

## RECENT PROCEEDINGS OF SCIENTIFIC SOCIETIES.

Chemical society, Washington.

*April 24.* — Thomas Taylor presented a paper upon oleomargarine, butter, and butterine, in which he described methods for the recognition of imitation-butter by means of the microscope, polariscope, and sulphuric-acid test. Under the microscope, oleomargarine shows marked crystallization, pure butter is perfectly even, and butterine contains excess of oily matter. With sulphuric acid, butterine gives a yellowish tint, which passes through a brownish amber to a final vandyke-brown color. Oleomargarine gives a yellow color, which gradually deepens to a red or crimson. With butter, sulphuric acid produces a whitish tinge at first, which soon changes to a salmon color, but never becomes crimson. If the butter has been colored with annatto, the color will be bluish green to black at first, but brick-red or salmon afterwards. With the polariscope and selenite plate, butterine gives a uniform plain tinge, red or green, while oleomargarine is distinguished by the colors produced by fat crystals. — Dr. T. M. Chatard gave an account of a modified process for the estimation of alkalies in silicates, which is based upon Hempel's method of decomposition with bismuth oxide. One part of the pulverized mineral, intimately mixed with two parts of bismuth oxide, is heated to redness over a Bunsen burner for about twenty minutes. The mass is then decomposed by strong hydrochloric acid; the excess of acid is evaporated off; the diluted solution is precipitated by ammonia and ammonia carbonate, and filtered. In the filtrate are the alkalies and magnesia, to be separated by the usual method. The process is easy and rapid. — Mr. E. Richards next gave some notes on the specific gravity of milk and whey. The whey seems to be more constant in specific gravity than milk. — A. E. Knorr and H. W. Wiley described the manufacture and use of very thin glass dishes for certain purposes in the analysis of organic products. The dishes are so thin and light that they may be pulverized, with their contents, preliminary to the combination analysis of the latter. Several of them were made before the society.

Natural science association, Staten Island.

*April 12.* — Mr. Charles Butler read a paper on experiments upon cross-breeding of moths. Last July he placed a recently hatched female of *Callosamia Promethea* out-doors in a box to secure some males of the same species, but caught six male *C. angulifera* within an hour of the time of the first exposure. The following night he caught five more with a new female, and the next night only one, and no *C. Promethea*. He noticed the fact that both of these species are not found about the vivarium at the same time. *C. Promethea* comes in the afternoon, when the sun is still up; *C. angulifera* comes after sunset. Mr. Bruce of Brockport says that a female *Samia ceanothi*, a California species hatched by him, attracted the males of *S. Cecropia* in great numbers.

Mr. Pilate of Dayton, O., states that he tied a female *S. Cynthia* out-doors over night, in order to obtain some eggs, and the next morning found her attached to a male *S. Cecropia*. Mr. Cook of Lansing, Mich., had a female *S. Cecropia* that attracted a score or more of *S. Columbia*.

Society of arts. Massachusetts institute of technology.

*April 10.* — Mr. Thomas Pray, jun., spoke on the subject of the cotton-fibre and its structure, as shown by the microscope. A photograph was shown of a stalk carrying two hundred and twenty-five ripened bolls: and it was stated, that by the method lately practised, of developing this variety by carefully selecting the seeds of the best bolls, and planting them apart from others, and continuing this process during several years, it had been conclusively proved that it was perfectly possible to bring the yield of lowland cotton up to three bales per acre, with proper fertilization and favorable season; whereas, at present, a yield of one bale per acre is very large, the average being less than one bale to two acres. In the method of ginning at present practised, the seeds of all the different varieties of cotton ginned are indiscriminately mixed; and the planter who brings his cotton to the gin, though receiving the same cotton back again, gets, for every bale ginned, a certain number of bushels of this miscellaneous mixture of different seeds, from which his next year's crop is planted. No pains whatever have been taken to develop good varieties of cotton, or to increase the yield per acre by a process of selection, except in rare cases within a few years. A number of photo-micrographs of cotton-fibres were shown, exhibiting their peculiarities of structure. The fibre is a wide or flat cylinder, with a thickening at the edges, and thin in the centre, twisted into a spiral. The coloring-matter is oily or resinous, and, in drying, is deposited on the edges of little pockets occurring along the fibre. The better the fibre, the more perfect its spirality, and the more regular in shape and in position are these oily deposits. Wrinkles are also formed in the fibre when drying, becoming most marked in the perfectly matured dry fibre, thus affording another test of good cotton. The lack of spirality prevents the fibre from being twisted with others in such a way as to become intimately engaged with them. An illustration was shown of the cotton after it had passed through the saw-gin, clearly showing that the fibres had been torn apart, the ends showing plainly the mutilation by the saw-teeth. The speaker referred to the faults of the present methods of ginning, and pointed out the directions for improvement. An illustration was also shown of cotton, after passing the railway head, which is supposed to make the fibres parallel; whereas such is by no means the case. The speaker urged the importance of examining cotton by the microscope, and dwelt upon the advantages which manufacturing corporations would gain by selecting their stock in this way.