the "two-cultures" problem? Is it even possible for science again to learn the language of daily speech? Schwartz's proposals for achieving popular scientific literacy—supporting a Green-movement awareness of the environment and adding a new undergraduate-level science course on technology—seem feeble. What Schwartz has to offer is less a program than a different perspective. Science writers today tend to fall into two opposing camps: the supporters who view science as the most legitimate method of acquiring knowledge and the detractors who take stock of ever more deadly engines and destructive technologies. To his credit, Schwartz avoids the stock jargon of either group. He wants to promote science but at the same time to shame it into abandoning its claim to an "occult" or privileged status. His outlook, at least, is refreshing.

THE ANT AND THE PEACOCK: Altruism and Sexual Selection from Darwin to Today. By *Helena Cronin*. Cambridge. 490 pp. \$39.95

Despite its imposing simplicity and awesome explanatory power, the theory of natural selection has never achieved the status of a universally accepted scientific law. As recent surveys reveal, an astonishingly large proportion of people in the otherwise rational West do not believe in evolution. Belief, however, is not the only issue: The idea of design-without-a-designer has had to struggle for survival against not only those who dislike its implications but also those who just misunderstand

it—including many eminent scientists. Cronin, an infectiously enthusiastic classical Darwinist at Oxford, begins her book with a handy if unsympathetic survey of rival views such as creationism, idealism, and Lamarckism, all of which she dismisses as "follies" and "hopelessly off-target."

Cronin is not, however, attempting to argue the perfection of Darwin's original ideas. Rather she confronts two crucial weaknesses that even many Darwinians have skimmed over. These problems are "beauty" and "altruism." The peacock's beautiful tail, for example, requires enormous energy to grow, even while it hampers the bird's ability to fly—hardly a solid support for Darwin's theory that only traits useful for survival survive. And neuter ants, with what Cronin calls "saintly self-abnegation," work dutifully for the community, seemingly in denial of natural selection's famous self-interested, utilitarian imperative. Beauty and altruism were telling arguments against Darwin a century ago and caused him immense difficulty. To explain beauty, Darwin resorted to the argument of sexual selection—that peahens, for example, preferred mates with gaudier tails—an idea that other 19th-century male scientists mocked. They maintained that females could never choose anything consistently enough to have a lasting evolutionary effect. To explain altruistic behavior, Darwin was driven even further afield: He posited a rudimentary moral sense in animals.

Cronin proves a stricter Darwinian than Darwin himself. The problem of altruism, she writes, "dissolves, gratifyingly, before our eyes" when we take a "gene-centered view" of evolution. Since the 1960s the idea of selfish genes has become increasingly accepted. According to this view, animals, once considered the basic evolutionary unit, are nothing more than vehicles for the transmission of genes between generations. The problem of beauty is more intractable, and Cronin (and others) are reviving Darwin's once-ridiculed idea of sexual selection. Sensible peahens could well prefer menfolk with sexy tails, she argues, because such plumage might indicate beneficial genetic characteristics. Darwinism is now in the midst of a revival, and perhaps not since the master himself has it found a more eloquent exponent than Cronin.