

THE COTTON PLANT.—ITS HISTORY, BOTANY, CHEMISTRY, CULTURE, ENEMIES, AND USES. Washington: Government Printing Office, 1896. 433 pp.

This is the title of Bulletin No. 33, issued by the Office of Experiment Stations of the Department of Agriculture. To all persons who are seeking for convenient and compendious information on this important plant, this bulletin will be of the greatest value. The parts which chiefly concern the readers of the Journal are the articles on the Chemistry of Cotton, prepared by J. B. McBryde and W. H. Beal, and the feeding experiments, by B. W. Kilgore. With commendable industry and research the compilers have brought together in convenient form for reference the analytical data scattered through journals and other sources, as a rule quite inaccessible to chemists at a distance from large libraries. The collated analyses treat of the entire plant, the roots, stems, leaves, bolls, lint, seed, hulls, oil, and seed cakes. The mean composition of the entire plant, of all its various parts, and of the products of its seed are given from all available data. The article on the feeding value of the seeds contains a résumé of the feeding experiments which have been conducted in this and other countries, arranged in such a manner as to secure in an easily accessible form the data of greatest importance. In this connection the reviewer would beg leave to suggest that the data relating to the injurious effects of feeding cotton-seed cakes to young animals would have had a greater value by being collected into a separate paragraph. Of particular interest to dairy chemists is the section relating to the effect of cotton-seed diet on the composition of butter.

In the article on the Chemistry of Cotton there is a paragraph relating to the carbohydrates of the cotton-seed which is hardly in harmony with the excellent character of the rest of the material and with our present knowledge of that subject. As is well known, the predominant sugar of the cotton-seed is raffinose and the described sugar, melitose, is now believed not to exist, or at least to be only an unstable union of raffinose with eukalyn. Repeated attempts of later and expert workers to isolate the so-called melitose from cotton-seeds have entirely failed. Tollens admits the term melitose as one of the synonyms of raffinose, but von Lippmann does not. On page 95

it is stated that Ritthausen describes "methods for separating melitose in crystalline forms, etc., and also gives some of its chemical and physical properties." Tollens, who reviewed the work of Ritthausen, established beyond question that these crystals were pure raffinose, and that the mythical substance, melitose, does not occur in cotton-seed, if it does exist in manna exuded from the *Eucalyptus viminalis and gunnii*. (*Ztschr. der Vereins für Rubenzuckerindustrie*, **35**, 591, and **36**, 217.)

Berthelot examined the Eucalyptus mannas above mentioned and gave the name melitose to the sugar they contained.¹ Subsequently he re-studied the material and came to the conclusion that his former statements were incorrect and he was convinced that melitose as such did not exist, but he kept the name for a preparation of raffinose from cotton-seed, which he secured in the cold, and which he supposed to be a very unstable compound with eukalyn.² No other investigator has ever been able to isolate this body and it is doubtless a myth. Even the existence of eukalyn is not certainly established. In the light of our present knowledge it seems that the term *gossypose* found on page 96 of the bulletin as an alternative name for melitose is the preferable characterization for this hearsay sugar.

BOOKS RECEIVED.

Bulletin No. 39. The Peach. Texas Agricultural Experiment Station, College Station, Brazos County, Texas. July, 1896. 48 pp.

El Kambio de Komposition ke Esperimenta el Agua de "el Salto." By K. Newman, Sandiego de Chile: Imprenta i Enkuadernazion. Proma. 1896. 14 pp.

Inorganic Chemical Preparations. By Frank Hall Thorp, Ph.D. iv + 238 pp. Boston: Ginn & Co. Price, \$1.60.

Bulletin No. 42. I. Analyses of Manurial Substances sent on for Examination. II. Analyses of Licensed Fertilizers collected by the Agent of the Station during 1896. III. New Laws for the Regulation of the Trade in Commercial Fertilizers in Massachusetts. October, 1896. Hatch Experiment Station of Massachusetts Agricultural College, Amherst, Mass. 32 pp.

Physical Laboratory Manual for Secondary Schools. By Charles F. Adams, A.M. Chicago and New York: Werner School Book Co. 183 pp. 1896.

¹ *Ann. chim. Phys.* [3], **46**, 66.

² *Compt. rend.*, **103**, 533.