H. C. Darby's stimulating and authoritative paper, "The relations of geography and history," has been added, and Taylor's chapter on the exploration of Antarctica has been brought up to date, or nearly so.

As a reference work, the volume is distinctly useful. A reader desiring a brief summary of contemporary thought in geomorphology, climatology, historical geography, applied geography, cartography, and other such fields will find these fields well covered in the book. If, however, he is looking for a general overview of geography, of its breadth of scope, its aims, philosophy, and advancing frontiers, he should seek elsewhere: the volume, almost totally lacking in *Zusammenhang,* fails to provide a comprehensive and coherent view of the science.

The nongeographer would be well advised, therefore, to avoid reaching any conclusions about the status and accomplishments of this science from evidence found in this book. For one thing, a wholly anachronistic bias toward environmentalism underlies many of the contributions, notably those of Huntington, Visher, and, particularly, the editor himself. For another, systematic fields of human geography are not adequately covered. In sum, it can be said that the value of this work—and it is considerable—lies rather in the many useful essays it contains than in the character of the work as a whole.

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**Chemical Engineering in the Coal Industry.** An international conference organized by the National Coal Board, Great Britain, June, 1956. Forbes W. Sharpley, Ed. Pergamon Press, London and New York, 1957. v + 141 pp. $8.50.

Due to the need to use the lower grade coals and also to produce a more nearly smokeless domestic fuel it has become increasingly important to upgrade these fuels by means of chemical engineering. In this volume there are seven technical papers, three by British authors, three by French authors, and one by a German, with an opening address by A. H. A. Wynn and a closing address by J. Bronowski, both of Great Britain. There is considerable discussion following each paper.

The conference considered various methods for developing suitable ways to produce a good low-smoke briquette suitable for domestic use. In the several papers the authors cover controlled oxidation and fluid oxidation of coal, carbonization of briquettes, hot briquetting, and semicarbonization, as well as tars that have been obtained and how to treat low-temperature tars. In Great Britain, the problem is the need for efficient fuels for heating "fourteen million grate-heated houses"; in France, the production of good coke from coals which do not produce coke; in Germany, the production of special briquettes for smelting; while here in the United States it is the improvement of techniques for liquefying our coals, as in South Africa.

To sum up, this book urges us to use coal for the production of better fuels instead of the production only of heat and smoke.

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**Our Nuclear Future.** Facts, dangers and opportunities. Edward Teller and Albert L. Latter. Criterion Books, New York, 1958. 184 pp. Illus. $3.50.

The first part of this book is a straightforward and engaging account of factual scientific material on nuclei and nuclear energy. The second part is something else again. Edward Teller is noted for the imaginativeness of his ideas and the intensity of his feelings and opinions. The last half of this book is concerned with material of a more political nature, regarding which Teller's opinions, like those of anyone else, can hardly be subjected to scientific tests of validity. It is perhaps a hazard for the uninformed reader, who may expect that the latter part of the book, like the first part, will give him a careful, balanced, objective account. With chapter 8, on "Action of radiation on matter," the noncontroversial and completely objective account ends. The subsequent part of the book does contain a good deal of equally objective material; but in addition, and in spite of the evident attempt of the authors to present both sides of many highly controversial questions, their strong belief that weapon development and testing must be continued not only is explicitly stated but also unfortunately results in severe coloring of the factual material involved.

Teller himself has stated that it is impossible to discuss these problems in a short space and that therefore he was, with Latter, writing a book on the subject. It is clearly also impossible to take up, in this short space, the very large number of instances where I find the authors' presentation and approach to be severely incomplete, illogical, or misleading. But one must give at least one example. The following illustrates the point.

In a discussion concerning the fact that the radiation dose to the average individual from fallout is so small that it cannot produce any statistically detectable increase in leukemia, which is true, data are given in so unscientific a way as to be most unworthy of two such capable scientists as the authors. The data give the leukemia incidence in Denver, New Orleans, and San Francisco as 6.4, 6.9, and 10.3 new cases, respectively, per 100,000 population, for a single year. These data are then used to indicate that the extra cosmic radiation received by an individual in Denver as compared with the other cities does not produce any measurable increase in leukemia. The authors go even farther to discuss possible explanations for the "lower incidence of leukemia" (and of bone cancer: the corresponding numbers given are 2.4, 2.8, and 2.9) in Denver—for example, that "disruptive processes like radiation are not necessarily harmful in small enough doses." How improper it is to base their discussion on these data! It is clear that these data are so poor that they should not have been used at all. If given at all, the numbers should have been given in some such terms as $6.4 \pm 1.3$, $6.9 \pm 1$, and $10.3 \pm 1.5$. (These statistical uncertainties follow from the sample sizes involved.) And if one asks how much additional leukemia might be expected from the extra cosmic radiation in Denver, the answer, calculable from data given elsewhere in the book, would be that the $6.4 \pm 1.3$ would be expected to be about $6.35 \pm 1.3$ were it not for the excess of cosmic radiation over that at sea level.

We all owe a very considerable debt to Teller for his contributions to the defense of the country. But his current views on the necessity of weapon development, and on the attendant questions of tests and fallout, are sharply disagreed with by a very large number of his fellow scientists. It would be most desirable for him to debate these matters, directly and as calmly as possible, with dissenters. If he would submit his arguments to the searching interrogation of these of his colleagues, it is possible that his great originality might be better directed toward the most constructive solutions to the problems which face the world.

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**Histology.** Arthur W. Ham. Lippincott, Philadelphia, ed. 3, 1957. xv + 894 pp. Illus. $11.

This third edition of Ham's *Histology* continues the standard of excellence which characterized the two earlier editions. Excellence of organization and unusual clarity of expression make this textbook one to be read for pleasure as