

eral administrator, he commits the heresy of suggesting that this may require, in some parts of the government, a "specialized administrative class." And Lord Hailsham even agrees with Sir Charles Snow's most apocalyptic warning, saying that "if we go on indefinitely experimenting with these [atomic] weapons . . . and keeping them at instant readiness, sooner or later a situation will arise, sometime, somewhere, where one will go off. If it does, it will give rise to a chain reaction not less predictable because its course and causes are in the realm of politics and not of physics alone."

On these counts Lord Hailsham's opinions are far from those of the traditional classicist or Tory Minister, and to that extent he will please the American scientific community, or at least those who are generally considered its leaders. That community, however, will find several other points in the Hailsham manifesto a little harder to take. As the first Minister for Science in the world (in a more up-to-date manner, as befits even a Conservative in the Space Age, he says "in the Universe"), he was Exhibit A in the case which some American scientists were arguing for separate administrative and budgetary treatment for the sciences, if not for a Department of Science itself. Yet Lord Hailsham is not content merely to make a practical case against the creation of a "real" Ministry of Science that would centralize research functions in government; in such a judgment he would have been supported by the views of most American scientists who have had experience in government administration, and especially by the scientists who have served as Special Assistant to the President for Science and Technology. Lord Hailsham goes further to argue that from the point of view of public affairs there is no such thing as science, but only sciences. For example, he writes that medical research "bears a much closer relation to the climate, population, health, diseases and economic activities of a nation than to their nuclear physics. In terms of science, as distinct from economic policy, it would be meaningless for a Treasury official to try and block a grant for medical research on the ground that the money was needed for a synchrotron." For the American reader not familiar with British administration, it should be added that this argument cuts in different directions in Whitehall and on Capitol

Hill: in the United States, it would free the National Institutes of Health and the Atomic Energy Commission to lobby even more freely with their respective appropriations subcommittees; in Great Britain, it exposes their counterparts to the more rigorous restraint of the Treasury with its eye on the national investment program.

Whether the reader will dismiss Lord Hailsham's concluding chapter, "The religious basis," as nonsense, or applaud it, will depend on his philosophical and theological views, if any. I found it congenial, and no less hardheaded than a good many speeches on basic values that are being delivered every week in American scientific gatherings. The author notes the effect on general political ideas of the way in which science first discredited traditional beliefs, and then upset the certainties of the mechanistic philosophy it had itself created. He disarmingly refuses to put his metaphysics or theology on the same plane of logical proof or certainty with the ideas derived from scientific demonstration. Nevertheless, he concludes with a statement of philosophy, which he acknowledges to be old-fashioned, as well as with a staunch affirmation of personal faith.

It is hard not to admire a practicing politician who is venturesome enough to publish an expression of metaphysical and theological opinion; I cannot think of a Cabinet member in Great Britain who has done so since Balfour. In the United States, it would be as politically dangerous to confess an interest in the technical subtleties of metaphysics or theology as to admit a lack of church membership.

A British reviewer might well find it hard to keep an eye on what Lord Hailsham says in this book, being distracted by watching what he does about science as a member of the present Cabinet. One of the weaknesses of science in politics is that scientists find it hard to forgive the compromises that are made by their representatives in the political arena—hard enough when their representative started out with a clear status as a scientist and impossible when he is a classicist or a lawyer. But from the trans-Atlantic perspective, it is easier to read this book as evidence of the growing acceptance of science, even by the conservative and the classicist, as an intellectual and a practical force in British society. And it contains more thoughtful substance, presented in that

lucid prose which I hope the English educational system will continue to produce no matter how scientific it may become, than most of the longer and more pretentious books that are written on this fascinating hybrid subject.

Notes

Biography

Chemists, physicists, biologists, and historians of science will all welcome this new edition of Eduard Farber's **Nobel Prize Winners in Chemistry** (Abelard-Schuman, New York, ed. 2, 1963. 351 pp. \$6.50). Those interested in the progress of chemistry in the 20th century, and in the latter part of the 19th, *must* have this volume on their shelves, for it is an invaluable reference work.

Farber has done his task well. Brief biographical sketches introduce the man who then describes the work for which the prize was awarded. There is a most valuable bibliography which refers to biographical articles or books as well as to the main publications of the prize winners. In future editions it would be of the greatest value to have a note telling where each living Nobel laureate is now located.

The volume is handsomely produced, complete with a comprehensive index. It is well worth the price.

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Cytology

E. H. Mercer's **Cells: Their Structure and Function** (Doubleday, Garden City, N.Y., 1962. 145 pp. Paper, 95¢), a volume in the Natural History Library Series, is a popular review of our knowledge of the cell, not a critical résumé intended as a reference source. In view of the use for which it is intended, the book is well written and factual. Mercer has attempted to prepare for the layman an up-to-date account of a field which often appears to be a maze of unrelated information. The volume will be interesting and profitable reading for students interested in a general knowledge of cytology.

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