

**NEW BOOKS.**

**Chemical News, General Index, Volumes 1-100.**  $7\frac{1}{2}'' \times 10\frac{1}{4}''$ . Chemical News Office, 16 Newcastle Street, Farringdon Street, London, E. C. 712 pages. Price, \$9.50.

This general index covers the volumes of the Chemical News from its beginning in 1860 to 1909 inclusive. It is not merely a compilation of all of the volume indexes, but is much more elaborate. Every possessor of a set of the Chemical News, whether complete or partial, will do well to add this most valuable volume to his library.

It is rather unfortunate that the publishers did not stick to the regular size of the Chemical News, but made this volume half an inch taller.

D. D. BEROLZHEIMER.

**A Course in General Chemistry.** By WILLIAM MCPHERSON AND WILLIAM EDWARDS HENDERSON, Professors of Chemistry, Ohio State University. Ginn & Co., New York, 1913. 556 pp. Price, \$2.25.

This volume by the authors of the successful high school text will be examined with interest by college teachers of general chemistry. It presents a book that is the result of joint effort and experience and will meet the approval of those who believe in introducing modern ideas into the course while at the same time not sacrificing the older descriptive chemistry. There are many teachers who incline to making the elementary course simply a course in physical chemistry, much to the disgust of others who have little use for anything but what they consider the "facts" of descriptive chemistry. Out of the controversy we have had over these two points of view there seems to be emerging, as is usually the case under similar circumstances, a compromise that doubtless is more nearly the ideal method than either of the others. The volume we are considering has introduced modern theory without having sacrificed descriptive material. The aim seems to have been to present theory not as an added burden or as a substitute but as an aid. The authors have, moreover, not hesitated to use the atomic theory, as have some modern writers. It is about time for the excessive fear of this one theory displayed by many writers to abate. It is all very well for one to understand the provisional nature of a theory, but the beginner in chemistry may well be spared the extra difficulty of getting along without the atomic theory. Philosophic scepticism should not require a man to bore holes with a red-hot iron if he has an augur.

The arrangement of the material presents no greater novelties than the postponement of the halogens till the latter part of the book on account of the difficulties they present to the student both in manipulation and interpretation. There are separate chapters on gases, solutions, ionization, equilibrium, molecular weights, thermochemistry, etc.

There are few mistakes, although the following should perhaps be men-

tioned. Vacuum tube spectra, p. 112, are also emission spectra. The solubility curve for calcium chloride, p. 130, should be discontinuous. On p. 132 the words "do they" should be transposed. The hydrogen and hydroxyl ions have the wrong signs on pp. 151 and 154.

The treatment of equilibria might be improved in another edition. The mass law is applied quantitatively to strong electrolytes, and though the fact that it does not hold in such cases is mentioned, quantitative expressions of it are nevertheless written throughout the book, *e. g.*, pp. 198, 388. Since qualitative treatment is all that is desired by most teachers of elementary chemistry, would it not be simpler to base equilibrium, especially where strong electrolytes are involved, on the principle of LeChatelier rather than on an untrue equation? Moreover, the mass law is not always applied correctly, as on p. 389 for the dissociation of carbonic acid. Since the authors have no objection to the ionic theory one wonders why more consistent use is not made of it. For example, equations such as are found on pp. 181, 519 and 584, for the solution of copper in nitric acid, the oxidation and reduction of chromium and manganese compounds become much simpler if written in the ionic form, and the difficulties of the student in learning to write such equations are less if he is taught how to do it in that way. In considering the ionization of aluminium hydroxide as an acid, p. 443, it would be more in accord with the experimental facts to consider it as a monobasic acid, or at least to consider it as dissociating in steps.

The definition of a chemical compound on p. 9 on the basis of energy leaves a good deal to be desired. Ethyl acetate would be a very doubtful compound according to this criterion.

Would it not be better to introduce Avogadro's hypothesis along with the kinetic theory in the earlier part of the book, where it would be easily understood and simplify the treatment of gases? Is it necessary to postpone the idea of molecular weight till an entire chapter can be devoted to all the methods?

What is here said is more by way of suggestion than adverse criticism. The merits of the book as a whole are such as to secure its very serious consideration by teachers, and it is sure to be widely used. It is at once modern and conservative, and as it presents no particular hobby it will have few competitors for favor with those who do not wish to teach one.

JOEL H. HILDEBRAND.

**Handbuch der Mineralchemie** by Doelter, et al. Vol. II 2 (Bogen 11-20). THEODOR STEINKOPFF. Dresden and Leipzig. Price, M. 6.50.

This section of the book is chiefly devoted to the consideration of the natural forms of silica (except quartz which has been previously treated) and to the discussion of the opposing theories concerning the nature

of the silicic acids. The transitory condition of the subject is apparent from this conflicting material; yet, though the treatment does not make for unity, it is commendable in a book of this scope that the point of view of Tschermak and Van Bemmelen is each separately and fully presented, and the reader left to his own conclusion. E. T. ALLEN.

**Practical Physiological Chemistry.** By SYDNEY W. COLE, M.A. pp. 214. W. Heffer & Sons, Ltd., Cambridge, 1913. Price, 7/6 net.

It is almost impossible to write a satisfactory laboratory manual of physiological chemistry. If the subject is treated in logical sequence, laboratory convenience is sacrificed and experiments are sure to be described which cannot be carried out. On the other hand, a convenient laboratory treatment means more or less theoretical confusion. To say therefore that Cole's *Practical Physiological Chemistry* contains some useless matter and omits many things that might be expected even in an elementary laboratory guide, is not so much to the point; the book is as good as any and far superior to most of them.

Three introductory chapters deal quite well with the proteins, the carbohydrates and the fats and a very useful chapter is added in which some of the common foods are taken up. Then follow special chapters on special subjects, blood bile digestive ferments, etc., and an admirable condensed treatment of the urin ends the book.

The text of the manual is such as to stamp the writer with a serious enthusiasm which counts for so much in a text book writer, and the explanations are always in accord with the most modern research on the subject being treated. There is no doubt that a large percentage of the experiments described will give the result which is sought, as the descriptions are plainly taken from the authors own experience.

The short section on nucleoproteins and nucleohistons is far inferior to everything else in the book. Matters of no importance take up space that could easily have been used to better purposes; but as at several other points the text here has been a little injured to secure unnecessary completeness.

The reviewer decidedly approves this laboratory manual.

WALTER JONES.