

guides to biological literature. One could wish to have as an appendix to the lecture a list, with full bibliographical details, of the publications treated, showing especially the connection and succession of the numerous German *Jahresberichte* and *Anzeiger*. As it is, however, the lecture makes not only an admirable introduction to biological bibliography, but also very interesting reading. The bulk of the lecture is devoted to the bibliographical publications in question, which are divided into four classes: (1) Standard bibliographies; (3) Incidental bibliographies; (3: a.) Current bibliographies appearing annually; (3: b.) Current bibliographies appearing at intervals of less than a year. As an introduction Professor Minot gives an interesting account of his own methods of dealing bibliographically with his literary material and with his library. In connection herewith he also gives some few rules for dealing with a scientific subject from the point of view of the bibliographer, emphasizing that the *title* of an article 'should be as brief as possible and nevertheless indicate the contents;' that a *table of contents* should be used in longer articles, say of 40 to 100 pages; that *reprints* should have the paging of the original publications; and that *references to other authorities* should be carefully arranged.

AKSEL G. S. JOSEPHSON.

THE JOHN CRERAR LIBRARY, CHICAGO.

Indiana—A Century of Changes in the Aspects of Nature. A. W. BUTLER. President's Address. From Proceedings Indiana Academy of Sciences, No. V., 1895.

This pamphlet of a dozen pages gives an interesting account of the changes in the natural conditions in Indiana, brought about by the advent of the white man, the passing away of the virgin forests, the destruction of the herds of buffaloes, the elk, the flocks of wild turkeys, the pigeons and many more.

In the valleys of the Wabash and Whitewater there were magnificent forests of deciduous trees, which probably could not be surpassed anywhere in America. Forty-two trees in the Wabash valley attained a height above one hundred feet, the tallest recorded being a tulip poplar (*Liriodendron tulipifera* L.), 190 feet high.

The bison or buffaloes had well marked roadways in some of the river valleys, along which countless thousands passed annually, chiefly on their journey to and from the Big Bone Lick, in Kentucky. Elk and deer were common, bear and wolves quite abundant, beaver were found in many localities, while the wild cat Canada porcupine and panther were numerous. Wild turkeys and pigeons and the beautiful little Carolina paroquets were more than abundant, but have been almost, or in a great measure, exterminated. The hog assisted in the killing of the rattlesnakes and copperheads.

Thus, with the aid of the gun, of fire and the axe, was the land, all things being considered, speedily made ready for the plow, and a new life of sparrows, of little snakes, humble bees and grasshoppers took possession of the fields. More than half of humanity will declare that the destruction was unavoidable and even commendable, but we trace a spirit of regret running through all of Mr. Butler's admirable address, and this speaks for the rest of mankind, who would fain have saved a tract of virgin forest where they might resort to contemplate some of the wonders of the world.

W. T. DAVIS.

NEW BOOKS.

System der Bakterien. W. MIGULA. Jena, Gustav Fischer. 1897. Pp. viii + 368 and 6 plates.

Citizen Bird. MABEL OSGOOD WRIGHT and ELLIOTT COUES. New York and London, The Macmillan Company. 1897. Pp. xiv + 419. \$1.50.

Some Unrecognized Laws of Nature. IGNATIUS SINGER and LEWIS H. BERENS. New York, D. Appleton & Co. 1897. Pp. xvi + 511. \$2.50.

Les huiles Minérales. FRANÇOIS MIRON. Paris, Gauthier-Villars et fils. Pp. 194.

Bulletin de la Société Belge de Géologie de Paléontologie et Hydrologie. ANNÉE. 1895. Vols. IX and X. Brussels, Polleunis et Centerick. 1895, '96, '97.

The University Geological Survey of Kansas. ERASMUS HAWORTH. Topeka. 1897. Vol. II. Pp. 318.