under the referendum to restrict the activities of the health authorities with respect to the sanitary and hygienic control of the public schools. The foes of scientific medicine, among them those who even deny the existence of disease, procured the passage of an act in 1921 granting to parents the privilege of forbidding examination of their children in school by the health authorities. The public health forces of the state, recognizing the danger to public health inherent in this measure, have procured its submission to the people, and it will be voted on, November 7. The demand for this uncivilized legislation was presumably due to recognition, by the enemies of medical science, that medical mysticism and quackery can not thrive in a community enlightened with respect to modern medicine, and that the public schools constitute the great channel through which the people can be enlightened and future generations gain from the past. In fact, opposition to the rejection of this measure is an attempt to destroy one of the most effective methods of teaching facts concerning disease, namely, by their active application in school administration.

In California, members of two of the cults that now infest the medical underworld are fighting through the initiative to free themselves from control. The liberal and fair-minded provisions for licensing their practitioners do not satisfy them. Chiropractors have been defying the law, and, when convicted and sentenced, have gone to jail rather than pay fines, thus posing as martyrs. Apparently neither cult will be satisfied by any measure that does not allow it to pursue its own course at its own sweet will.

The medical profession must see that no ground is lost to the enemies of scientific medicine and particularly of preventive medicine. The debt of the physician to his patient and his community can not be discharged by proxy. Personal service, intelligently, energetically and loyally rendered, is absolutely essential to success, if the results of the contest are to be certain and complete. Every physician in each of the communities now laboring under the threat of this dangerous legislation should devote an hour or two each day between now and election to enlightening his patients and friends, to informing them as to what is right and to urging them to act on behalf of the right. Thus he will not only be doing his proper part as a true physician but also as a good citizen.—*Journal of the American Medical Association.*

SCIENTIFIC BOOKS

Applied Colloid Chemistry: General Theory. By WILDER D. BANCROFT, professor of physical chemistry at Cornell University. First edition (1921), International Chemical Series. H. P. Talbot, consulting editor. McGraw-Hill Book Company, Inc., New York.

In this volume Professor Bancroft professes to deal with the general theory of colloidal solutions in a new way; he says, "I have written this book deductively." By this one is led to understand that the author sets out to deal with general principles which later may be applied to the particular case involved in the study of colloidal solutions. One should not, then, object that colloidal solution is hardly mentioned in the first third of the book.

In carrying out his plan, the author devotes the first three chapters—or considerably more than one third of the book—to the treatment of the phenomena of absorption in all its phases. This subject is dealt with in the encyclopedic manner so frequently found in German texts, but the style is illuminated and made interesting by that piquancy of suggestion and comment which makes Professor Bancroft's lectures and papers especially attractive. Undoubtedly there is here a valuable summary of the present state of our knowledge of absorption; if any criticism is to be offered, it is that some of the matters dealt with, while important from the point of view of general absorption phenomena, seem to have very little application to the study of colloidal solutions: as, for example, the outlines of various commercial chemical operations at the end of the first chapter.

The fourth chapter is devoted to surface tension and the Brownian movement. After

the minute attention devoted to absorption it is a disappointment that such a meagre treatment is given of the general relations involved under the head of surface tension. This treatment is confined practically to dealing with the application of the Willard Gibbs surface concentration law to colloidal particles. One wonders why the Brownian movement phenomenon is attached to this chapter as there is given merely a sketchy account which would fit in better under the chapter dealing with "properties of colloidal solutions."

The remaining chapter (V) of the general theory is on "coalescence." This chapter appeals to one as ideal in its scope in that it fulfils the aim laid down by the author in his preface. General phenomena are adequately treated and the application to colloidal work is admirably clinched at its close.

Thus slightly more than one half of the book is devoted to a more or less general treatment of absorption, surface tension, Brownian movement and coalescence. The remainder deals with the preparation and peculiar properties of the following classes of colloidal solutions: (1) suspensoids (Ch. VI and VII); (2) emulsoids (Ch. VIII and IX); (3) non-aqueous colloidal solutions (Ch. X); (4) fog and smoke (Ch. XI); and (5) solid colloidal solutions (Ch. XII). The last chapter (XIII) contains a card catalog account of the thickness of films.

The chapter on the properties of colloidal solutions seems to be quite inadequate for a volume which professes to be a complete treatment of the general theory. While many interesting facts regarding these solutions are given, there is a lack of logical method and perspective in their arrangement. For example, a rather long and intrinsically interesting section is devoted to color phenomena; but the colloidal chemist will hardly admit that this particular property is as important as the electrical properties of these solutions or as the phenomenon of coagulation by electrolytes, each of which is given rather less space.

Perusal of the chapter on gelatinous precipitates and jellies justifies the author's statement in the preface that there is not much known about these materials. What is known is given in a very readable shape. More might have been given regarding the evidences of the existence of a structure in protein solutions as outlined by Professor Brailsford Robertson. It is interesting to have the criticism of a physical chemist on the recent work of Loeb, as given in this chapter.

The remainder of the book consists in general of an encyclopedic account of experimental facts regarding emulsions, foams, fog and smoke: regarding this phase of colloidal work there is known very little more than a series of interesting, but more or less detached, experiments, coupled with some very important commercial applications such as ore flotation and the Cottrell process. It is sometimes annoying to find the practical application of experimental facts so far in advance of our theoretical knowledge of their causes.

The book can be recommended as a mine of information on most of the subjects dealt with. However, from the point of view of an attempt to give a final treatment of the general theory of colloidal solutions it is rather disappointing. Such a general treatise demands not only the excellent treatment here given of absorption phenomena but just as ample treatment of such questions as (1) the relation of surface tension phenomena to small divisions of matter, (2) the Brownian movement of small particles, (3) the electrical charges of small suspended particles, electro-endosmose phenomena, and coagulation of electrolytes, and, say, (4) the physical properties of jellies. One would be justified in expecting in addition an attempt to account for the limiting size attained by these particles in suspension in any given case. In fact one can hardly say "the general theory of the subject once cleared up" with the conviction that such a desirable state of affairs is yet accomplished.

As is true with all the volumes of this series (International Chemical Series), the workmanship is excellent, the references very ample, and the appearance of the whole very attractive indeed. This particular volume will be read with interest and pleasure.

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