convert it into "meadow land." It was here that the buffalo last lingered in Kentucky, a few of them having been seen here as late as 1818.

With the settlement of the country and the extermination of the large wild game, the trees, which still lingered along the major streams, and possibly, also, on the tops of the sandstone knobs which are scattered over the region, began in their turn to reclaim the ground from which they had been driven, until now it is so well wooded that a person traversing the region who was unacquainted with its history would naturally conclude that each farm he sees is but the expansion of a clearing won from virgin forest by the axe of the sturdy pioneer, as elsewhere in Kentucky and Tennessee.

ARTHUR M. MILLER

ASHEVILLE, NORTH CAROLINA

SCIENTIFIC BOOKS

Bodenablagerungen und Entwicklungstypen der Seen. By G. LUNDQVIST. Bd. II of Thienemann's Die Binnengewässer, 1927, 124 pp. 14 pl. Published by E. Schweizerbart'sche Verlagsbuchhandlung, Stuttgart.

FOR a number of years Swedish investigators have been studying the bottom deposits of lakes in southern Sweden and much interesting and valuable information has been obtained in these studies. The present volume deals primarily with these investigations. The first part treats of the methods of obtaining samples, including descriptions and figures of the apparatus, with the chemical and microscopical methods of studying the material, and with the system of representing the results by diagrams.

These lacustrine sediments are deposited in thin strata and the annual deposit of pollen makes it possible to trace the history of the beds; in this way it has been ascertained that the period of time covered by them ranges from a few hundred years in some instances to a few thousand years in others.

The relative proportions of the component materials serve to characterize the different types of sediments and a key for their identification is given, together with a series of thirteen microphotographs illustrating them.

The sediments are deposited in the form of beds and there is usually a succession of these beds whose sequence is dependent upon the solubility of the chief constituent of the deposit. In some instances the deposits seem to be homogeneous throughout, but through age determinations and by microfossil analyses it can be readily shown that they consist of a series of beds. Several types of bed sequences are shown by means of diagrams. In addition to chemical and biological factors, the character of the beds is affected by certain dynamic factors, such as wind, currents and exposure to wave-action. The final section deals with the regional distribution of lake types in southern Sweden. A bibliography of sixty-nine titles is given.

Die Tierwelt der Unterirdischen Gewässer. By P. A. CHAPPUIS. Bd. III of Thienemann's Die Binnengewässer, 1927, 175 pp. 70 figs.

This volume deals with the animal population of subterranean waters, such as are found in springs and caves. There are three chief sections which consist of (1) general, (2) faunistic, and (3) biological parts. The general part treats of methods of collecting the fauna, the character of subterranean waters and the characteristic environmental conditions existing therein. The subterranean fauna is divided into three ecological groups, namely, (a) Troglobionte, (b) troglophile, and (c) troglozene forms.

The second part consists of a list of the fauna of subterranean waters together with notes regarding the various forms and their geographical distribution. Mollusca and crustacea furnish the largest variety of forms.

The third part, consisting of fifty pages, treats the morphological adaptations of this fauna and the influence of subterranean life on the various organisms; the effect on the eyes and other sense organs, on the color, size and breeding habits are discussed, together with the origin and age of this fauna and the effect of the glacial period upon it. The bibliography includes 194 titles.

C. JUDAY

MADISON, WISCONSIN

SCIENTIFIC APPARATUS AND LABORATORY METHODS

THE SPIRALS WITHIN THE TERMITE GUT FOR CLASS USE

INSTRUCTORS in bacteriology often realize that it is not easy on many occasions to find a satisfactory source of spiral-shaped microorganisms for class use. The proper varieties of bivalves are not always available and when one has a sufficient number of these at hand, one can not be certain that one will find satisfactory spiral material within them. Many also have made it a habit to look over students in an endeavor to find a marginal gingivitis since this condition yields most beautiful fields for direct smear or for the dark field. Young people, however, show this disease in rather limited numbers.

One of us (S. F. L.) while making a study of the