We consider it quite likely that *some* genes affecting *some* aspects of intellectual performance differ appreciably in frequency between U.S. racial-ethnic groups—leaving open the issue of what groups, which aspects, and which direction of difference. Thus we consider it most unwise to base public policy on the assumption that no such genetic differences exist. If someone defends racial discrimination on the grounds of genetic differences between races, it is far more prudent to attack the logic of his argument than to accept the argument and deny any differences. The latter stance can leave one in an extremely awkward position if such a difference is subsequently shown to exist [p. 240].

In the final section of the book, the authors outline ten areas of research, ranging from studies on cross-racial adoptions to studies that evaluate the effectiveness of various kinds of educational, nutritional, and other social programs, that might shed more light on the influence of environmental factors in producing differences between U.S. racial-ethnic groups in average levels and patterns of ability. Again, they believe that objection to continuing research on group differences is *not* justified if the objection is solely that it might yield an unpalatable answer.

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Intellectual Connections

Scottish Philosophy and British Physics, 1750-1880. A Study in the Foundations of the Victorian Scientific Style. RICHARD OLSON. Princeton University Press, Princeton, N.J., 1975. viii, 350 pp. $17.50.

Methodological pronouncements by scientists are notoriously difficult for historians to handle because they may have served so many purposes. At one extreme they can be retrospective justifications of investments made in a particular type of career and of work; at the other they can be a priori claims about the nature of scientific activity. As in ordinary life, they can also be statements of intentions that were never realized. Consequently it requires care and subtlety to show that methodological pronouncements are commitments that have actually been effective in helping scientists to set and to solve their problems.

Olson is therefore working in a challenging genre of history when he bases his enquiry on Duhem's venerable contention that during the 19th century British physicists relied more than their Continental counterparts on geometrical arguments and on model-making. Having shown that the Scottish Common Sense school of philosophers from Reid to Hamilton extensively considered the problems concerned with creating natural knowledge, Olson's chief thesis is that their leading notions were adopted and used by British natural philosophers, especially those who were totally or partly Scottish-trained. Much of his descriptive discussion can only be welcomed. He rightly sees the importance of Robison, Playfair, Forbes, and Rankine; and he has elevated what was previously a possibility into a serious case.

The book falls into two distinct parts. In the first Olson derives a by no means monolithic philosophy of science from the Scottish Common Sense philosophers. Though he stresses continuities he has to admit that on some key questions Reid and Hamilton were decidedly at odds. In the second part Olson examines the pronouncements and work of certain scientists in order to show their debt to the philosophers. Essentially the approach is to juxtapose arguments and bits of texts in order to establish similarities and hence indebtedness.

It is, however, at this tailoring level of the argument that difficulties arise. There is a difference between parallels and indebtedness: the latter is more than mere consonance, and its existence must be established by evidence additional to that of compatibility. For the period 1770 to 1815 there is the further difficulty that it is not clear whether the scientists were acting on ideas formulated by the philosophers or whether the philosophers were systematizing what the scientists had already done. In trying to find a major source for the methodological commitments of his scientists, Olson deliberately concentrates exclusively on Scottish philosophy; this procedure converts a possible source into the only possible one. Accordingly Olson lavishes attention on Reid, but ignores other possible sources such as MacLaurin and the Edinburgh medical men. It must also be appreciated that the method of juxtaposing texts gives a rather distorted picture of the work done by some individuals: Brewster's sustained scorn of Baconian inductive philosophy was only one of his many concerns qua scientist. That procedure also inevitably emphasizes the static components in a scientist's career at the expense of the dynamic ones. When Olson compares a student essay on analogy written by James Forbes in 1828 with the prizewinning papers on the polarization of heat published from the mid-1830's, he underestimates the evolving nature of Forbes's career and problem situations. Unfortunately Olson's argument is not helped by the many misprints of names and by some inaccuracies of detail.

In sum, this book presents a possible, an interesting, and in some ways a plausible case; but for the reasons given my verdict is the familiar Scottish one of "not proven."

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Visual Systems

The Compound Eye and Vision of Insects. Papers from a symposium, Canberra, Australia, Aug. 1972. G. A. HORRIDGE, Ed. Clarendon (Oxford University Press), New York, 1975. xviii, 596 pp., illus. $46.

The task of distilling order and generality out of the complexity of nervous systems is one of the central challenges of contemporary science. One should not be surprised, therefore, that significant attention has recently flowed to the compound eyes and vision of insects, where anatomical order is so apparent and visually evoked, modifiable behavior is available to manipulate.

This book is an outgrowth of a symposium on the insect visual system that was organized by G. Adrian Horridge and held in conjunction with an international entomological congress. One characteristic of symposium volumes that frequently limits their usefulness for the nonspecialist is the sacrifice of perspective on the altar of latest research results. Owing to the active efforts of the editor, this volume is happily an exception. Except for one inadequate and out-of-date competitor, it is the only book-length treatise devoted to the subject, and, despite the pitfalls of multiple authorship, it comes commendably close to being comprehensive. Moreover, in spite of the length of time consumed in its production, the book has avoided obsolescence. It will be particularly useful as a reference source to advanced students and researchers in neurobiology, animal behavior, and entomology who are seeking something more than a superficial introduction to the rich literature on the insect visual system.

The authors, representing research groups in nine countries, have contributed 24 chapters arranged in six sections: Receptor Anatomy, Receptor Physiology, Optics, Electrophysiology of the Optic Lobe, Behavioural Analysis, and Ocellus. Space permits only a short and assuredly incomplete mention of highlights. H. F. Paulus's chapter contains an interesting synopsis of the evolution of compound eyes, and R. Menzel's chapter on the color