does not appear until almost the end of the book, and then it appears disconnected from the study, as a grafted appendage. This becomes apparent when we get to the heart of the interpretation, and look for explanations of, for example, the low self-concepts of whites:

> That white adolescents have low self-concepts should not be surprising in the face of the social revolution of the 1960's. First of all, a system of self-esteem based on the degradation of other human beings is bound to collapse. Secondly, following the black student movement in the South there was the white student movement in the North with the same theme—liberty and justice for all.

and from the same page (p. 290):

> As schools begin to desegregate, sometimes with violence, some conflicts for white adolescents present themselves as to identity models. Basically believing in human decency and the American ideal, can one really identify with the cruel "red necks" abusing passive nonviolent children?

One leaves the book with the gnawing concern about the possible spuriousness of the findings. Even the author hints at it: (i) the issue is not segregation or desegregation but the quality of the educational experience, and (ii) self-concept is related to larger social and political forces outside the school experience.

But let us assume that the finding is not spurious, and that blacks in segregated schools do have higher self-concepts. The policy implications would be no clearer than the muddy ones that we presently face. If the society perpetuates the structural barriers now confronting black youth (and those barriers are in part grounded in inferior, segregated educational training), of what use to social change is this "higher self-concept"? Are there really any good answers to the formulation of this question: Would you rather be on top and think poorly of yourself, or be on the bottom and think highly of yourself? There are other alternatives, of course, including questions, proposals, and strategies for dramatically improving the educational institutions that are supposed to educate youth, black and white. The author is clearly concerned about these questions, but is less than persuasive with the implication that the study of self-concept as here presented joins those alternatives.

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T. H. Huxley

Scientist Extraordinary. The Life and Scientific Work of Thomas Henry Huxley, 1825–1895. CYRIL BIBBY. St. Martin's Press, New York, 1972. xii, 208 pp. + plates. $8.95.

Arthur Sullivan and T. H. Huxley were continually urged by well-meaning friends to abandon their public forum for something "nobler"—Sullivan to rescue British music from the long doldrums since Purcell's death, Huxley to lead a life of academic research. "Do take the counsel of a quiet looker on," wrote Hooker, "and withdraw to your books and studies in pure Natural History; let modes of thought alone." *Ivanhoe*, Sullivan's grand opera, was a flop. "A cobbler should stick to his last," he remarked sadly as he returned to Gilbert. But Huxley, the polymath of his age, could have done anything superbly. He fitted enough natural history into the interstices of his later life to fulfill a total career for the most ambitious. His decision to concentrate on public education and the national administration of science was consciously made. If he lacks the reputation of a Newton or a Darwin today, this only reflects the bias of historiography that exalts innovators and downgrades publicists and synthesizers.

Cyril Bibby has written a taut and eloquent biography of Huxley. So much has rarely been said in a mere 150 pages. Its eloquence rests upon a wise decision to let Huxley speak for himself, and upon the author's knack for gracious epitome—virtually a lost art among prolix academics. The account is chronological and covers all facets of Huxley's life; Bibby shrinks neither from the intricacies of coelenterate anatomy nor from the details of debates with Gladstone on the nature of the Godhead. The appendix, with its short takes on 207 of Huxley's contemporaries, is a delight. On Darwin, for example (p. 163): "Although hypochondriac and always glad to have Huxley as his 'bulldog,' Darwin was a shrewd man of business and did very well with his stocks and shares." On Wilberforce (p. 182): "He was a brilliant scholar and administrator. . . . His memory has perhaps been unduly darkened by the 1860 British Association episode at Oxford, where he was demolished by Huxley in the debate on evolution. Still, his nickname of 'Soapy Sam' must have had some significance."

Unfortunately, the book is marred by three serious and intermingling problems: Bibby's hero worshiping, his "prospective bias," and his unfamiliarity with some details of the scientific issues that Huxley treated. The prospective bias, an anachronistic approach to history (in more than one way), attempts to judge a man by whether he was "right" according to present-day values or judgments of absolute truth. On social and political issues, this bias produces a particularly unfortunate distortion of history, for one cannot even make the scientist's naive claim that we strive, by uniform and timeless methods, for correct answers. Thus Bibby, ever searching to remake Huxley as a 20th-century liberal, selects some quotations about individual potential that would fit the beliefs of a Kennedy or a King. Any hint to the contrary is quickly compromised (p. 133, for example): "These papers do seem to emit a mild aroma of prejudice on the side of private property. Yet they were by no means one-sided, and some passages are perhaps more meaningful to our generation than they were to his own." Yet I, for one, do not need a set of inspirational sentences in the style of introductions to Gideon Bibles; I want to know how Huxley, a child of his time, influenced it in return. After all, the "liberal" leaders of Huxley's day affirmed the inferiority of blacks though rejecting it as a justification for slavery and colonialism. When we ignore this, we only serve to separate Lincoln the legend from Lincoln the man—a functional strategy, perhaps, for a nation too young to have a true mythology; but scarcely a desideratum for scholarly books.

On empirical matters, a combination of prospective bias and hero worshiping can, at its worst, imitate the approach to Old Testament that only seeks utterances prophetic of the New. Thus, Huxley is depicted as the Elijah for the reacceptance of Mendel (p. 45) and for the discovery of wonder drugs (p. 118). When these tendencies are united to an unfamiliarity with scientific issues, we get fallacious justifications for Huxley's mistakes. Huxley accepted Dawson's *Eozoon* as a true Precambrian fossil. Bibby (p. 67) commends this belief on the grounds that the modern discovery of Precambrian blue-green algae has vindicated *Eozoon*. The Precambrian blue-greens are, indeed, both present and abundant; but *Eozoon* is still an inorganic layering. Yet what does it matter if Huxley was

wrong? He was no chemist; he had not studied the specimens; his belief in the existence of Precambrian life was both valid and later vindicated. One might as well apologize for Copernicus because planetary orbits aren't circular.

The prospective bias is especially inappropriate in Huxley's case because he immersed himself so deeply in the issues of his day—and because he affected his own times so profoundly. Contemporary historians of science often distinguish an "internalist" from an "externalist" approach to their subject: the first treats the history of ideas much as an evolutionist studies phylogeny; the second emphasizes the interaction of science and society. Up to now, the internalist approach has generally prevailed. We are led, in its light, to measure greatness by the invention of ideas that serve as "ancestors" to large and successful branches in the evolutionary tree of human thought. On this criterion, Huxley must stand in the second rank. His early work on coelenterates set the basis for phyletic applications of germ-layer theory, and for the comparative embryology that dominated late-19th-century biology. His victory over Owen in the great hippocampus debate represented the first and greatest triumph for a Darwinian view of human origins. Yet much of his later research consisted of abstracts, albeit brilliant ones, for ambitious projects that remained uncompleted.

"Iffy history" may be a sterile pursuit; yet I have no doubt that Huxley would be the Newton of our textbooks if the externalist approach to the history of science had prevailed heretofore. I doubt that anyone, with the possible exception of Ernst Haeckel, ever attained such eminence and influence as a public spokesman for biology. Hundreds of millions of people were touched in the most direct way by his efforts—for whose influence is the greater: the man who invents an important theory or the man whose public addresses, private exhortations, and willingness to endure countless hours of soul-sapping committee work set the curricula of schools at all levels for generations to come? The theorist is exalted in the lofty treatises of future centuries; who, after all, reads the primers of the 1890's? But the spokesman translates ideas into action and sets their impact upon society. How can we deem one skill more important than the other? Huxley had abundant capacities for either role; he chose well. We should not judge him as Darwin's obedient, if ferocious, bulldog, but as a man of equal rank and different skills. "The great end of life," he once wrote ("Technical Education," 1877), "is not knowledge but action."

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