

BOOKS RECEIVED.

A GENERAL DESCRIPTION OF THE STATE OF INDIANA, extracted from the First Annual Report of the Bureau of Statistics and Geology for 1879, re-published by authority of his excellency, James D. Williams, Governor.

This is a small pamphlet of 16 pages, containing information of an industrial rather than of scientific character. A map of Indiana is given, the typographical imperfections of which render it a useless addition.

THE SCIENTIFIC ENGLISH READER. *Englisches Naturwissenschaftlich-Technisches Lesebuch für höhere technische lehranstalten und zum selbststudium für studierende, lehrer, techniker, industrielle.* Mit sprachlichen und sachlichen erläuterungen. Von Dr. F. J. Wershoven: I. Theil—Physik, Chemie, Chemische Technologie, by F. A. Brockhaus, Leipzig, 1881.

This work is intended to place before the German student specimens of the best literary productions of English scientists. The present volume, treating of Physics and Chemistry, gives selections from the works of Lardner, Maxwell, Roscoe, Lockyer, Wilson, Smiles, Grover, Ure, and others who have treated on technical subjects within range of the present work.

To aid those who desire to make translations from this book to the German language, an appendix of German equivalents of English technical words has been given at the end of the work.

Dr. Wershoven's work will also be useful to the English student, "who desires readings in Science." The selections are made with good judgment, and they will be read with profit by those who desire a general idea of English scientific literature, carried well up to date.

THE STUDENT.—A Monthly Journal devoted to the interests of Education.—Haverford College, Montgomery County, Pa., \$1 per annum, 10 cents single number.

The number of periodicals devoted to education is increasing rapidly. "The Student," published by Haverford College, and edited by Professor Isaac Sharpless and Professor Watson W. Dewees, appears to advocate a return to what the editors term old-fashioned studies—classics and mathematics—believing they have made many a sturdy man in the past, and that their influence is as potent for the future as ever. A strictly practical education, meaning such an one as can be directly used in business, the editors consider extremely limited and fruitless of disciplinary value.

If Professor Sharpless has no faith in a "practical education," he appears to believe in making "The Student" a practical educational journal, and we are agreeably surprised to find the subject handled in such an attractive manner.

GRIFFEN'S CHART OF ANIMAL CLASSIFICATION—adapted to Steele's Zoology. BY A. B. GRIFFEN, 641 Broad street, Newark, N. J. Price, 15 cents.

This Chart shows, in an admirable manner, the relations of the various divisions of the Animal Kingdom. The six great sub-kingdoms, Vertebrata, Articulata, Mollusca, Echinodermata, Coelenterata, are represented as the trunks of as many "Zoological trees," whose branches and twigs are the Classes, Orders, Families, etc. It is of quarto size, and so arranged that it may be folded conveniently and without injury. As a systematic synopsis for convenience of reference we heartily recommend it to the students of Zoology.

CHEMICAL NOTES.

CHARACTERISTIC DISTINCTIONS BETWEEN HUMAN BLOOD AND THAT OF OTHER ANIMALS.—Dr. Vincenzo Peset y Cervera has found that on mixing the blood of different animals with a little bile there are formed in the mass, crystals not exceeding 0.003 metre in size. These crystals may be distinguished thus:—Those of man are right rectangular prisms; those of the horse, cubes; of the ox, rhombohedrons; of the sheep, rhombohedral tablets; those of the dog, rectangular prisms; those of the rabbit, tetrahedrons; of the squirrel, hexagonal tables; of the mouse, octahedrons; of common poultry, cubes modified at their angles, &c.

ON SOME CAUSES WHICH HINDER OR FACILITATE THE PRECIPITATION OF MANGANESE HYDRATE BY AMMONIA.—Giulio Puliti finds that the precipitation of manganese from its solution by means of ammonia may be partially or totally hindered by sal-ammoniac. Heat renders the sal-ammoniac more efficacious. In hot liquids the precipitation of manganese may be completely prevented if the metal meets with this reagent in the proportion of 1 : 150. He also finds that iron, aluminium, and chromium facilitate the precipitation of manganese.

BEHAVIOR OF CARBONIC ACID WITH NESSLER'S REAGENT AND AMMONIA.—A solution of acid ammonium carbonate or a dilute solution of sal-ammoniac mixed with water containing carbonic acid or with sodium bicarbonate, if mixed drop by drop with Nessler's reagent gives a yellow precipitate, which disappears on agitation without imparting the slightest coloration to the liquid. Not until the free carbonic acid has been saturated by the addition of caustic potassa or of an excess of the reagent, is a permanent yellow coloration produced.—Th. Salzer. *Bul. de la Soc. Chim.*

PERFORATION OF ZINC CISTERNS AND CORROSION OF LEAD PIPES BY WATER.—X. Rocques has observed that the plates of zinc cisterns are corroded, not uniformly, but in certain well-defined places. The cause of this inequality is the electric current, which is set up between the purer portions of the metal and those more alloyed. Zinc, lead, and copper are attacked very slowly by ordinary water and by saline solutions in general (chlorides, bicarbonates). The corrosion is more rapid if there are several metals in contact. The presence of nitrogenous matters and ammonia accelerates the action, especially in case of zinc. The phenomena display their greatest activity in presence of oxygen. This is the case at the surface where the metal is alternately in contact with water and air. The deposits formed are chiefly silicates and carbonates of lead, zinc and copper.

DETECTION OF PICRIC ACID IN BEER.—Dr. H. Fleck evaporates 500 c.c. of the beer to a syrup, mixes with ten times its volume of absolute alcohol, filters off the precipitate, washing it as well as possible, and evaporating the alcoholic filtrate to dryness. The residue is extracted with water at the boiling point as often as the liquid becomes colored, evaporates to dryness, and extracts the residue with ether. The ethereal extract contains the picric acid almost pure.

DETERMINATION OF THEINE IN AEA.—Fifteen grms. tea are repeatedly extracted with boiling water till completely exhausted; the liquid is filtered, evaporated to the consistency of an extract, mixed with 2 grms. calcined magnesia and 5 grms. powdered glass and completely dried.

USE OF BROMINE IN THE ANALYSIS OF SULPHIDES.—Bromine oxidizes sulphur and sulphides very rapidly. Iron pyrites require to be very finely pulverized and a prolonged action is required. Copper pyrites are dissolved very rapidly if an excess of bromine is used, which is easily expelled by a gentle heat. The sample is placed in a small flask, covered with a little water, and the bromine is added. A gentle heat is sometimes necessary towards the end. One part of sulphur requires about 15 parts of bromine. Bromine water is especially adapted for destroying sulphuretted hydrogen and dissolving recently precipitated sulphides.—E. Reichardt.