for bovine erythrocytes. The intraperitoneal injection of adrenalin chloride is followed by no marked effect upon the blood reactions. The complete removal of the pancreas from dogs, which causes a true diabetes mellitus of severe type, is followed by a marked decrease of the hemolytic activity of the diabetic dog's serum for both rabbits' and guinea-pigs' erythrocytes; this diabetes is further characterized by a complete loss of the normal bactericidal property of the serum of the dog, and the decrease in hemolytic activity is due to the loss of hemolytic complements. No disturbance of the normal relation of the receptors of the erythrocytes to specific hemolytic amboceptors can be demonstrated in the course of a true experimental diabetes. A decrease in the amount of glucose excreted by the diabetic organism cannot be shown to occur in the course of secondary infection, at least during the earlier stages of the diabetes. F. P. UNDERHILL.

PHARMACEUTICAL CHEMISTRY.

Commercial Aloes. BY M. I. WILBERT. *Am. J. Pharm.*, **75**, 201–264.—The writer gives a lengthy account of the history, botanical and commercial sources of the various varieties of aloes on the market, in the first part of his paper. He then gives a summary of the more recent work on the chemistry of aloes, from which the following is taken.

It has long been known that aloin differs both physiologically and chemically, for which reason it is usually designated according to the aloes from which it is obtained, as barb-aloin, soc-aloin, from Barbadoes and Socotrine aloes, respectively.

Cape aloes was formerly believed to contain no aloin, but this belief has been disproved by Leger, who found a crystallizable aloin, isomeric with barb aloin. This investigator states that the aloin from Barbadoes, Curacao or Socotrine aloes consists of two bases; barb-aloin, which may be decomposed into alo-emodin, and a second substance, iso-barb-aloin, not decomposed into emodin. The nitric acid test for Barbadoes aloes is really a test for iso-barb-aloin. W. H. BLOME.

Progress in Pharmacy. M. I. WILBERT. *Am. J. Pharm.*, **75**, 285.—The inventive genius of chemists appears recently to have centered upon quinine, around which several new compounds have been built up. The more prominent of these are here given:

Aristochin, a white, almost tasteless powder, said to be diquinine carbonate, and qualitatively and quantitatively the equivalent of quinine hydrochloride.

Chinaphenin, a combination of quinine and phenetidin.

Saloquinine, the salicylic ester of quinine.

Bromochinal, the dibrom salicylate of quinine.

An interesting compound is citarin, sodium anhydro-methyl

citrate, which is supposed to be easily decomposed, one of its decomposition products being formaldehyde. It is said to be a solvent for uric acid, and to be useful in cases of gout and rheumatism.

The writer calls attention to the work of Mr. Daniel Brown on salicin. The latter found a lot of bark containing a total of 5.8 per cent. of salicin, to yield 11.3 per cent. from the inner, 8.0 per cent. from the middle and 2.5 per cent. from the outer bark. Also that the bark contains a larger percentage of salicin in the spring than in the autumn.

A number of the qualitative tests for heroin fail to distinguish that base from morphine. Nitric acid appears to have a specific and characteristic action upon heroin. Upon adding a few drops of 65 per cent. nitric acid to a trace of heroin, the latter quickly goes into solution, having a yellow color. This color changes gradually at ordinary temperatures, rapidly when heated, to a greenish blue, then gradually fades until the liquid is bright yellow. The hydrochloride responds to this test as well as the free base.

In view of the greatly increased price of cod-liver oil, adulteration of that oil with cheaper ones may now be expected. The following is said to be a reliable test for the pure oil. Add three drops of pure nitric acid to fifteen of the oil. A pure oil "will show a red streak at the point of contact that rapidly changes to bright red, and later, after considerable shaking, to lemon-yellow." Other fish oils give first a blue color, then a brown, and finally, after long standing, a yellow color.

Castor oil in powder form is said to be made by evaporating to dryness and powdering an emulsion of castor oil and skimmed milk. This is stated to be the composition and method of preparing the proprietary preparation sold under the name of "Ricinus-Siccol." W. H. BLOME.

Assay of Ferrous Carbonate Preparations. BY F. X. MOERK. *Am. J. Pharm.*, 75, 382.—In the assay of the pill mass or pills of ferrous carbonate, it is quite impossible to determine with accuracy the amount of ferrous carbonate, associated as it is with organic matter. The writer gives a number of results obtained by three methods. He heated, until completely disintegrated, 1 gram of pill mass in diluted sulphuric acid, in a current of carbon dioxide, cooled the mixture and titrated with tenth-normal potassium bichromate V. S. The result was much too high. By treating a like quantity of pill mass with diluted hydrochloric acid, cooling, and treating with stannous chloride, to reduce ferric salt, then with mercuric chloride solution to oxidize excess of stannous chloride, and finally titrating, the results obtained were still higher than by the first method, probably due to the presence of ferric compounds. Finally, like quantities were

ignited until free from carbon, the residue dissolved in diluted hydrochloric acid, and the ferric salt reduced by means of stannous chloride. This was titrated as before. Results obtained by this method were lower than those obtained by the two preceding ones, and give the quantity of ferrous carbonate originally present. This proves his contention that the organic matter has some action upon the volumetric reagent.

He also calls attention to the fact that the ferricyanide used as indicator should first be freed from ferrocyanide by washing the crystals with distilled water, thus overcoming a titration difficulty.

W. H. BLOME.

Basham's Mixture. BY JOSEPH W. ENGLAND. *Am. J. Pharm.*, 75, 383.—This mixture was named after Dr. William Richard Basham, of London, though he gave no special formula for its preparation. A number of formulas varying slightly from one another came into use, of which the first to be published in an American journal was that which appeared in March, 1876, in the *Am. J. Pharm.* Mr. England decries the fact that the tendency of the U. S. Pharmacopoeia has been to decrease the amount of both the ferric acetate and of the ammonium acetate. According to his calculations, a desert poonful of the present official "solution," as it is now called, contains about $\frac{1}{2}$ grain of ferric acetate, $\frac{1}{3}$ grain of ammonium chloride and $1\frac{1}{4}$ grains of ammonium acetate, which he considers "entirely too small to be of much therapeutic value." The older formulas contained about twice as much iron, and two and a half times as much ammonium acetate.

W. H. BLOME.

Standards for Flavoring Extracts. BY WILBUR L. SCOVILLE. *Am. J. Pharm.*, 75, 151.—Professor Scoville points out that flavoring extracts are not all used for the same purposes, that, of those who use them, few are good judges of quality. He who "lives to eat," the epicure, demands the very best of flavoring, not in the so-called "extracts" only, but in the flavoring and seasoning of all of his dishes. He who "eats to live," the non-epicure, he whose sense of taste has not been carefully educated, and is not infallible, will allow to pass unnoticed a heavy or even a coarse flavor, or an inharmonius flavoring of the various dishes composing his meal. The one will insist upon having a vanilla extract made from the best Mexican beans, while the other will be satisfied with an extract prepared from Tahiti or Vanillon beans, or from some combination of these with vanillin, tonka, or cumarin.

The difference between these flavoring agents is not one of wholesomeness, but one of taste. "If the public finds that the distinction between vanilla and vanillin is too subtile for the average discrimination, and that vanillin holds its flavor better in

cooking, why should the epicure object to the non-epicure enjoying it?" The writer notes the greatly diminished demand for the "rank ether-composed fruit-flavors," which he cites as bearing out his statement that laws are not needed to regulate the standard of flavors; that taste is self-regulative. The only standard that can be lawfully applied is that of wholesomeness.

W. H. BLOME.

SANITARY CHEMISTRY.

Report on Sewage Disposal. J. A. AMYOT. *Provincial Board of Health of Ontario*, **21**, 34–82.—This paper gives a most excellent account of the methods at present in use for the treatment of sewage. Discharge into water-courses, sand irrigation, intermittent sand filtration, chemical treatment, septic tank process, and contact beds. The reactions given for the hydrolysis of fats, sugars, and albuminoid substances through the action of anaërobic bacteria, and the oxidation of these substances through the agency of aërobic bacteria are instructive and interesting. The paper also gives an account of a series of experiments made at Berlin, Ontario, with septic tanks, contact beds and the Stoddard filter. Among the interesting results obtained in the experiments with septic tanks was the showing that the effluent from gas works had no appreciably detrimental effect on septic action, and that with Berlin sewage, which is a strong sewage (2 parts albuminoid ammonia per 100,000 parts) containing tannery waste, brewery waste, wool-washings, and gas works refuse, when the time of passage of the sewage through the tank was twenty-four hours, 53 per cent. of the organic matter, measured by albuminoid ammonia, and 51 per cent. measured by oxygen consumed, was removed, while when the time of passage was fourteen hours, the amount of organic matter removed measured by albuminoid ammonia, was only 41.5 per cent., and by oxygen consumed, 40 per cent. In the experiments with contact beds, four were used; three, each of an area of one two-hundredth of an acre, and a little over three feet deep, were filled to the height of three feet with gravel, and covered with three inches of coarse, sharp sand. The gravel in each of the beds was of different size, with the idea of seeing what difference the size of material would have on the treatment. The beds were started July 8th, and the experiment continued until September 4th. The beds were filled three times during the first half of the period, twice during the second half with the septic tank effluent. The bed filled with one-eighth inch gravel gave the best results, then the bed filled with one-fourth inch gravel, while the bed filled with one-half inch gravel gave the poorest results, and did not remove the tannin-coloring material from the liquid. The percentage reduction in each bed over the septic tank effluent was: