BIBLIOGRAPHY OF PHARMACEUTICAL RESEARCH

Compiled by A. G. DuMez, Reporter on the Progress of Pharmacy.

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APPARATUS AND MANIPULATIONS.

Fabre, R.
New method of extraction of alkaloids, etc., from body tissues
Bull. sci. pharmacol., 32 (1925), 279

Wilson, J. B., and Sale, J. W.
Suitability of various solvents for extracting vanilla beans. Part III
Perf. & Ess. Oil Rec., 16 (1925), 192

PHARMACOPŒIAS AND FORMULARIES.

Anon.
Brazilian Pharmacopœia
Chem. & Drug., 103 (1925), 4

Anon.
Review of the new edition of the Greek Pharmacopœia
Chem. & Drug., 102 (1925), 985

Anon.
New Swedish Pharmacopœia
Chem. & Drug., 103 (1925), 4

PHARMACEUTICAL PREPARATIONS.

Boa, P.
Compound licorice mixture B. P. C.
Pharm. J., 114 (1925), 234; through *Chem. Abstr.*, 19 (1925), 2110

Bureau of Chemistry
Degree of accuracy of hypodermic tablets
Pharm. Era, 60 (1925), 785

Epstein, Albert K., and Harris, B. R.
Cod liver oil extracts
JOUR. A. PH. A., 14 (1925), 589

Goris, A., and Metin, M.
Alteration of solutions of aconitine with aging
Compt. rend. acad. sci., 180 (1925), 1443; through *Chem. & Ind.*, 44 (1925), B471

Langenhan, H. A.
Arsenical solutions
JOUR. A. PH. A., 14 (1925), 579

Percs, E.
Assay of mercuric chloride pastilles
Pharm. Zentralh., 66 (1925), 369

Plaut Research Laboratory
Influence of the pH concentration on the stability of digitalis infusion and potassium citrate mixtures
Am. J. Pharm., 97 (1925), 456

Roy, L.
Influence of sterilization on the hydrogen-ion concentration of hypodermic solutions
J. pharm. et chim., 1 (1925), 525

Winkler, L. W.
Liquor Kalii arsenicosi acidulus
Pharm. Zentralh., 66 (1925), 257; through *Chem. Abstr.*, 19 (1925), 1928

PHARMACOLOGY AND THERAPEUTICS.

Arends, G.
Testing ergot preparations
Pharm. Ztg., 70 (1925), 566; through *Chem. Abstr.*, 19 (1925), 2105

Barker, S.
Chemical and therapeutic properties of ozone
Pharm. J., 114 (1925), 55; through *Chem. Abstr.*, 19 (1925), 2105

Debucquet, L.
Contribution to the study of arsenic, pyridine and quinoline emetics
J. pharm. et chim., 1 (1925), 571

Dougal, J. W.
Examination of chlorhydrocarbons as toxic agents
Pharm. J., 114 (1925), 134; through *Chem. Abstr.*, 19 (1925), 2110

Fühner, Hermann
Pharmacological evaluation of purgatives
Arch. exptl. Path. Pharm., 105 (1925), 249; through *Chem. Abstr.*, 19 (1925), 1930

Hari, P.
Testing insulin preparations
Biochem. Ztschr., 156 (1925), 86; through *Chem. & Ind.*, 44 (1925), B423

Heymans, C.
Biological assay of hypophyseal extracts
Compt. rend. soc. biol., 92 (1925), 210; through *Chem. Abstr.*, 19 (1925), 2107

Laubry, Ch., and Tecon, R. M.
Action of pilocarpine on the cardio-vascular system
Schweiz. Apoth.-Ztg., 63 (1925), 336.
Lio, Giuseppe
The resorcinol-caffeine complex
Arch. farm. sper., 39 (1925), 141; through *Chem. Abstr.*, 19 (1925), 2104
McDonagh, J. E. R.
Chemotherapeutic treatment of gonorrhœa
Brit. Med. J., 1 (1925), 624; through *Chem. & Drug.*, 102 (1925), 888
Moellgaard, Holgar
Sanocrysin treatment of tuberculosis
Brit. Med. J., 1 (1925), 643; through *Chem. & Drug.*, 102 (1925), 889
Pope, W., and Haines, R. T. M.
Properties of colloidal kaolin
Lancet, 1 (1925), 1123; through *Chem. & Drug.*, 102 (1925), 890
Régnier, J.
Augmentation of anesthesia of the cornea by alkalinization of cocaine solutions
Bull. sci. pharmacol., 32 (1925), 271
Reid, G. A.
Dosage of veronal
Brit. Med. J., 1 (1925), 633; through *Chem. & Drug.*, 102 (1925), 888
Schmidt, C. F., Read, B. E., and Chen, K. K.
Physiological properties of the root of Angelica polymorpha var. sinensis
China Med. J., May (1924); through *Chem. & Drug.*, 102 (1925), 888
Straub, W.
Thyroid assay
Deutsch. med. Wchnschr., No. 1 (1925); through *Chem. & Drug.*, 102 (1925), 879
Uhlmann, F.
Coramin, a substance with a camphor-like action
Ztschr. ges. exp. med., 43 (1924), 566; through *Chem. & Ind.*, 44 (1925), B422

GENERAL BOTANY AND BACTERIOLOGY.

Cavara, F., and Chistoni, A.
Recent experiments in the culture of the opium poppy
Int. Rev. Sci. Pract. Agr., 2 (1924), 906; through *Chem. Abstr.*, 19 (1925), 2106
Karsmark, K. A.
Swedish Polygala species
Svensk. Farm. Tidskr., 29 (1925), 257
Marr, A. V.
Experimental cultivation of peppermint in Western Australia
Perf. & Ess. Oil Rec., 16 (1925), 181
Morel, A., and Rochaix, A.
A study of the bactericidal action of some volatile oils
Bull. sci. pharmacol., 32 (1925), 257
Schürhoff, P. N.
The sex of plants
Arch. Pharm., 263 (1925), 376
Volmar, Y., and Reeb, E.
Polypodium vulgare, L.
J. Pharm. Alsace-Lorraine, 51 (1924), 190; through *Bull. sci. pharmacol.*, 32 (1925), 316

VEGETABLE AND ANIMAL DRUGS.

Bohrisch, P.
Evaluation of storax
Arch. Pharm., 263 (1925), 359
Bukey, F. S.
Partial analysis of the fruit of Eupatorium urticæfolium
JOUR. A. PH. A., 14 (1925), 595
Casparis, P., and Maeder, R
Pharmacochemical and physiological studies of frangula bark
Schweiz. Apoth.-Ztg., 63 (1925), 313
Elliott, G.
An impurity in tragacanth
Pharm. J., 114 (1925), 234; through *Chem. Abstr.*, 19 (1925), 2110
George, E.
Active principles of African squill
J. S. Afr. Chem. Inst., 8 (1925), 14; through *Chem. & Ind.*, 44 (1925), B471
Harvey, Ellert H.
Physico-chemical study of U. S. P. agar
Am. J. Pharm., 97 (1925), 447
Javillier, M., Allaire, H., and Groc, Marguerite
New principle for the testing of organotherapeutic powders
J. pharm. et chim., 1 (1925), 513
Noel, Albert
Saffron and imitation saffron
Am. J. Pharm., 97 (1925), 425
Pater, B.
Cultivation of Datura
Pharm. Monatsh., No. 2 (1925); through *Chem. & Drug.*, 192 (1925), 887
Peyer, W.
Tragacanth test
Apoth.-Ztg. (April 18, 1925); through *Chem. & Drug.*, 102 (1925), 888
Pfau, E.
Muscas
Apoth.-Ztg. (May 27, 1925); through *Chem. & Drug.*, 102 (1925), 887

Reinitzer, Friederich
Investigation of Siam benzoin
Arch. Pharm., 263 (1925), 347
Sharlit, H., and Samet, J.
Desiccated gonadal substances
Med. J. and Rec. Reprint (Feb. 4, 1925); through *Chem. & Ind.*, 44 (1925), B472
Steppuhn, O., and Pewsner, G.
Extraction of Adonis vernalis
Arch. exp. Path. Pharm., 105 (1925), 334; through *Chem. & Ind.*, 44 (1925), B471
Wells, A. H., and Garcia, F.
Strophanthus letei, Merrill
Philippine J. Sci. (January, 1925); through *Chem. & Drug.*, 102 (1925), 887

ALKALOIDS AND GLUCOSIDES.

Bridel, Marc, and Charaux, C.
Rhamnicoside, a new glucoside from purging buckthorn
Compt. rend. acad. sci., 180 (1925), 1047; through *Chem. Abstr.*, 19 (1925), 2107
Coronedi, G., and Mancini, M. A.
Bikhaconitine
Arch. farm. sper., 39 (1925), 131; through *Chem. Abstr.*, 19 (1925), 2104
Dufilho, E.
Estimation of the total akaloids of opium
Bull. soc. pharm. Bordeaux, 63 (1925), 95
Herissey, H., and Cheymol, J.
Extraction and properties of gein, a glucoside of Geum urbanum L.
J. pharm. et chim., 1 (1925), 561
Keenan, George L., and Mann, Raymond M.
Optical properties of coniine hydrochloride
J. Am. Chem. Soc., 47 (1925), 2063
Kondo
Synthesis of the alkaloids of the apomorphine group
J. Pharm. Soc. Japan, No. 519 (1925), 429
Lehalleur, J. P.
Emetine from cephaeline
Rev. Chem. e Pharm. Mil. (April 1925); through *Chem. & Drug.*, 102 (1925); 880
Merck, E.
Easily crystallizable digitalis substance accompanying digitoxin
Jahresb., 36 (1924), 86; through *Chem. Abstr.*, 19 (1925), 2104
Moir, J., and Lewis, J.
Acocantherine
J. S. Afr. Chem. Ind., 8 (1925), 11; through *Chem. & Ind.*, 44 (1925), B471
Müller, F.
Potentiometric determination of alkaloids with a hydrogen electrode
Ztschr. Elektrochem., 30 (1924), 587; through *Chem. & Ind.*, 44 (1925), B422
Spaeth, E., and Brunner, O.
Constitution of physostigmine
Ber. deutsch. chem. Ges., 58 (1925), 518; through *Chem. & Ind.*, 44 (1925), B422
Spaeth, E., and Kanz, E.
Jaborandi alkaloids. 1. Pilocarpidine
Ber. deutsch. chem. Ges., 58 (1925), 513; through *Chem. & Ind.*, 44 (1925), B422
Van Itallie, L., and Steenhauer, A. J.
Two ptomaines encountered in toxicological analyses
J. pharm. et chim., 1 (1925), 532

OILS, FATS AND WAXES.

Gillot, P.
Characters of the oils of Euphorbiaceæ
Compt. rend. acad. sci., 180 (1925), 1285; through *Chem. & Ind.*, 44 (1925), B410
Margosches, B. M., et al.
Upper iodine value of fatty oils and unsaturated fatty acids
Ber. deutsch. chem. Ges., 58 (1925), 794; through *Chem. & Ind.*, 44 (1925), B410
Shelley, F. F.
Bellier's modified test for arachis oil
Analyst (April 1925); through *Chem. & Drug.*, 102 (1925), 887

ESSENTIAL OILS.

Deel, Henry, and Mme. Deel
Influence of soil reaction on the formation and composition of peppermint oil
Bull. soc. chim., 37 (1925), 453; through *Chem. Abstr.*, 19 (1925), 1927
Invidiato, R.
Sicilian eucalyptus oil
Boll. chim.-farm. (April 1925); through *Chem. & Drug.*, 102 (1925), 886
Maizits, J.
Bornyl iodide
Latvijas Farm. Zurn. (April 25, 1925); through *Chem. & Drug.*, 102 (1925), 886
Massy, R.
Preparation and density of oil of cade
Bull. soc. pharm. Bordeaux, 63 (1925), 109
Penfold
Essential oil of Boronia saprolifera
J. Proc. Roy. Soc. N. S., v. 56, p. 230; through *Chem. & Drug.*, 102 (1925), 886
Reti, L.
New method for the rapid determination of phenols in essential oils
Perf. & Ess. Oil Rec., 16 (1925), 191

St. Pfau, Alexander
Citronellal content of oil of Eucalyptus citriodora
Perf. & Ess. Oil Rec., 16 (1925), 183
Van Urk, H. W.
Simple titrimetric method for the estimation of eugenol in essential oils
Pharm. Weekbl., 62 (1925), 667

MISCELLANEOUS PLANT CONSTITUENTS.

Eder, R., and Hauser, F.
New researches on chrysarobin
Arch. Pharm., 263 (1925), 321
Nanji, D. R., Paton, F. J., and Ling, A. R.
Constitution of pectin
J. Chem. Soc. (1925), 253T; through *Chem. & Drug.*, 102 (1925), 883
Takei, S.
Rotenone from Derris elliptica
Biochem. Ztschr., 157 (1925), 1; through *Chem. & Ind.*, 44 (1925), B423
Wöllmer, W.
Bitter principle of hops
Ber. deutsch. chem. Ges., 58 (1925), 672; through *Chem. & Ind.*, 44 (1925), B418

GENERAL AND PHYSICAL CHEMISTRY.

Collins, W. D., et al.
Recommended specifications for analytical reagents
Ind. Eng. Chem., 17 (1925), 757
Denigés, G.
Alloxantin as a reagent for ferric iron
Bull. soc. pharm. Bordeaux, 63 (1925), 93
Dimitrov, M.
Iodometric titrations
Ztschr. anorg. Chem., 136 (1924), 189; through *Chem. & Ind.*, 44 (1925), B429
Feigl, F., and Ordelt, H.
Determination of bismuth by means of pyrogallol
Ztschr. analyt. Chem., 65 (1925), 448; through *Chem. & Ind.*, 44 (1925), B429
Luff, G.
Separation of calcium from magnesium as oxalate
Ztschr. analyt. Chem., 65 (1925), 439; through *Chem. & Ind.*, 44 (1925), B429
Meyer, R. J., and Schulz, W.
Detection and determination of small amounts of fluorine
Ztschr. angew. Chem., 38 (1925), 203; through *Chem. & Ind.*, 44 (1925), B481
Robinson, R.
Qualitative test for weak organic bases
J. Chem. Soc., 127 (1925), 768; through *Chem. & Ind.*, 44 (1925), B481
Scott, Wilfred W.
Inexpensive method for determining lead
Ind. Eng. Chem., 17 (1925), 678
Winkler, L. W.
New method for the preparation of Nessler's reagent
Ztschr. Unters. Nahr.- Genussm., 49 (1925), 163

INORGANIC CHEMICALS.

Abraham, A. C., and Rae, J.
Composition and manufacture of acid sodium phosphate
Pharm. J., 114 (1925), 54; through *Chem. Abstr.*, 19 (1925), 2110
Auger, V.
Pentaborates, a new type of alkali borates
Compt. rend. acad. sci., 180 (1925), 1602; through *Chem. & Ind.*, 44 (1925), B498
Mayer, Joseph L.
Loss on ignition of talc
Jour. A. Ph. A., 14 (1925), 587
Rupp, E., and Mais, P.
Determination of mercuric chloride
Apoth.-Ztg. (May 13, 1925); through *Chem. & Drug.*, 102 (1925), 880
Rupp, E., and Siebler, G.
Hydrogen dioxide assay
Pharm. Zentralh. (March 26, 1925); through *Chem. & Drug.*, 102 (1925), 880

ORGANIC CHEMICALS.

Austerweil, Geza
Use of nopinene for the manufacture of terpine hydrate and terpineol
Perf. & Ess. Oil Rec., 16 (1925), 187
Bohanes, A.
Determination of volatile organic acids
Chem. Listy, 19 (1925), 121; through *Chem. & Drug.*, 44 (1925), B482
Bruins, A.
Investigation of mercuric salicylate
Pharm. Tijdschr. Nederl. Indie, 1 (1924), 86; through *Chem. Abstr.*, 19 (1925), 2104
DeMyttenaere, et al.
The arsenobenzenes
Bull. acad. roy. med. Belg., 4 (1925), 704; through *Chem. Abstr.*, 19 (1925), 2103
Gilman, Henry, and Schulze, F.
Qualitative color test for the Grignard reagent
J. Am. Chem. Soc., 47 (1925), 2002

Hartley, H., and Raikes, H. R.
Preparation of pure methyl alcohol
J. Chem. Soc., 127 (1925), 524; through *Chem. & Drug.*, 44 (1925), B424
Kolthoff, I. M.
Modification of the iodoform reaction for the determination of acetone in alcohol
Pharm. Weekbl., 62 (1925), 652
Leulier, A.
Falsification of aristol
Bull. pharmac. de l'Est., 18 (1924), 99; through *Bull. sci. pharmacol.*, 32 (1925), 312
McLang, J.
Manufacture of iso-eugenol
Chem. Rundschau f. Mit-Europa u. Balkan (March 22, 1925); through *Chem. & Drug.*, 102 (1925), 886
Parri, W.
Color reactions of veronal
Boll. chim. farm., 63 (1924), 401; through *Bull. sci. pharmacol.*, 32 (1925), 311
Proskouriakoff, A., and Raiziss, G. W.
Mercury derivatives of azo dyes
J. Am. Chem. Soc., 47 (1925), 1974
Schulek, E.
Determination of formaldehyde
Ber. deutsch. chem. Ges., 58 (1925), 732; through *Chem. & Ind.*, 44 (1925), B423
St. Pfau, Alexander
Detection of benzyl alcohol as dibenzyl oxalate
Perf. & Ess. Oil Rec., 16 (1925), 190
Valentin, H., and Lieber-Tilsit, A.
Differentiation of aspirin and acetylsalicylic acid
Apoth.-Ztg. (June 10, 1925); through *Chem. & Drug.*, 102 (1925), 880
Valeur, Amand, and Launoy, Léon
Value of the DM index for the evaluation of the arsenobenzenes
J. pharm. et chim., 1 (1925), 5.
Van Itallie
Examination of carbon tetrachloride
Pharm. Weekbl., 62 (1925), 626
von Fellenberg, Th.
Estimation of lead in benzine
Ztschr. Unters. Nahr.- Genussm., 49 (1925), 173; through *Pharm. Weekbl.*, 62 (1925), 678
Zamparo, Alod
Identification of alkyl derivatives of barbituric acid
Boll. chim. farm., 64 (1925), 257

CLINICAL AND DIAGNOSTIC METHODS.

Labat and Favreau
Detection of adrenaline in urine
Bull. soc. pharm. Bordeaux, 63 (1925), 102
Sitsen, M. H. P.
Quantitative determination of acetone in the urine by a colorimetric method
Pharm. Weekbl., 62 (1925), 622

DEGREE OF ACCURACY OF HYPODERMIC TABLETS.*

(PROPOSED ANNOUNCEMENT.)

Within the last few years the Bureau of Chemistry, in the enforcement of the food and drugs act, has given particular attention to medicinal tablets, especially the more commonly used hypodermic tablets. The data thus collected show that most tablets on the market comply reasonably well with the compositions declared. A material number, however, were found to vary from the stated compositions by amounts in excess of what should be expected under properly controlled conditions of manufacture.

These preparations are of prime importance medicinally. They are manufactured from physiologically potent substances and constitute the chief dependence of the physician in emergencies. The physical characteristics of a hypodermic tablet usually furnish no information as to its quantitative composition. Physicians, druggists and patients must rely upon the label. Serious consequences may follow any misstatement.

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* Criticisms and suggestions are invited; address C. A. Browne, Chief Bureau of Chemistry, Washington, D. C.

The Bureau of Chemistry will regard as adulterated or misbranded, or both, those hypodermic tablets which fail to comply with declared compositions to an extent greater than occurs in such tablets manufactured under properly controlled processes. In ascertaining the degree of accuracy practicable careful consideration will be given to the conclusions of committees representing the drug manufacturing industry which have studied this question thoroughly and have presented a comprehensive report to the Bureau of Chemistry. These committees have suggested the maximum variations, either above or below the labeled or claimed amounts (including all tolerances), which in their opinion should be permitted in tablets manufactured under properly controlled processes. They are as follows:

	Per cent.
Atropine sulphate hypodermic tablets purporting to contain 1/4 grain or more	7.5
Atropine sulphate hypodermic tablets purporting to contain less than 1/4 grain	9.0
Cocaine hydrochloride hypodermic tablets	9.0
Codeine sulphate hypodermic tablets	9.0
Morphine sulphate hypodermic tablets	7.5
Strychnine sulphate hypodermic tablets purporting to contain 1/4 grain or more	7.5
Strychnine sulphate hypodermic tablets purporting to contain less than 1/4 grain	9.0
Strychnine nitrate hypodermic tablets purporting to contain 1/4 grain or more	7.5
Strychnine nitrate hypodermic tablets purporting to contain less than 1/4 grain	9.0

METHODS OF ANALYSIS RECOMMENDED BY COMMITTEES REPRESENTING THE INDUSTRY.

The committees representing the manufacturing industry recommend the following methods of analysis of the products mentioned above. The Bureau of Chemistry, for the analysis of official samples, employs methods based upon the same general principles as those given below, although some of the details of the procedures may vary somewhat. Studies of these methods show that they give results which agree satisfactorily with those used by the Bureau of Chemistry.

These methods have been referred to the referee on drugs of the Association of Official Agricultural Chemists for his consideration or further study by that association.

Hypodermic Tablets—Atropine Sulphate.

In case of tablets containing 1/20 grain of atropine sulphate or in excess of this amount, dissolve at least 20 tablets in sufficient distilled water to make 100 cubic centimeters and take an aliquot equal to at least one grain of atropine sulphate.

In case of tablets containing less than 1/20 grain of atropine sulphate, dissolve a sufficient number to represent at least one grain of atropine sulphate in sufficient distilled water to make a clear solution.

In either case make the aqueous solution distinctly alkaline with ammonia and shake out with several portions of chloroform until tests with Mayer's reagent indicate that the aqueous solution has been completely exhausted of the alkaloid. Evaporate the combined chloroform extracts to dryness on the water-bath. Dissolve the residue in a few cubic centimeters of neutral alcohol. Add 10 cubic centimeters of $N/20$ sulphuric acid and titrate excess of acid with $N/50$ potassium hydroxide solution, using methyl red indicator.

Each cubic centimeter of $N/20$ sulphuric acid consumed corresponds to 0.017362 gram of atropine sulphate $(C_{17}H_{23}O_3N)_2H_2SO_4 + H_2O$.

Hypodermic Tablets—Cocaine Hydrochloride.

Dissolve not less than 20 tablets in sufficient distilled water to make 100 cubic centimeters and take an aliquot equivalent to at least one grain of cocaine hydrochloride. Make the aqueous solution slightly alkaline with ammonia and shake out with several portions of ether until the

aqueous layer is shown to be completely exhausted of alkaloid, using Mayer's reagent for the test. Combine the ether extracts and evaporate the major portion of the ether on the steam-bath, finally allowing the remainder to be dissipated at room temperature. Dissolve the residue in a few cubic centimeters of neutral alcohol. Add 10 cubic centimeters of $N/20$ sulphuric acid, and titrate the excess of acid with $N/50$ potassium hydroxide, using methyl red indicator. Each cubic centimeter of $N/20$ sulphuric acid corresponds to 0.016983 gram of cocaine hydrochloride, $C_{17}H_{21}O_4NHCl$.

Hypodermic Tablets—Codeine Sulphate.

Dissolve not less than 20 tablets in sufficient distilled water to make 100 cubic centimeters and take an aliquot equivalent to at least one grain of codeine sulphate. Make the aqueous solution alkaline with ammonia and shake out with several portions of chloroform until the aqueous solution is shown to be exhausted of alkaloid, using Mayer's reagent for the test. Evaporate the combined chloroform extracts to dryness on the water-bath, and dissolve the residue in a few cubic centimeters of neutral alcohol. Add 10 cubic centimeters of $N/20$ sulphuric acid and titrate the excess of acid with $N/50$ potassium hydroxide solution, using methyl red indicator.

Each cubic centimeter of $N/20$ sulphuric acid consumed corresponds to 0.019663 gram of codeine sulphate $(C_{18}H_{21}O_3N)_2H_2SO_4 + 5H_2O$.

Hypodermic Tablets—Morphine Sulphate.

Dissolve not less than 20 tablets in sufficient distilled water to make 100 cubic centimeters and take an aliquot equivalent to at least one grain of morphine sulphate. Make the aqueous solution slightly alkaline with ammonia and shake out six times with a mixture consisting of three parts of chloroform and one part of alcohol.

Evaporate the combined extracts to dryness on the water-bath and dissolve the residue in a few cubic centimeters of neutral alcohol. Add 10 cubic centimeters of $N/20$ sulphuric acid and titrate the excess of acid with $N/50$ potassium hydroxide.

Each cubic centimeter of $N/20$ sulphuric acid corresponds to 0.018962 gram of morphine sulphate $(C_{17}H_{19}O_3N)_2H_2SO_4 + 5H_2O$.

Hypodermic Tablets—Strychnine Sulphate or Strychnine Nitrate.

In case of tablets containing $^1/_{20}$ grain of strychnine sulphate or strychnine nitrate or in excess of this amount, dissolve at least 20 tablets in sufficient distilled water to make 100 cubic centimeters and take an aliquot equal to at least one grain of strychnine sulphate or strychnine nitrate.

In case of tablets containing less than $^1/_{20}$ grain, dissolve a sufficient number to represent at least one grain of strychnine sulphate or strychnine nitrate in sufficient distilled water to make a clear solution.

In either case make the aqueous solution distinctly alkaline with ammonia and shake out with several portions of chloroform until tests with Mayer's reagent indicate that the aqueous solution has been completely exhausted of the alkaloid. Evaporate the combined chloroform extracts to dryness on the water-bath. Dissolve the residue in a few cubic centimeters of neutral alcohol. Add 10 cubic centimeters of $N/20$ sulphuric acid and titrate the excess of acid with $N/50$ potassium hydroxide solution, using methyl red indicator.

Each cubic centimeter of $N/20$ sulphuric acid consumed corresponds to 0.021414 gram of strychnine sulphate $(C_{21}H_{22}O_2N_2)_2H_2SO_4 + 5H_2O$, or 0.01986 gram of strychnine nitrate, $C_{21}H_{22}O_2N_2HNO_3$.

ANNUAL MEETING OF ALPHA ZETA OMEGA FRATERNITY.

The fifth annual convention and banquet of the Alpha Zeta Omega Fraternity was presided over by Dr. H. V. Arny of Columbia University College of Pharmacy, held in Newark. The next convention (1926) will be held in Philadelphia. The following officers were elected: *President*, S. I. Sless, Philadelphia; *Vice-President*, Samuel Block, Baltimore; *Treasurer*, Benjamin Margolis; *Secretary*, I. M. Ostrum.