satisfactory, and convenient to use. It is certainly worthy of a cordial reception by all who are interested in the progress of astronomy, and the editor should receive that cooperation which he solicits for future volumes by bringing to his notice all published articles which come properly within the scope of the work.

GEORGE C. COMSTOCK.

Les plantes tinctoriales et leurs principes colorants. By V. THOMAS (Chef des travaux de chimie appliquée à la Faculté des Sciences de Paris). Une publication de l'Encyclopédie Scientifique des Aide-Mémoire. Publiée par Gauthier-Villars, Paris, sous la direction de M. Léauté (Membre de l'Institut). Pp. 196.

The author divides the study of tinctorial plants as follows:

1. The coloring matters themselves.

2. The glucosides; the form of combination in which coloring matters exist most frequently in plants.

3. The ferments capable of decomposing these glucosides into sugars and the coloring matter.

4. The tinctorial plants themselves, from the point of view of the coloring principles which they contain.

In a previous volume in this same series, 'Matières colorantes naturelles,' the author has already discussed those natural coloring principles which belong to the keton, xanthon, and pheno-γ-pyron groups.

Part I. (pp. 7–142), therefore, of the present volume, treats of the remaining important plant-coloring principles, arranged in the following chapters:

Chapter 1. Colors of the anthraquinon group; alizarin, xanthopurpurin, munjistin, rubiadin, chrysazin and chrysammic acid, purpurin, pseudopurpurin, alkannin, morindon and ventilagin.

Chapter 2. Brasilin and brasilein; including isobrasilein, and derivatives of brasilin and dehydrobrasilin, together with a review of the work done by Perkin, Kostanecki, Herzig and others, to establish the constitutional formula of brasilin.

Chapter 3. Hæmatoxylin and hæmatein; also isohæmatein and derivatives of dehydrohæmatoxylin.

Chapter 4. Miscellaneous coloring matters, as follows: cyanomaclurin, genistein, gossypetin, rottlerin, flemingin, orcein, santalin, carthamin, lokanic acid, crocetin, curcurmin, lapachol, lomatiol, and bixin.

A brief history of every color is given, then the most interesting and important methods for obtaining it, together with its most characteristic physical and chemical properties and a discussion of its structural formula. The tinctorial properties are dealt with briefly, tables being freely employed to show change of color with change of mordant, effect of various substituting groups upon the color, comparison of shades obtained from the natural colors with those obtained from the same colors prepared synthetically, etc.

Part II. (pp. 143–180), Glucosides. Includes the consideration of the following: ruberythic acid, glucosides of quercetin and its derivatives, apiin, vitexin, morindin, datiscin, crocin, fustin, lokaonic acid.

Then follows a list of the principal tinctorial plants, arranged alphabetically according to their botanical names, and showing the coloring matters which they contain; also an alphabetical table of the coloring principles themselves, giving their melting points and the references to the text where the same are described in detail.

The references to the literature form a commendable feature of the work, thus affording ready access to the original articles.

Upon the whole, the book gives a very good digest of the work in this field and should prove of value to the chemist.

MARSTON TAYLOR BOGERT.

Mosquitoes: How they live; how they carry disease; how they are classified; how they may be destroyed. By L. O. HOWARD, PH.D. New York, McClure, Phillips & Co. 1901.

One of the triumphs of the combined labors of modern biologists and students of medicine is the discovery of the animal parasite of malaria and of the fact that the parasite of yellow fever, whether it be an animal or a bacterium, is, like the malarial one, transmitted by the mosquito.

Already has the number of workers become numerous, and the literature extensive, while the probability that man will be able to cope with these two dreadful scourges of his race, and at least greatly curtail their ravages is very great. We need, then, the fullest knowledge of the structure, habits and transformation of mosquitoes, particularly of the genus *Anopheles*, the bearer and transmitter of these diseases, and of the nature and life-history of the parasitic organisms which cause these diseases.

As regards the mosquito Dr. Howard has given us a capital book. It is both popular and entertaining, and yet truly careful and scientific in its scope and treatment. The physician cannot do without it. As for the entomologist, we venture to say that nowhere will he find a more fresh and up-to-date account of the mosquito. He will look elsewhere in vain for the many details which have recently been discovered by Dr. Howard and other American and European observers.

The figures of the different forms, particularly of the malaria-bearer, *Anopheles*, are new and very carefully drawn; the larval and pupal forms are rendered with great apparent accuracy. Of the greatest interest is the new matter relating to the subject of parthenogenesis among mosquitoes, the food and mode of getting it by the mosquito larvæ, and the food of the adult. The latter subject is treated with a fulness of new details which is most satisfactory. It is some comfort to learn that mankind does not form the sole pasturage of the female mosquitoes, but that they will sting terrapins and puncture the head of young fish, besides sucking the blood of birds. We had previously only known of Dr. Hagen's observation of a mosquito feeding on the chrysalis of a butterfly. We also are told that mosquitoes are plant-feeders, apparently piercing the flowers of the wild cherry, and feeding readily on fruit, especially bananas; and that the male mosquito is exclusively vegetarian in its diet.

The life-history and œcology of the malarial mosquito, *Anopheles*, is very well done. First we have a full and well-illustrated account of the common *Culex pungens*, with which may be compared, thanks to the abundant and well-drawn figures, the life-history and structure of the pestiferous *Anopheles*. The egg, the larva of different ages, with anatomical details, the pupa, as well as the fly, male and female, are represented, and there is added an account of the North American species. The food of the larva seems to be the spores of algæ, and in Sierra Leone a unicellular protococcus. How *Anopheles* bites and its length of life are also described.

The chapter on mosquitoes and yellow fever; mosquitoes and filiariasis; the account of the mosquito (*Stegemyia fasciata*) which conveys the infection, with figures of the winged insect, its scales, larva and pupa, are of much value. It is refreshing to read of the immense inroads made by fishes upon the larvæ, by dragon flies and by birds, six hundred mosquitoes having been found in the crop of a single night hawk, but it will afford the reader still more satisfaction to know how easily these dangerous pests can be exterminated by the use of so simple a remedy as petroleum. On the last subject the book is strong.

A. S. PACKARD.

SOCIETIES AND ACADEMIES.

THE AMERICAN CHEMICAL SOCIETY.

THE following is a list of the papers thus far offered for the joint meeting of the American Chemical Society and Section C of the A. A. A. S. to be held in Denver during the last week in August:

1. 'Solid Hydrocarbons of the Series C_nH_{2n+2} and Liquid Hydrocarbons of the Series C_2H_{2n} in the Less Volatile Portions of Pennsylvania Petroleum' (by title): CHARLES F. MABERY.

2. 'Specific Heats and Heats of Volatilization of Hydrocarbons of the Series C_nH_{2n+2}, C_nH_{2n}, and C_nH_{2n-4}, in Pennsylvania, Texas, California and Japanese Petroleums' (by title): CHARLES F. MABERY.

3. 'Composition of Commercial Paraffine, Vaseline, and Solid and Pasty Mixtures of Hydrocarbons, collected in Oil Wells' (by title): CHARLES F. MABERY.

4. 'Composition and Properties of Asphalts from Different Petroleums' (by title): CHARLES F. MABERY.

5. 'Analysis of a Few Southwestern Coals' (10 min.): HERMAN POOLE.