

melts at 183° , and ergosterol found in ergot melts at 154° . However, anthesterol, a closely related alcohol found in *Anthemis nobilis*, melts at $221-3^{\circ}$ and arnesterol found in *Arnica montana* melts at $249-50^{\circ}$.

The cholesterol substance obtained from the soil does not correspond in melting point with any substance of this group so far described. For this compound, isolated from a soil, having the chemical properties and general appearance of substances of the cholesterol group, but differing in melting point from any of the members of this group so far described, the generic name *agrosterol* is suggested in harmony with the nomenclature of this group.

With regard to the origin of this compound in the soil at least two possibilities present themselves: It will be seen that several members of the cholesterol group are so far as known found only in single species of plants. It may be that *agrosterol* is characteristic of some plant grown on this soil and that on the decay of plants of this species it has survived the action of enzymes, fungi and bacteria and remained in the soil as an unchanged plant residue. Since, however, the presence of a substance of this group is shown by Liebermann's reaction above-mentioned in several soils from widely separated localities with different native vegetation and cropping, it would seem that this suggestion has not much weight. To make this conclusive it would be necessary to show that the substances from different soils giving Liebermann's reaction are really identical, since the reaction is only a class reaction and not specific for *agrosterol* or any other member of the cholesterol group.

On the other hand it is within the range of possibility that *agrosterol* may be formed from some other substance through the agency of micro-organisms or chemical oxidation. The fact that Lifschütz¹ has shown that a cholesterol substance can be formed by the oxidation of oleic acid emphasizes this possibility. The fact that paracholesterol mentioned above is found in slime molds further supports the suggestion that *agrosterol* may be formed by micro-organisms. *Agrosterol* is very little soluble in water and saturated solutions of it had no effect on wheat seedlings.

BUREAU OF SOILS, U. S. DEPARTMENT OF AGRICULTURE
WASHINGTON, D. C.

NEW BOOKS.

Synthetic Inorganic Chemistry. A Laboratory Course for First-year College Students.

By ARTHUR A. BLANCHARD, PH.D. New York: Wiley and Sons. 1908. Pages viii + 89. Price, \$1.00.

The object of this book is clearly stated in the preface: "During the first term's study of chemistry there can be little doubt that a course of

¹ *Z. physiol. Chem.*, **55**, 1 (1908).

simple experiments such as has long been in use, in the methods of formation and in the study of the properties of the non-metallic elements, oxygen, hydrogen, the halogens, sulphur, nitrogen and carbon and their compounds, is the most satisfactory. But when it comes to the study of the metallic elements three options as to laboratory work present themselves: First, a continuation of experiments similar in nature to those of the first term; second, qualitative analysis; third, preparation work."

The author believes the third option gives the most satisfactory results and has written the book as a text for students pursuing this line of work. It contains directions for preparing thirty-seven compounds, wisely chosen from among the different groups of the metals with a view of illustrating not only the properties of the various metallic compounds but also the different types of chemical changes. After each preparation a number of questions are asked which require consultation of text books and independent thought.

The book is an admirable one for the purposes for which it was intended. There is no doubt but that the students pursuing the course as mapped out would have an excellent foundation for the analytical work which naturally follows it.

WILLIAM MCPHERSON.

The Air and Ventilation of Subways. By GEORGE A. SOPER, PH.D. New York: John Wiley and Sons. London: Chapman and Hall, Limited. 1908. ix + 244 pp., 43 figures. Cloth. Price, \$2.50, (10/6 net).

The scope and bearings of this book are somewhat broader than is indicated by the title. While primarily giving the results of investigations carried out in connection with the New York subway, Dr. Soper has presented much in this little volume which will be of service to those interested in the problems connected with air in confined spaces. While the book is sufficiently non-technical to be readily understood by the average reader, methods of ventilation of subways and for the chemical and bacteriological examination of air as regards its fitness for respiration are given in sufficient detail to be of service. The book is well printed and bound and constitutes a valuable addition to the literature of a subject of increasing importance in municipal hygiene.

S. R. BENEDICT.

The Design and Equipment of Small Chemical Laboratories. RICHARD K. MEADE, B.S., Editor of the Chemical Engineer. The Chemical Engineer Publishing Co., Chicago, Ill. pp. 136. Price, \$2.00.

Often the young chemist "is called upon to design and equip a laboratory when his knowledge of how it is to be done is rather meagre." The book will prove to be useful not alone to this class of chemists, but to many teachers in small colleges and schools, where opportunities for extensive reading, travel and study of other laboratories are not often presented. The value of the book is enhanced by including the names and