cause of the lack of necessaries of life, although his scholars, with touching zeal, bring everything they are able to secure.

Professor Andrussov and the Academician Vernadsky were fortunate enough to make their way to South Russia, and it is stated that the latter seems to be in good circumstances, as he has founded a new academy of sciences in Kiev, and also a new university in Simferopol. About ten of these scientists fled across the frontier, and escaped to Finland or Poland, or even to America or Japan, and perhaps as many more are scattered through Siberia. From fifteen to twenty are probably in the Russian provinces, but only about ten are managing to exist in Petrograd.

The famous mineralogist Fedorov, whose death from hunger we have noted, was the first to proclaim, at a meeting in St. Petersburg, in 1889, the great advantages that would result from the application of the principle of the theodolite to goniometrical researches. Four years later, in 1893, he published his classic work, "The theodolite method in mineralogy and petrography." [2]

G. F. K. AND E. T. W.

SCIENTIFIC BOOKS

The Coccidæ. Tables for the Identification of the Sub-families and Some of the More Important Genera and Species, together with Discussions of their Anatomy and Life History. By ALEX. D. MACGILLIVRAY. Scarab Company, Urbana, Ill., 1921. Pp. viii + 502. $6.00.

Entomologists who have been acquainted with Dr. MacGillivray's thoroughgoing studies of the scale-insects have long awaited the appearance of this volume. The material was originally collected for the use of students in the identification of Coccids. Prepared in its first draft about fifteen years ago, it has been greatly extended, modified and revised as it was being tested out in laboratory and class work.

[2] W. W. Nikitin, "La Méthode universelle de Fedorov," French transl. by Louis Duparc and Véra de Dervies, 2 vols. Geneva, Paris and Liège, 1914, Vol. I., p. 6.

In no group of insects of equal importance is so much reliance in systematic work placed upon minute structural details. Many a would-be student of the group has been deterred by difficulties of preparation of material and by lack of a comprehensive discussion, in English, of the morphology. To such the volume will prove a veritable boon.

A chapter is devoted to details of technique. In this are considered necessary equipment, tools, clarifying and the various stages in the making of permanent preparations. This is followed by a chapter on the external anatomy of the Coccidæ. The "great number of species and the dearth of usable characters, because of the simplification of their external form and structure, makes it necessary to employ every available structure." In spite of the lack of illustrations, the discussion and definition of these structures is clear-cut.

Figures were omitted for pedagogical reasons.

> The tables were prepared primarily for the use of students. Those who have had any experience in teaching know that most students will not undertake anything they are not forced to do. The omission of figures makes it necessary for them to study their specimens rather than figures.

The autnor's detailed studies on the phylogeny of the different subfamilies, genera and species have led him to the establishment of a considerable number of new genera, which are here defined for the first time. The group as a whole he divides into seventeen subfamilies, which have been treated in an ascending order. A tabular arrangement indicates what the author believes to be the relation of these subfamilies, and the scientific and vernacular names that have been applied to them.

Dr. MacGillivray has done a real service in making the materials of his course available to a wider audience. The book will prove indispensable to future students of the Coccidæ.

WM. A. RILEY

The Soils and Agriculture of the Southern States. By HUGH HAMMOND BENNETT, of

the Bureau of Soils, United States Department of Agriculture. The Macmillan Company, New York. 1920. Pp. xviii + 399. Illustrations: 56 plates, general soil map of the Southern States (frontispiece), and four additional maps.

This book departs from the usual trend of books on soils in that instead of dealing with the properties and nature of soils in general the author describes the origin, geographic distribution, physical characteristics, agricultural adaptations and management of all the important soils occuring in the area under discussion. The states included in the work are those lying south of the north boundaries of Delaware, Maryland and West Virginia, south of the Ohio River, and south and east of and including Missouri, Kansas and Texas.

In the introduction the author explains the division of the country under consideration into soil provinces and subordinate soil regions, and describes the United States Bureau of Soils system of classification and nomenclature of soil series and types. The introduction further takes up the geographical distribution and in general the adaptation to different soils of the various crops grown in the South; and the influence of climate on soils and crops.

The general geography, topography, geology and agriculture of each soil province and its subordinate soil regions are discussed, followed by detailed descriptions of the individual soils. These descriptions include the location, physical and frequently chemical characteristics, topography, drainage and crop adaptation of each soil, and methods of soil management and fertilization which actual farm practise and experimentation have proven to be most effective.

Four appendixes include discussions of the meanings of terms used in soil classification, chemical analyses of representative southern soils, a bibliography of important publications on soils and related subjects, and statistics bearing on some of the important farm products of the southern states.

The book is valuable not only to students and agricultural investigators but also to farmers and especially to those contemplating settling in the south.

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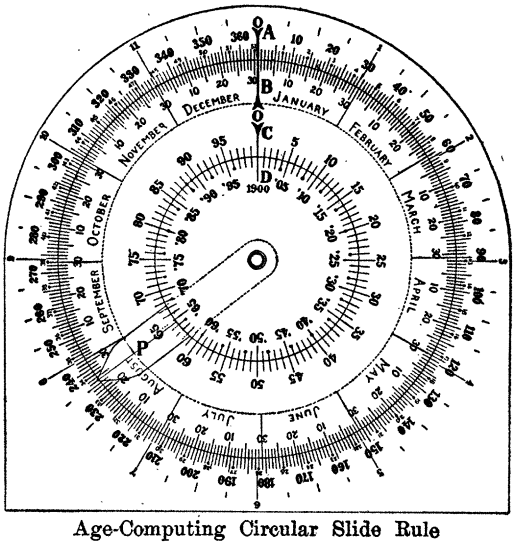
SPECIAL ARTICLES

AN AGE-COMPUTING DEVICE

1. In a recent issue of Science (1920, No. 1336, pp. 134–135), Dr. Slonaker describes a device for the simultaneous determination of the ages of two individuals at different times in their lives, involving the use of a calendar in which the days are numbered consecutively throughout the year. The present device obviates the need of the calendar and the need for resetting for dates in different years. As used with reference to human beings, two accessory scales aid in determining in years the age of an individual at different episodes in his life, when his present age and the years in which the episodes occurred are known, and vice versa.



Age-Computing Circular Slide Rule

2. A small disk 2 inches in diameter, a larger disk 3½ inches in diameter, and a 4¼-inch square are cut from a sheet of opaque white celluloid and, with thin washers intervening, are pivoted at their centers on an eyelet. The square is cut further to present a semi-circular border from one end of the transverse diameter to the other. An adjust-