

who wish to make themselves acquainted with mathematical methods in a limited time. The importance of mathematics for all branches of natural science will certainly increase the more our knowledge progresses and increases in complexity, because it becomes more and more difficult to draw conclusions by non-mathematical reasoning. A book of such character as the one described can certainly therefore claim to be of great importance.

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*Chloride of Lime in Sanitation.* By ALBERT H. HOOKER. First Edition. New York, John Wiley & Sons. 1913.

One of the most striking developments in the art of water purification during recent years has been the rapid increase in the use of chloride of lime as a disinfectant. It has been found that astonishing results may be obtained by the use of surprisingly small quantities of this substance. In clear water, such as that of the Great Lakes, the application of eight to ten pounds of this chemical to a million gallons of water is sufficient to destroy practically all of the bacteria. Larger amounts are required for waters which contain organic matter, in some instances nearly one hundred pounds per million gallons being used. Bleaching powder is also being used to some extent in the disinfection of sewage. Here, also, it has an important field of usefulness.

The rapidity with which the use of this substance has come into popular favor is indicated by the publication of the present work devoted exclusively to the use of chloride of lime in sanitation, and consisting chiefly of abstracts of articles published in various scientific journals. Four hundred of these articles are quoted and the essential points of each briefly stated. The author deserves credit for having brought these various papers together. It would be a tedious matter for any one interested in this topic to obtain so much information by his own search. Looking for omissions the reviewer finds that the compilation has been unusually well made.

The abstracts are prefaced with an interesting discussion of the general subject by the author, who gives first a history of the manufacture of chloride of lime and then an account of the method of its use in water purification and for other purposes of general disinfection. In this he is somewhat inclined to minimize the advantages of the use of liquid chlorine. He regards the action of bleaching powder as one of oxidation and does not believe that chlorine acts by itself as a disinfectant in any other way than by liberating nascent oxygen. Some may be inclined to question this. One of the most valuable sections of the book is that which gives directions for dissolving bleaching powder for its practical application. Comparatively little is said in regard to the corrosion of metals by the use of this chemical.

The book is well indexed and will prove an invaluable reference book to sanitary engineers.

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*The Plant Alkaloids.* By THOMAS ANDERSON HENRY, Superintendent of Laboratories. Scientific and Technical Department, Imperial Institute. Philadelphia, P. Blakiston's Son & Co. 1913.

So long as there is a science of botany, phytochemistry will constitute a perfectly justifiable phase of chemical thought and of chemical investigation. Though for a time, after Kekulé's enunciation of structural chemistry, phytochemistry was looked upon as being not fully up to date as compared with organic synthesis, it is again coming to its own. Since Emil Fischer has pointed out that some of the most interesting problems of organic chemistry are those that are intimately related to biochemistry, phytochemistry has once more become a respectable science even in the eyes of the synthetic chemist.

The present activity in this field is manifested not only by innumerable special researches, but by the rapid growth of book literature. Thus Czapek's "*Biochemie der Pflanzen*," Euler's "*Grundlagen und Ergebnisse der Pflanzenchemie*," and Wehmer's "*Pflanzenstoffe*," which have appeared within a short