

actually it is only 4,600. There are few places on a Mercator map that are as badly off as that.

A large part of the book is given over to a discussion of the war and its strategy. Herr Doktor Renner, who likes to refer to our general staff as composed of "admirals, generals and similar elderly people" assures us that these people suffer not from being blind but merely from hindsight, whereas it is intimated that the author combines the foresight of Columbus, Major General Haushofer and General Billy Mitchell. Mr. Renner speaks feelingly about illiteracy when referring to people who do not agree with him, and about "Tragic maps," *i.e.*, all maps that do not have the north pole at the center. The only statement that I can heartily agree with is his: "The ideas of uninformed people do not have much shape or dimension." Certainly the ideas of the uninformed amateurs of Teachers College are sometimes badly misshapen.

The authors of these three books have made a great discovery: the earth is round. So now they want to share this discovery with the rest of us who are merely illiterate believers in the tragic Mercator maps, and who possess only hindsight, if any. And all this has to be done with the magic word "global." The real tragedy lies in that these books come dressed up with copious references to the Civil Aeronautics Administration which will be mistaken by many still less-informed people as indication of approval by the C.A.A. There probably are few fields of education where the need for good, simple, but correct texts is as great as it is in aviation—in all of its aspects. If books such as these, containing a vast amount of misinformation, should be adopted in many schools, they could warp the thinking of countless students, and do untold harm to the future of aviation.

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SOMATIC MUTATIONS IN THE APPLE

SOMATIC mutations in apple varieties resulting in a change in the distribution pattern of the color in the epidermal cells of the fruit are quite common. Certain of these mutations are of increasing importance in nurseries and orchards. Most of these differ only in fruit color pattern and can not be identified by tree characters. Van Buren, which is reported to be a somatic mutation of the Duchess of Oldenburg variety, is an exception. It differs in many characters from its supposed somatic parent.

The McIntosh variety has produced many color mutations. Color patterns vary from distinctly striped to uniformly red with no trace of stripes or splashes. The type almost always comes true in asexual propagation. The striped form is generally regarded as the original, but there is evidence that

the original McIntosh tree bore apples that were of a uniform red.

There are under propagation at the Massachusetts Experiment Station a considerable number of reputed mutations of the McIntosh apple. Two of them have been in nursery propagation for several years and produce apples that are of a uniform red and very similar if not identical in all fruit characters. They can not be distinguished by vegetative characters. Budded on most stocks, they behave alike, though one type known as Type G is sometimes a little slower than the type called R in starting growth from the inserted bud.

These two types were budded in 1941 on a clonal stock known as Spy 227. Both started growth normally in 1942, but by midsummer all the budlings of Type R were dead or dying, while those of Type G grew normally all summer. The varieties Stayman and Winesap, both on this stock, behaved much like Type R, Stayman budlings dying even earlier than Type R, while Winesap lived a little longer. It is remarkable that these two types, very similar and probably indistinguishable in all external characters, show such a striking difference in behavior when budded on this particular stock. The test is being repeated, including several additional types of McIntosh and varieties more or less related to the Winesap and Stayman.

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FRANZ BOAS, HIS PREDECESSORS AND HIS CONTEMPORARIES

IN her appreciation of Franz Boas (SCIENCE, 97: 2507, 60-62, 1943) Professor Benedict properly stresses the progressive shift in his anthropological interests and his unusual capacity for formulating problems so as to bring them nearer solution. However, two points in her article require further elucidation: one of them concerns Ratzel; the other, Boas's relations to predecessors and coevals.

So far as I can discover, Ratzel lectured at Munich and Leipzig, whereas Boas studied at Heidelberg, Bonn and Kiel. It is thus not clear how Ratzel can be called "his teacher." Incidentally, Ratzel was not nearly so intransigent an environmentalist as is commonly supposed.

Far more important is the second issue. We read: "He [Boas] found anthropology a collection of wild guesses and a happy hunting ground for the romantic lover of primitive things; he left it a discipline in which theories could be tested and in which he had delimited possibilities from impossibilities." Professor Benedict is of course entitled to her own reading of history. But unfortunately her statement might be mistaken for the general sentiment of a Boas.

"school" and accordingly—after discussion with Drs. A. L. Kroeber and Paul Radin, two other one-time students of Boas—I feel compelled to register my vehement, uncompromising dissent.

To take only two predecessors, E. B. Tylor emphatically did not indulge in wild guesses nor did he collect anthropological facts as a philatelist collects stamps; and Lewis H. Morgan, his misconceptions to the contrary notwithstanding, created absolutely new lines of fruitful inquiry in which the "romantic lover of primitive things" would be very unhappy indeed.

As for contemporaries, Boas highly esteemed such men as Karl von den Steinen, Eduard Hahn, Eduard Seler; and irrespective of divergences of opinion he

recognized the ability of Daniel G. Brinton and Wm. H. Holmes. The notion that he was a culture hero of the type featured by aboriginal folklore, a bringer of light out of total darkness, was intensely distasteful to him; he explicitly repudiated it in a letter to me (December 30, 1937). I have tried elsewhere to sketch Boas's unique services to science. They were sufficiently great not to require the belittlement of others, which must inevitably evoke legitimate resentment, ruffling national no less than personal sensibilities. *De mortuis nil nisi verum.*

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SCIENTIFIC BOOKS

PHYSICAL CHEMISTRY

Elementary Physical Chemistry. By MERLE RANDALL and LEONA ESTHER YOUNG. xiv + 455 pp. Berkeley, Calif.: Randall and Sons. 1942. \$4.50.

THE chief novelty of this text is the unusual arrangement of subject-matter. Early chapters deal with vaporization, distillation, solubility product, dissociation of electrolytes, hydrolysis and indicators. Gases are first discussed in detail in Chapter XIII; and as a matter of fact, from this point on the remaining material is presented in a more orthodox sequence. The purpose is "... to utilize the experiments performed by students in the elementary organic and quantitative laboratories as the basis of establishing the fundamental principles of modern thinking in this field."

The authorship guarantees a presentation with a strong thermodynamic bias, though this does not extend to a detailed discussion of the laws of thermodynamics. However, the language is the language of thermodynamics. The selection of material likewise betrays a preoccupation with thermodynamics or, more particularly, with the common equilibrium systems. Thus, such topics as atomic and molecular structure, crystal structure, colloidal systems and reaction mechanism receive only a legal minimum of attention.

Providing the remainder of the curriculum is closely attuned, this might be a very useful text. Helpful adjuncts are the numerous problems, tables and figures.

Experimental Physical Chemistry. By W. G. PALMER. xii + 321 pp. Cambridge, England: Cambridge University Press. 1941. \$2.75.

THIS laboratory manual follows accepted lines for the most part. Chapters are devoted to densities of gases and vapors, crystallization and the properties

of crystals, solutions and solubility, dilute solutions, thermochemistry, ionization, velocity of chemical reaction, surface chemistry. Optical instruments and their uses are not discussed.

Each experiment is preceded by a brief theoretical introduction. Detailed procedures are given, and there is usually a completely worked example. A point is made of the simplicity of the apparatus required. A number of the experiments are of a qualitative nature.

The text should be useful in an elementary course in physical chemistry, though it is not clearly superior to other texts on the market.

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ORGANIC CHEMISTRY

The Quadri-Service Manual of Organic Chemistry. By EDWARD DEGERING. 221 pp. Houghton Mifflin Company. 1942. \$2.50.

THE author has introduced a novel presentation of organic laboratory material and the scope of experiments included shows a definite shift from the traditional type of organic laboratory manual. The experiments are designed to cover the aliphatic and aromatic series and the planning is such that experiments may be chosen from both series for a one-semester course primarily for premedical students. The introduction of organic experiments on a semi-micro basis is a valuable contribution and will no doubt impress upon the student the importance of maintaining his laboratory techniques throughout his organic chemistry training. Objective type tests are included throughout the manual primarily as a method of review. However, the value of these tests for the beginning organic chemistry student is a debatable question. The reviewer feels that the objective type tests in organic chemistry can be a teaching aid only after the completion of the elementary course in or-