

Book Reviews

Work, Rhetoric, and Social Change

The Work Ethic in Industrial America, 1850-1920. DANIEL T. RODGERS. University of Chicago Press, Chicago, 1978. xvi, 300 pp. \$15.

Each year a businessman in the United States is given the Horatio Alger Award in recognition of his effort in achieving eminence in his field. It is ironic that an award with that title should be given for hard work, for, as anyone who has read an Alger novel knows, none of the heroes of his books achieved wealth through effort; their fortunes always came from a stroke of good luck or as a reward for a single meritorious deed. And, as Rodgers points out, the popular association of Alger's books with work is also incorrect, since the novels celebrated adventure and play, not work. None of Alger's heroes was ever shown working, though all of them had escapades. The heart of Rodgers's book is that, just as Americans have seen in Alger's writings what they wanted, so they have clung to old conceptions of work even when such conceptions have ceased to be appropriate.

Rodgers's discussion of the Alger novels is only a part of his analysis of the idea of work in the history of Americans. No previous historian has undertaken such an analysis, and now that Rodgers has pointed the way it is clear that the idea of work has been an intimate part of almost everything that has happened to Americans.

In the colonial period work was praised because it was essential for survival. In the early Republic it was lauded further because it enabled Americans to realize the potentialities of an empty and fertile land. According to the Jeffersonian philosophy it was through work that men and women would obtain a better life for themselves materially and be freed from dependence on others. Rodgers notices that the reason many Northerners detested slavery was that it meant a lifetime of work for someone else. In the preindustrial world of Jefferson and Lincoln, as Lincoln put it, a man "labors for wages a while, saves a surplus with which to buy tools or land for himself, and then labors on his own account" (p. 35).

Yet even as Lincoln was setting forth his justification of work, the world in

which he and his audience lived was denying the possibility of the sort of independence he described. Just as the prospect of working for oneself was becoming unlikely for most men and women after the Civil War, so the need to work hard in order to produce enough to keep the population fed, clothed, and housed was rapidly being diminished by the outpouring of goods by the machines of an industrializing America. Thus the burden of the book is how the men and women of the 19th and early 20th centuries struggled to fit the old values of work to the changing realities of working. Significantly, Americans never developed a Luddite mentality that rejected the machine; even the milder doubts about mechanization that Carlyle and Ruskin advanced in Britain failed to gain much response here. But acceptance of the machine made it just that much more difficult to retain the old belief in the redemptive value of work, for with machines work was no longer what it had been in earlier days.

The conflict between what work had been and what it had become is laid bare in Rodgers's examination of books for boys at the end of the 19th century. Popular writers in addition to Horatio Alger apparently praised work in their stories while actually extolling adventure and play. And the reason they did, Rodgers observes, is that in an industrial economy of plenty it was no longer possible, any more than it was necessary, to justify work as society's salvation. Nor is it accidental, he reminds us, that during those same years child labor was coming under increasing attack and a movement justifying children's play was expanding.

In another chapter Rodgers relates ideas about work to the late 19th-century women's movement. Rodgers suggests that by urging work as a basis for women's independence feminists were able to tap a great reservoir of American moral conviction according to which idleness was reprehensible. As he shows in a powerful chapter on the idea of work in political thought, both ends of the political spectrum scorned those who did not work. Socialists denounced the capitalist for his alleged idleness while defenders of *laissez faire* railed against the lazy worker and the Socialist agitator for

seeking to obtain "other people's money without working for it," as E. L. Godkin of *The Nation* put it (p. 220). Neither side made clear why work was good and idleness evil, but between them they illustrated that Americans were wedded to, as well as confused by, a rhetoric of work inherited from a different time.

Some moralists, as Rodgers calls them, did recognize the conflict between the new work and the old words. Simon Patten, the early-20th-century economist, for example, cogently observed that in an age of industrial plenty "the non-saver is now a higher type than the saver" (p. 121). And as early as the 1870's some writers were calling for a new recognition of the virtues of repose and of the evils of excessive toil and busyness. Ultimately, out of such recognitions came the eight-hour work day and the paid vacation. In short, those who think that attacks on work are only recent or that defenses of leisure are unique to the 20th century have a surprise in store.

The many intellectual and social developments this book imaginatively ties together have been no more than suggested in this summary. Fundamentally, of course, Rodgers's book is a study of how technology affects ideas. That is the issue to which Rodgers always returns: how did men and women react to the economy of unprecedented plenty that the 19th-century revolution in power and machines had produced? Clearly, the relationship was not simple and direct. As someone has said, one way to respond to social change is to talk one way and act another. And many Americans did just that then, as they continue to do today. Yet in some ways—not always predictable ways—ideas did respond to technological and economic change. Some moralists did recognize that work in a factory was not the same as work in a small craftsman's shop, even as they continued to fear what would happen to a society in which work in the abstract ceased to be valued.

This is certainly one of the two or three best books in American history published this year. Yet it is not without flaws. Perhaps its major weakness is that it is too slight; there are many ideas that cry out for further exploration and exemplification. Rodgers writes lucidly, concisely, and above all interestingly, but also perhaps more economically than he ought to. Occasionally, too, he pushes his thesis into areas where it does not convince, as when he tries to make the antilabor activities of business in the 1920's a part of the redefinition of work. At another time he ignores the move-

ment for the ten-hour day that grew up in the 1840's, a time earlier than his thesis allows for a movement in behalf of increased leisure.

Generally, though, Rodgers is forthright in discussing the limitations of his thesis, and the surprising thing is that, despite the range of his examples and subjects, he trips so rarely. The overall result is one of the most refreshing and penetrating analyses of the relation of diverse levels of 19th-century American culture that it has been my pleasure to read in a long time.

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Small Bodies

Comets, Asteroids, Meteorites. Interrelations, Evolution and Origins. Papers from a colloquium, Lyon, France, Aug. 1976. A. H. DELSEMME, Ed. University of Toledo, Toledo, Ohio, 1977 (available from the University of Toledo Bookstore). xxii, 588 pp., illus. \$36.50.

This book is a feast. With 75 papers by a total of 107 authors (there is some redundancy, but not much), even the most jaded palate should find something of interest. The metaphor is not altogether inappropriate, for this is a report of a colloquium held in Lyon, a traditional center of great French cuisine.

The papers are organized into nine sections: Physical Nature of Comets, The Orbital Evolution of Comets, Meteors and Meteoroids, Physical Nature of Asteroids, Orbital Evolution and Fragmentation of Asteroids, Primitive Meteorites, Differentiated Meteorites, The Origin of Comets, The Primitive Solar Nebula. The mousseline au chocolat is provided by the editor—a smooth, tactful summary that allows all the participants (and the reader) to feel comfortable about the preceding heroics. Along the way, extra seasonings are provided in the form of transcribed discussions following most of the chapters—an excellent addition to any volume of proceedings and especially interesting for such a wide-ranging and controversy-inviting conference as this one.

There is a remarkable variety in the presentations. We find sober catalogs of basic data, such as Morrison's listing of asteroid diameters and albedos, Holweger's comparison of meteoritic and solar abundances, Zellner and Bowell's discussion of asteroid compositional types, and Scott's classification of iron meteorites, and reports on oxygen isotope

ratios in meteorites by Clayton, carbon isotopes in comets by Vanysek, and the discovery of the long-sought evidence for ^{26}Al by Papanastassiou *et al.* There are laboratory experiments attempting to reproduce conditions in comets (Dobrovolsky and Kajmakov) and computer experiments to analyze comet chemistry (Huebner, Delsemme and Rud) and to explore orbital histories of asteroids (Scholl and Froeschle, Carusi and Marsaro, and others) and of comets (Marsden, Everhart, and others). There are careful discussions of basic physics underlying the Poynting-Robertson effect (Soter *et al.*) and the reflectance spectra of asteroids (Gaffey and McCord), and there are free-wheeling speculations that satellites may be formed from comets (Singer), that comets may come from volcanoes on Jupiter (Vsekhsvyatsky), and that the asteroids and comets may be the remains of a planet of 90 earth masses that blew up 600 million years ago (van Flandern). It is a tribute to the scientists present that each of these suggestions is received with tact and care—there is no attempt to sweep nontraditional ideas under the rug.

A wide variety of observational papers is also included. Reviews of compositional studies of comets are given by Delsemme and Donn, who conclude, in agreement with Kresak, that there is no fundamental difference between "new" comets (comets approaching the inner solar system for the first time) and "old" or short-period comets. Millman presents a stimulating review of observations of meteoroids, indicating their apparent similarity in composition to the type C-1 and C-2 carbonaceous chondrites. Brownlee *et al.* describe studies of particles collected in the upper atmosphere that are presumably remnants of these meteoroids and discuss possible origins of particles from carbonaceous chondrites or comets. Just as the unwary reader might be inclined to conclude that meteorites come from comets, the many papers on asteroids and on the meteorites themselves provide convincing evidence for an asteroidal origin. Support for this view is nicely summarized by Levin.

What are the sources of the meteorites in our museums? Many of the authors struggle with this question; no unanimously supported picture emerges. We don't really know how comets evolve or whether "dead" comets represent a possible source of stony material. Asteroids are not entirely satisfactory either, since the ordinary chondrites do not seem to be represented among the types of asteroid spectra recorded by

ground-based observers. It appears that missions to comets and asteroids—especially missions that return samples—may be required to resolve these issues.

In his introduction, Delsemme suggests that this volume is devoted to a study of footprints—the record that remains of the early history of the solar system as determined by conditions in the primitive solar nebula. It is clear from these papers that this nebula must have been far more heterogeneous in structure and composition than most students of the subject have thought. Did it already contain comet nuclei? Are some interstellar grains therefore trapped in comets? And what events caused the isotope anomalies found in the meteorites and generated the short-lived radioactivities that played such a crucial role in the formation of planets and satellites? Where *do* the meteorites come from? These proceedings demonstrate that there is a vigorous and intelligent community of scientists hard at work trying to answer these questions and generating new ones as the inquiry proceeds. One can scarcely fail to share their interest and enthusiasm as one reads the papers and discussions in this stimulating book.

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Audition and Behavior

Recognition of Complex Acoustic Signals. Papers from a workshop, Berlin, Sept. 1976. THEODORE H. BULLOCK, Ed. Dahlem Konferenzen, Berlin, 1977 (U.S. distributor, Heyden, Bellmawr, N.J.). 404 pp., illus. Paper, \$25. Life Sciences Research Reports, 5.

The general strategy of science is to turn magic into ordered explanations. The focus of ethology is on that ultimate bit of magic, behavior. Pioneering ethologists imposed on behavior a controversial conceptual order that invoked several smaller bits of magic—releasers, fixed-action patterns, imprinting, and so on. It was left to physiologists to show that these orderly concepts reflected real, underlying processes. Neither group, however, found the work of the other particularly useful. When physiologists uncovered unitary feature detectors in the visual system for lines, spots, moving edges, binocular disparity, and so on, traditional ethologists, looking for the holistic patterns required by their treasured Gestalt psychology, saw no connection with releasers. More recent work demonstrating that many detectors