

accomplish their time-saving purpose. Misprints are infrequent. On page 107, however, we find "uvitic acid" and "carbuvitic acid" instead of uvic acid and carbuvic acid. Excellent author and subject-indexes accompany the abstracts.

L. B. H.

REPORT ON THE EXTENT AND CHARACTER OF FOOD AND DRUG ADULTERATION, BULLETIN NO. 41, U. S. DEPARTMENT OF AGRICULTURE, DIVISION OF CHEMISTRY. BY ALEX. J. WEDDERBURN. pp 64. Washington: Government Printing Office. 1894.

EIGHTH ANNUAL REPORT OF THE DAIRY AND FOOD COMMISSIONER OF OHIO. BY F. B. MCNEAL, COLUMBUS, OHIO.

FIRST ANNUAL REPORT OF THE COMMISSIONER OF AGRICULTURE OF NEW YORK. BY F. C. SCHRAUB, ALBANY, N. Y.

A COMPILATION OF THE PHARMACY AND DRUG LAWS OF THE SEVERAL STATES AND TERRITORIES, BULLETIN NO. 42, U. S. DEPARTMENT OF AGRICULTURE, DIVISION OF CHEMISTRY. BY ALEX. J. WEDDERBURN. pp 152. Published by order of Congress. 1894.

There seems to be a growing interest among our legislators and among the general public in reference to pure foods and drugs. Many of the states and, in fact, a majority have laws making druggists responsible for the drugs they sell, requiring that only pure dairy products shall be sold, and placing a standard on commercial vinegar, but in most instances the laws have simply served to adorn the statute books. Much work has been done to arouse the public, and in view of the strict control exercised on adulteration in most other advanced countries, it is surprising that it has not met with more immediate success. The cause has undoubtedly been injured by grossly exaggerated articles claiming general impurity of all our food products, but enough adulteration, proved by actual analysis by competent chemists, is now coming to light to demand immediate enlargement and enforcement of our laws.

The chief records of recent opinions and analyses will be found in the above reports. Among the replies received by the special agent of the Department of Agriculture and recorded in Bulletin No. 41, will be found many statements by some of our best chemists. These are, in general, noteworthy for their conservative tone but, as a rule, each has had some form of adulteration come under his personal notice, and those whose duties have caused them to investigate the matter, give many examples of foods,

drugs, and dairy products, which they have found badly falsified.

It seems to have been left, however, for the Food and Dairy Commissioner of Ohio to make the first really important move in this matter, and the results tabulated in his Eighth Annual Report make extremely interesting data for chemists at large. It is true that in Massachusetts, New York, Wisconsin, and a few other states, a good many cases have been prosecuted for violation of the laws, but the examination of food products have been made mainly to prevent the watering and skimming of milk and the substitution of oleomargarine for butter. In Ohio, however, there is a much broader clause in the law, to the effect that "any article made of or sold under the name of another article, or falsely branded, or upon which art has been used to conceal inferiority, or in which there is fraud or deceit." shall be deemed illegal. Upon this basis the efficient Commissioner, Mr. F. B. McNeal, appears to have attempted, without fear or favor, to purify the food stuffs of all kinds sold within his jurisdiction. His work has been eminently successful, the results are widely quoted, and several states are apparently about to appoint Commissioners to follow his example. Among the substances found adulterated, baking-powder, buckwheat flour, butter, cider, coffee, chocolate, condensed milk, fruit-butter, honey, jelly, oleomargarine, olive-oil, preserves, quinin pills, vinegar, and wine, were impure in at least half of the samples analyzed, and in some cases there was not a particle of the substance itself present. Other noteworthy examples of impurity were in pepper, milk, mustard, cream of tartar, etc., and it will be specially interesting to note that butter added to oleomargarine is considered also in the light of an adulteration. The analyses are printed in more or less detail and will be useful to any chemist for reference. All, however, will deplore the fact that no methods, or references to methods used, are given, and also that the word "about" is not more frequently printed to modify the results. The statement of exact percentages of butter-fat in oleomargarine, of the various impurities in coffee, of foreign fats in butter, of the water added to milk, etc., are impossible, and when so directly made are misleading to the general public and cause much trouble for conservative chemists when they are quoted against them in the

courts. With this exception there is little to criticise in the report, and it is certainly to be hoped that many others showing equal results will follow.

The First Annual Report of the Commissioner of Agriculture of New York is practically a continuation of the reports of the previous dairy commissioner. The report contains many analyses, but they are confined almost wholly to dairy products, oleomargarine, and vinegar. In the sub-report of the cheese instructor, will be found a full and detailed account of the investigations on cheese planned by Mr. Van Slyke, the chemical features of which have already been published by him in this JOURNAL, **15**, 605, 635, 645, and **16**, 712, and the Bulletins of the New York Experiment Station. One important feature of the report is the summary of the laws of all the states on foods and dairy products. From this summary it appears that the requisite standard for milk varies between twelve per cent. and thirteen per cent. solids, eighty-eight per cent. and eighty-seven per cent. water, and three per cent. to three and one-half per cent. fat, and condensed milk must be made by the evaporation of standard milk without addition of other matter. The standard for vinegar varies between a minimum of four per cent. to four and one-half per cent. acetic acid and cider vinegar must have at least two per cent. cider vinegar solids. Vinegar cannot contain any sulphuric acid, lead, copper, or other deleterious substance. In regard to oleomargarine, Massachusetts and Ohio forbid its sale if colored in imitation of yellow butter. In New Hampshire, Vermont, West Virginia, and Minnesota, it must be colored a bright pink. Pennsylvania, Virginia, Missouri, and Delaware, prohibit its sale altogether. There seems to be no detailed laws in regard to other food products.

The bulletin of the Department of Agriculture on Pharmacy and Drug Laws will serve mainly as a place of reference for legal information. Most of the states now require all persons compounding or dispensing drugs to pass rigid examinations and receive certificates of registration. Poisons are restricted in sale and must generally be labeled in red letters, and sales entered in a special poison registry book. Many of the states make the druggist responsible for the purity of the drugs he sells, while

others make him responsible only when he is aware of their character.

Altogether the four reports show a growing interest in the subject of adulteration and an increasing tendency to legislate on the subject. It would appear, however, that no general results will be obtained until there is some national law which will regulate the trade between states in adulterated goods. When such a law is passed we may soon expect an efficient control and a consequent greater field for chemical usefulness and employment.

C. L. PARSONS.

KRÄFTE DER CHEMISCHEN DYNAMIK. VON DR. LUDWIG STETTENHEIMER. pp. 88. 8 vo. Frankfurt am Main: H. Bechhold. 1895. Price. 6 m.

These three lectures appear to have been held before a mixed audience, containing probably more mathematicians or physicists than chemists. They are of a polemical nature, against the molecular hypothesis, but they confine themselves to general problems and do not touch at all upon the purely chemical relations, such as those of isomerism, polymerism, and organic reactions. As far as can be extracted from a somewhat involved line of argument every substance whether a mixture, compound, or simple substance is to be regarded as a homogeneous individual as long as chemical reaction does not take place. There is no separation into molecules, but every atom reacts upon every other atom in a purely mechanical way, as do the celestial bodies; atoms near one another simply influencing each other to a larger degree than those further apart. The introduction of any new atoms, whether of the same or of another sort, disturbs the equilibrium which can be restored either by an equal distribution of the new atoms throughout the mass without disturbing the relative positions of the old atoms, or by a total rearrangement of the positions.

In the discussion of the solid state, views similar to those of the late T. Sterry Hunt are developed, but they are extended over the liquid and gaseous condition as well.

All disturbances of the relative positions of the atoms are considered chemical reactions, whether these be performed by simply separating them mechanically, as in pouring half of a liquid into another vessel, or by what are ordinarily known as chemical changes or, by electrolysis, change of aggregation, etc. The