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 A. H. Edwards, 291 Hughes St., Maltby, Pa.
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- P. W. Banker, 203 Pierce St., Kingston, Pa.
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 W. J. Walters, 108 Dana St., Wilkes-Barre, Pa.
 George W. Brown, 261 College Ave., Kingston, Pa.
 W. V. Green, 125 Academy St., Wilkes-Barre, Pa.
 H. H. Swainbank, 82 South Main Street, Wilkes-Barre, Pa.
- All of the above petitioners (except Louis Frank) are not members of the Association, although they have applied for membership (Motion No. 30). Do you favor granting the above petition contingent upon the election of the non-member applicants to membership in the Association? This will be known as *Motion No. 31 (Granting of Petition to Establish Wilkes-Barre Branch, A. Ph. A.)*.
- J. W. ENGLAND,
 415 N. 33RD STREET. *Secretary.*

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON DRUG MARKET.*

The most impressive fact noted while studying the large amount of material presented by the various members of your Committee on Drug Market, is the excellent condition of drugs and chemicals in general. The committee is very fortunate in having access to the analytical files of laboratories that examine a wide variety of goods, so that on account of this privilege, it is able to give a comprehensive report of the conditions prevailing in the drug and chemical world. It is very gratifying to note the maintenance of the high standard of quality noticed in recent years and that goods of standard quality have been consistently offered for some years. Various articles from time to time fall off in quality but after a period of back-sliding they generally return to a normal condition.

The cases of wilful adulteration were few and as in recent years the most trouble has been caused by the ignorant and by those who use careless methods of manufacture. However, it is usually not difficult to obtain goods of standard quality but constant watchfulness is essential to guard against imposition by the unscrupulous and careless, who endeavor to dispose of adulterated or inferior goods. Those who follow analytical work appreciate the excellency of the U. S. P. standards and tests, as they are fair and render uniformity of results more probable thereby avoiding considerable contention regarding methods. These tests and standards reinforced by the rulings of Federal and State governments and the efforts of conscientious manufacturers and retail dealers are responsible for the present high standards of excellence. It is found also that the quality of chemicals formerly produced abroad, but now manufactured in this country, is excellent and it is gratifying to note the success of American chemists in their accomplishment of wresting from Germany the control of many lines of chemical industry.

* Presented at 1918 meeting Pennsylvania Pharmaceutical Association.

As in former years, we found a number of substances which were only slightly inferior and were considered of acceptable quality, although not strictly equal to the standards. They often were low in strength but usually contained traces of harmless impurities. The number of rejected or decidedly inferior shipments and broker's samples was not excessive considering the fact that several thousand samples were examined by the workers of the various laboratories contributing to our report. There were about 90 in all, divided as follows: Chemicals, 42; drugs, 38; oils and fats, 8. Most of the drugs contained excess of stems, stones and earthy matter but usually the foreign matter could be removed and the shipment put in an acceptable condition.

As reported in the following pages, there were 8 substances subjected to adulterations, substitution or gross carelessness, for instance: Cottonseed oil was substituted for olive oil and tap water for lime water. A lot of belladonna root was adulterated with scopolia, and sugar with table salt. A shipment of citron essence was found to be oil of lemon, and a shipment of lithium benzoate was found to be barium hydrate. Several lots of storax were of very poor quality and had probably been deprived of their cinnamic acid and esters. One lot of rennin was only half strength and a lot of wild belladonna contained only a trace of alkaloids. Two shipments of diastase were only one-half strength and contained 50 percent of water-insoluble matter. Another shipment was three-fourths strength and contained 30 percent of water-insoluble matter.

The detection of these cases of gross inferiority adulteration, and substitution emphasizes the necessity of close analytical control and examination, as it protects health, avoids waste of effort and material, insures uniformity of results and increases efficiency. This is particularly true at this time of war when all waste of any kind must be avoided in order to aid our country and its allies in their fight to maintain liberty at home and render it possible for oppressed peoples of other lands to obtain it in full measure.

The substances commented upon in the following pages have all been examined by practical and experienced workers during the period from June 1, 1917 to June 1, 1918 and have been taken from the files of the laboratories of H. K. Mulford & Co., Prof. Charles H. LaWall and Smith, Kline and French Co., who generously offer them for the benefit of the Pennsylvania Pharmaceutical Association in particular, and the whole pharmaceutical profession in general.

ACETIC ETHER: The only lot examined yielded a trifle more residue than is permitted by the U. S. P. Reported by J. G. ROBERTS.

ACID, ACETIC: An instance of lack of uniformity in shipments was found in the case of a three-barrel lot of 80% acetic acid. The contents of one barrel was decidedly reddish, another had a slight yellow color, while the remaining one had a normal water-white appearance.

Reported by J. G. ROBERTS.

ACID, BENZOIC: A slight excess of chlorine was discovered in each of two lots which were otherwise of normal quality.

Reported by J. G. ROBERTS.

ACID, ACETYL SALICYLIC: One lot was rejected because of excessive free salicylic acid and perfumed odor.

Reported by G. E'WE.

ACID, HYDROCHLORIC C. P.: One lot contained an excess of iron and free chlorine.

Reported by G. E'WE.

ACID, SALICYLIC: During the past year this substance has not been quite as good as usual. Of the four lots examined only one was entirely satisfactory. One of the other three had an undesirable yellow color, a trace of phenol and was 0.44% low in strength; another was 0.55% low in strength and the remaining one was satisfactory except that it contained a trace of phenol.

ADEPS LANAЕ: Occasional lots have offensive odor. Reported by G. E'WE.

ADEPS LANAЕ (HYDROUS): One lot complied with the requirements of the U. S. P. and one lot was of very poor quality. It contained chlorides and excessive amounts of water, free acid and ash. It had a dark color, an alkaline ash and too high an iodine number. In fact it hardly complied with one of the U. S. P. requirements and was a very inferior product.

Reported by J. G. ROBERTS.

ADEPS LANAЕ (ANHYDROUS): One lot was of U. S. P. quality except that it had a low iodine value and contained slightly excessive amounts of ash and free acid. Another lot was entirely U. S. P., except its iodine value, which was only slightly below the U. S. P. minimum standard.

Reported by J. G. ROBERTS.

- ALLSPICE:** Three samples examined were all of normal quality.
Reported by C. H. LAWALL.
- ALUM (POTASH):** The rejection of one sample was recommended on account of its dirty color and the presence of pieces of wood and other foreign matter.
Reported by J. G. ROBERTS.
- ARGOLS:** A sample of white argols was found to contain about 84% of tartrates calculated as potassium bitartrate and a sample of red argols about 14%.
Reported by J. G. ROBERTS.
- ASAFETIDA:** One lot was found to contain rosin.
Reported by J. G. ROBERTS.
- BELLADONNA LEAVES:** Every shipment was of U. S. P. quality and contained 0.3% to 0.54% alkaloids.
Reported by J. G. ROBERTS.
- BELLADONNA PLANT—WILD:** A lot was examined which contained only traces of alkaloids.
Reported by C. GREEN.
- BELLADONNA ROOT:** One lot contained 11.64% of scopolia root. This lot did not conform to the U. S. P. requirement of not more than 10% of Belladonna stem bases or other foreign matter.
Reported by G. E'WE.
- BELLADONNA STEMS:** A sample was examined for academic interest only. It assayed 0.1443% mydriatic alkaloids.
Reported by C. GREEN.
- BENZOIN, GUM:** One lot contained only 59.5% alcohol-soluble matter whereas the U. S. P. requires 75%. The foreign matter consisted chiefly of wood.
Reported by N. SURO.
- BISMUTH SUBGALLATE:** One lot contained an excess of sulphate.
Reported by J. RAHN.
- BISMUTH TRIBROMOPHENOLATE:** One lot was grayish yellow, assayed 62.1% Bi₂O₃ and possessed a strong odor of tri-brom-phenol. This was not satisfactory and was rejected.
Reported by G. E'WE.
- BROOM TOPS:** One lot contained 8% of stems.
Reported by G. E'WE.
- CALCIUM CARBONATE—PRECIPITATED:** Two of the five lots examined were not of U. S. P. quality. One was 4.3% low in strength and the other contained about 25 times more water-soluble material than is permitted by the U. S. P.
Reported by J. G. ROBERTS.
- CALCIUM GLYCEROPHOSPHATE:** One lot contained slight excess of chlorides and of sulphates.
Reported by J. RAHN.
- CALCIUM OXIDE (MEDICINAL):** One lot was rejected because it was air-slaked.
Reported by G. E'WE.
- CAPSICUM:** Fifteen samples examined were all of normal quality.
Reported by C. H. LAWALL.
- CASCARILLA BARK:** One lot offered was very poor. It contained excessive dirt and in addition some pebbles, shells, berries and nails. Another lot was practically devoid of odor.
Reported by G. E'WE.
- CELERY SEED:** Two lots yielded, respectively, 8.61% and 9.43% of ash which amounts are in excess of the U. S. P. limit of 8%, but within the U. S. Dept. of Agriculture standard of not more than 10%.
Reported by J. G. ROBERTS.
- CELERY SEED:** Five samples examined were all of good quality.
Reported by C. H. LAWALL.
- CHARCOAL, ANIMAL (PURIFIED):** One lot contained 6.9% ash. The U. S. P. VIII allowed only 4% ash.
Reported by F. KEENAN.
- CHLOROFORM:** A trace of free chlorine was found in one lot. Two other lots had specific gravities a little higher than the U. S. P. standard which fact was probably due to the absence of a requisite amount of alcohol.
Reported by J. G. ROBERTS.
- CINCHONA, YELLOW (BRAZILIAN):** Three lots assayed 1.73, 2.14 and 3.62% total alkaloids, respectively.
Reported by G. E'WE.
- CINNAMON:** All of the seven samples examined were satisfactory.
Reported by C. H. LAWALL.
- "CITRON, ESS:"** A sample, so labeled, was Oil of Lemon of U. S. P. quality.
Reported by S. DUBELL.
- CLOVES:** The six samples examined were of standard quality.
Reported by C. H. LAWALL.

COCOA: Twenty samples, all O. K. Two had the unusually low fat content of 12% but were normal in every other respect. Reported by C. H. LAWALL.

CODEINE SULPHATE: Two lots were a little yellow in color.

Reported by J. G. ROBERTS.

COLCHICINE: Two lots contained 12.35 and 13.4% respectively, of volatile matter at 100° C. The volatile matter consisted largely of chloroform. Colchicine should not lose more than 5% of its weight at 100° C.

Reported by G. E'WE.

COPPER SULPHATE: The examination of a broker's sample showed the presence of a large excess of foreign metals. It appeared to be a good technical grade.

Reported by J. G. ROBERTS.

CORIANDER: Out of 8 samples examined, 3 were found to contain foreign starch (leguminous) from weed seeds not removed by cleaning.

Reported by C. H. LAWALL.

CREOSOTE, BEECHWOOD: One was turbid in U. S. P. glycerin test.

Reported by S. DUBELL.

CREOSOTE, CARBONATE: One sample had a specific gravity slightly below the U. S. P. standard but was otherwise of U. S. P. quality.

Reported by J. G. ROBERTS.

DAKIN'S SOLUTION: The examination of sixteen lots showed them to contain in 100 mls, 0.34 Gm. to 0.512 Gm. of chlorine, calculated as sodium hypochlorite. Five of them contained less than 0.45 Gm. which is considered as the minimum standard.

DAMIANA LEAVES: One lot was rejected because it contained a considerable proportion of pebbles. Another lot consisted practically entirely of stems.

Reported by G. E'WE.

DIASTASE: This sample was found to show only a little over $\frac{3}{4}$ of the U. S. P. starch digesting power. It was not soluble in water, as is required by the U. S. P. standard, but showed over 30% of insoluble matter which under the microscope was seen to be starch granules.

Reported by J. G. ROBERTS.

DIASTASE: Two samples were examined having about one-half the U. S. P. digestive power and containing about 50% insoluble matter, mainly starch. The samples consisted of powdered malt, in all probability.

Reported by C. H. LAWALL.

GALEGA: Two lots were rejected because of too much stems.

Reported by B. HOFFSTEIN.

GAMBIR: Some lots continue to come in in a soft mass condition due to excessive moisture whereas the U. S. P. requires Gambir to be dried to the friable stage.

Reported by G. E'WE.

GINGER: Six samples were all of good quality.

Reported by C. H. LAWALL.

GELATIN: Out of 10 samples of powdered gelatin examined, 5 were found to contain excessive amounts of sulphur dioxide and arsenic to the extent of over 2.5 parts to the million, also in excess.

Reported by C. H. LAWALL.

GLYCERIN: Most of the glycerin examined was of good quality. Two lots had specific gravities a little lower than the standard. One had a decided yellow color and contained more than the permissible amount of carbonizable impurities. Four lots were of U. S. P. quality in every respect.

Reported by J. G. ROBERTS.

HELLEBORE: The only lot examined was found to contain 1.75% alkaloids.

Reported by J. G. ROBERTS.

HYOSCYAMUS: Not one of the lots examined was of U. S. P. quality. One broker's sample was not the U. S. P. variety. Three other shipments were deficient in alkaloids as they contained only 0.033% to 0.054% whereas the U. S. P. requires the presence of not less than 0.065%.

Reported by J. G. ROBERTS.

IPECAC: Both shipments received were of U. S. P. quality and yielded 2.28% and 1.84%, respectively, of alkaloids.

Reported by J. G. ROBERTS.

IPECAC STEMS: Two lots examined because of academic interest were found to contain 1.71% and 1.89%, respectively, of ether-soluble alkaloids.

Reported by C. GREEN.

IRON, REDUCED: Practically all of the reduced iron examined during the past year contained sulphides in excess of the U. S. P. allowance and some of the lots contained shining particles of iron suggesting the probability that ordinary powdered iron was present.

Reported by N. SUTO.

KINO: Two samples yielding the following results were examined:

| Sample. | O. | F. |
|------------------------------------|--------|--------|
| Appearance..... | Normal | Normal |
| Moisture..... | 14.45% | 14.31% |
| Ash..... | 2.04% | 4.92% |
| Proportion soluble in alcohol..... | 22.14% | 36.33% |

Neither of these samples was of U. S. P. quality as they contained more than 12% of moisture and did not yield 45% of alcohol-soluble matter as required by the U. S. P. Sample marked F also yielded 1.92% excess of ash. Reported by J. G. ROBERTS.

KOLA NUT: Two lots contained 1.63% and 1.54%, respectively, of caffeine which are within the N. F. limit of not less than 1.5%. Reported by J. G. ROBERTS.

LEAD ACETATE (POWDERED): This shipment was not of U. S. P. quality as it contained an excess of carbonate and was considerably effloresced. Its strength according to the U. S. P. method was found to be 93.53% whereas the U. S. P. maximum limit is 89.57% of anhydrous lead acetate. Reported by J. G. ROBERTS.

LIQUOR CALCIS: One sample from a drug store giving it away free of charge, was found to be nothing but tap water. Reported by C. H. LAWALL.

LITHIUM BENZOATE: A sample, so labeled, received from a prominent firm consisted of barium hydrate. Reported by G. E'WE.

LYCOPODIUM: An excess of ash was found in one lot which was otherwise of U. S. P. quality. Reported by J. G. ROBERTS.

MACE: Out of 10 samples examined, 4 were slightly above the 30% maximum figure for non-volatile ether extract. Reported by C. H. LAWALL.

MAGNESIUM CARBONATE: An excess of 0.44% and 0.14% of calcium calculated as calcium oxide was found in two lots which complied with all other U. S. P. conditions. Reported by J. G. ROBERTS.

MAGNESIUM CARBONATE: Out of 5 samples examined two contained over 5% of CaCO₃ and over 0.25% Fe₂O₃. Reported by C. H. LAWALL.

MANGANESE DIOXIDE, PRECIPITATED, U. S. P.: One lot contained 2.32% insoluble matter. The U. S. P. allows only 0.2%. Reported by G. E'WE.

MARJORAM: Sixteen samples examined, 7 of which were found to contain over 10% of foreign leaf fragments. Reported by C. H. LAWALL.

MERCURY BENZOATE: Two lots did not answer the following N. & N. R. 1918 requirements: "At 20° C. a 10% solution of sodium benzoate dissolves 1% of its weight of mercuric benzoate." A large liberation of benzoic acid occurred during the application of the test.

Mercuric benzoate is commonly prepared for hypodermic use by solution in normal saline solution. Two lots contained between 1 and 2% of matter which was insoluble in normal saline solution. Reported by C. GREEN.

NUTMEG: The six samples tested were all satisfactory. Reported by C. H. LAWALL.

NUX VOMICA: Two lots contained, respectively, 2.34% and 2.22% of alkaloids which are below the U. S. P. standard of not less than 2.5% alkaloids. Reported by J. G. ROBERTS.

OIL, CASTOR: Four samples of good quality gave the following acid numbers: 1.54, 1.61, 1.59 and 1.63. Reported by J. G. ROBERTS.

OIL OF DILL: This oil was obtained by distilling a lot of siftings that were left after cleaning a shipment of dill seed. The oil upon examination gave the following results:

| | |
|--------------------------------|--------|
| Appearance..... | Yellow |
| Sp. gr. at 15° C..... | 1.01 |
| Optical rotation at 20° C..... | +34.9° |

As oil of dill is not recognized by the U. S. P. or the N. F. the results obtained in this examination were compared with the standards given in the B. P. It was found, however, that it did not meet the requirements given therein as the specific gravity was higher than the B. P. standard of 0.900 to 0.915 at 15.5° C. and its optical rotation lower than the standard of +70°

to $+80^{\circ}$ at 20° C. In view of the foregoing facts it was considered that the oil was not of normal quality on account of differing so appreciably from the standards.

Reported by J. G. ROBERTS.

OIL OF LEMON, EXTRA STRONG: Assayed 20.5% citral.

Reported by G. E'WE.

OIL OF LEMON, TERPENELESS: Two lots assayed 28.6% and 26.7% of citral, respectively.

Reported by G. E'WE.

OIL, RATTLESNAKE: The following data was obtained with one lot:

| | |
|--------------------------------|-------|
| Sp. gr. at 25° C..... | 0.919 |
| Iodine value..... | 102.3 |
| Saponification value..... | 202.1 |

The sample corresponds closely with the published factors for genuine rattlesnake oil and was considered authentic.

Reported by J. G. ROBERTS.

OIL OF SASSAFRAS: Sample was of U. S. P. quality with the exception that it did not comply with the optical rotation standard of $+3^{\circ}$ to $+4^{\circ}$. The U. S. P. VIII permitted the use of sassafras oil with an optical rotation as low as this one as it merely required that the rotation should be not above $+4^{\circ}$. In the past six years we have examined eight lots which had the following optical rotation: $+2.03^{\circ}$, $+3.83^{\circ}$, $+2.48^{\circ}$, $+1.59^{\circ}$, $+2.16^{\circ}$, $+2.9^{\circ}$, $+2.55^{\circ}$ and $+3.9^{\circ}$.

Six of these are below $+3^{\circ}$ and two are above.

Reported by J. G. ROBERTS.

OIL OF SWEET ORANGE: One lot was dark in color but fine in odor and answered all U. S. P. requirements.

Reported by G. E'WE.

OLIVE OIL: Three out of 8 samples examined consisted of cottonseed oil. None of the adulterated samples came from drug stores.

Reported by C. H. LAWALL.

PAPAIN: All the papain tested during the past year was low in proteolytic power. None assaying more than 1 to 4.7.

Reported by G. E'WE.

PAPRIKA: Twelve samples were all of good quality.

Reported by C. H. LAWALL.

PEANUT BUTTER: As it was suspected that this product contained ground glass, added with malicious intent, it was examined both macroscopically and chemically for mechanical matter. No glass was found, however, with either method. The sample yielded 0.3% of ash insoluble in hot dilute hydrochloric acid and 0.38% of insoluble matter left after oxidation of organic matter with sulphuric acid and potassium sulphate. The presence of glass was probably suspected on account of the presence of coarse salt.

Reported by J. G. ROBERTS.

PEPPER, BLACK, GROUND: The twenty-one samples tested all complied with the standards.

Reported by C. H. LAWALL.

PEPPER, WHITE, GROUND: Eleven samples examined were all satisfactory.

Reported by C. H. LAWALL.

PETROLATUM (LIQUID): The rejection of a three-drum lot was recommended because it contained an excess of carbonizable impurities and had a slight taste of kerosene.

Reported by J. G. ROBERTS.

PETROLATUM, LIQUID, U. S. P.: A few samples contained excessive carbonizable impurities.

Reported by G. E'WE.

PHYSOSTIGMA: The alkaloidal content of one lot was 0.14% which is a trifle under the U. S. P. standard of 0.15%.

Reported by J. G. ROBERTS.

POTASSIUM CARBONATE: One lot was 5% low in strength, contained a trace of earthy impurities and was dirty. It contained practically no sodium when tested quantitatively and a normal amount of arsenic according to the general test of the U. S. P.

Reported by J. G. ROBERTS.

POTASSIUM PERMANGANATE: Three lots were rejected because of excessive water-insoluble matter.

Reported by G. E'WE.

POTASSIUM NITRATE: Two lots were of U. S. P. quality except that they had a yellowish color.

Reported by J. G. ROBERTS.

POTASSIUM PERMANGANATE: All of the shipments examined complied with the standards of the U. S. P. except that they had a decided bronze luster. The U. S. P. requires potassium permanganate to have a dark purple color.

Reported by J. G. ROBERTS.

QUININE FORMATE: Melting intervals vary. Three lots had following melting intervals, respectively: 120-122° C., 124-126° C. and 145-150° C.

Reported by G. E'WE.

RENNIN 1-30,000: The rejection of one shipment was recommended because its coagulating power was less than 1/2 of that claimed on the label when tested according to the method of the N. F.

Reported by J. G. ROBERTS.

RENNIN: Continues to vary greatly. Seven lots assayed as follows: 1 to 10,500, 1 to 12,500, 1 to 15,625, 1 to 16,666, 1 to 16,666, 1 to 26,000 and 1 to 41,000.

Reported by G. E'WE.

SAFFRON: Seven samples were all of N. F. quality.

Reported by C. H. LAWALL.

SAGE: Out of 7 samples examined 4 were found to contain an excess of stems, in two cases the stems amounting to over 50% of the samples.

Reported by C. H. LAWALL.

SALOL: Sample was of U. S. P. quality with the exception that it had a yellowish color. This condition seems to have become chronic as considerable of the salol seen on the market is in that condition.

Reported by J. G. ROBERTS.

SANGUINARINE NITRATE: Continues to vary greatly. The 4 lots examined assayed 51.4, 53.0, 94.2 and 98.7%, respectively.

Reported by F. KEENAN.

SAVORY: Out of 3 samples submitted, one contained an excess of stems (24%).

Reported by C. H. LAWALL.

SCAMMONY, RESIN: One lot contained only 90.6% ether-soluble matter. The U. S. P. requires 95%.

Reported by G. E'WE.

SENEGA: One shipment was considered unsatisfactory because it contained 30% of stems instead of 5% as required by the U. S. P. and only 0.22 Gm. of ether-soluble matter from 5 Gm. of drug instead of 0.3 Gm. as required.

Reported by J. G. ROBERTS.

SOAP, SOFT: Four lots were practically neutral, inclining toward acidity, whereas the U. S. P. requires soft soap to be faintly alkaline.

Reported by G. E'WE.

SODIUM BENZOATE: The U. S. P. sanctions the use of synthetic benzoic acid and requires benzoic acid to be tested for chlorine because chlorine is a possible impurity in synthetic benzoic acid. Synthetic benzoic acid can be and probably is used to manufacture sodium benzoate, yet the U. S. P. evidently by oversight neglects to direct the application of a test for chlorine to sodium benzoate or benzoic acid recovered from it. None of the sodium benzoate tested during the past year contained chlorides.

Reported by G. E'WE.

SOLUTION HYDROGEN PEROXIDE: Every lot examined was of U. S. P. quality except that one lot had a slight excess of non-volatile matter and two lots a slight excess of free acid.

Reported by J. G. ROBERTS.

SOLUTION MAGNESIUM CITRATE: Two out of 5 samples were found to be low in amount of magnesium citrate present.

Reported by C. H. LAWALL.

STORAX, LIQUID: There appears to be no strictly U. S. P. liquid storax on the market. Some lots are marked "not U. S. P." Eight lots had the following characteristics:

| Sample. | Alcohol sol. | Alcohol insol. | Ash. | Acid value. | Sapon. val. |
|-------------------|--------------|----------------|-------|-------------|-------------|
| 1..... | 84.08 | 0.86 | 0.45 | 155 | 193.5 |
| 2..... | 87.0 | O. K. | 0.35 | 144 | 196 |
| 3..... | 87.5 | O. K. | 0.04 | 155 | 212 |
| 4..... | 90.8 | 0.18 | None | 41 | 167 |
| 5..... | 91.1 | 1.62 | 0.72 | 118.7 | 181 |
| 6..... | O. K. | O. K. | O. K. | 171.7 | O. K. |
| 7..... | O. K. | 1.6 | O. K. | 122.3 | 163 |
| 8..... | 91.0 | 7.37 | O. K. | 118.5 | 166.5 |
| U. S. P. req..... | 60 | 2.5 | 1% | 56-85 | 170-230 |

Sample No. 4 was labeled "American" and was clear and light yellow in color instead of turbid and brownish.

Reported by G. E'WE.

STRAMONIUM LEAVES: Two lots contained, respectively, 0.39% and 0.3% of alkaloids.

Reported by J. G. ROBERTS.

SUGAR (CANE): A grossly adulterated lot was found to contain 21% of sodium chloride.

Reported by J. G. ROBERTS.

SUGAR, CORN: All of the solid corn sugar examined during the past year was free from barium, arsenic and heavy metals.
Reported by G. E'WE.

SULPHUR (PRECIPITATED): Three of the five lots examined were not as represented. One was found to be washed sulphur and two yielded exceedingly high amounts of ash. One of these was of Japanese origin and yielded 46.4%. The other yielded 45.1% whereas the U. S. P. permits not more than 0.3%.
Reported by J. G. ROBERTS.

TERRA ALBA: All of the terra alba examined during the past year consisted of non-setting calcium sulphate.
Reported by G. E'WE.

THYME: Three samples, one containing an excess of stems (17%).

Reported by C. H. LAWALL.

TINCTURE OF IODINE: The rejection of one lot was recommended because it contained only 6.14 Gm. of iodine in 100 mls instead of not less than 6.5 Gm. nor more than 7.5 Gm. as required by the U. S. P.
Reported by J. G. ROBERTS.

VERDIGRIS: The following amounts of copper calculated as copper oxide were found in the samples given below:

| | Sample No. | Copper oxide. |
|----------------------|------------|---------------|
| Blue Verdigris..... | 1 | 38.49% |
| Green Verdigris..... | 2 | 32.91% |
| Green Verdigris..... | 3 | 37.80% |

Reported by J. G. ROBERTS.

WILD LETTUCE: One lot was rejected because of excessive proportion of midrib.

Reported by B. HOFFSTEIN.

WINTERGREEN LEAVES: One lot was rejected because of excessive proportion of stems.
Reported by G. E'WE.

ZINC: This lot was stated to be arsenic free but upon examination was found to be of unsuitable quality as it contained a decided trace of arsenic. It complied with the requirement as given under the ordinary U. S. P. zinc but it was not suitable for U. S. P. reagent zinc as it yielded more than "a scarcely perceptible stain" when tested according to the method given.
Reported by J. G. ROBERTS.

ZINC OXIDE: Sample contained an excess of heavy metals which, however, is not an unusual condition as most zinc oxide examined by us has contained excessive amounts. This sample contained 0.16% of lead calculated as lead oxide and compares favorably with the lowest amount found in various samples. During the past three years the samples examined have contained 0.09% to 0.44% of lead calculated as lead oxide.
Reported by J. G. ROBERTS.

ZINC OXIDE: Of 8 samples examined but 2 responded to the U. S. P. heavy metal test.
Reported by C. H. LAWALL.

ZINC OXIDE: Nine lots contained excessive heavy metals ranging from 0.05 to 0.236% calculated as metallic lead.
Reported by G. E'WE.

ZINC PERMANGANATE: One lot was rejected because of the presence of a large proportion of water-insoluble matter.
Reported by G. E'WE.

The Following Table Shows the Results of 131 Crude Drug Assays made in the Analytical Laboratory of the H. K. Mulford Company during the Year June 1, 1917-June 1, 1918.

| Drug. | No. of samples. | Lowest assay. | Highest assay. | Average. | Standard. | Number. | |
|------------------------|-----------------|---------------|----------------|----------|-----------------------|---------|--------|
| | | | | | | Above. | Below. |
| Aconite Leaves..... | 3 | 0.37% | 0.51% | 0.460% | 0.2% ether-sol. alks. | 3 | 0 |
| Aconite Root..... | 3 | 0.33% | 0.49% | 0.414% | 0.5% ether-sol. alks. | 0 | 3 |
| Belladonna Leaves..... | 8 | 0.31% | 0.79% | 0.450% | 0.3% alkaloids | 8 | 0 |
| Belladonna Root..... | 8 | 0.40% | 0.710% | 0.530% | 0.45% alkaloids | 6 | 2 |
| Cantharides, Chinese.. | 3 | 1.08% | 1.90% | 1.60% | 0.6% cantharidin | 3 | 0 |
| Cinchona, red..... | 6 | 5.55% | 10.0% | 7.70% | 5% alkaloids | 6 | 0 |
| Cinchona, yellow..... | 3 | 6.01% | 9.38% | 7.46% | 5% alkaloids | 3 | 0 |
| Coca Leaves..... | 2 | 0.73% | 1.14% | 0.93% | 0.5% alkaloids | 2 | 0 |
| Colchicum, Corm..... | 1 | 0.37% | 0.37% | 0.37% | 0.35% colchicine | 1 | 0 |

| Drug. | No. of samples. | Lowest assay. | Highest assay. | Average. | Standard. | Number. | |
|------------------------|-----------------|---------------|----------------|----------|-------------------------|---------|--------|
| | | | | | | Above. | Below. |
| Colchicum, Seed..... | 4 | 0.67% | 0.75% | 0.71% | 0.45% colchicine | 4 | 0 |
| Cubeb..... | 1 | 24.3% | 24.3% | 24.3% | 15% oleoresin | 1 | 0 |
| Ginger, African..... | 2 | 6.39% | 8.11% | 7.25% | 6% oleoresin | 6 | 0 |
| Gelsemium..... | 4 | 0.40% | 0.62% | 0.48% | 0.4% alkaloids | 4 | 0 |
| Ginger, Jamaica..... | 6 | 4.00% | 6.85% | 4.81% | 4% oleoresin | 6 | 0 |
| Guarana..... | 5 | 3.97% | 5.57% | 4.43% | 4% caffeine | 4 | 1 |
| Hydrastis..... | 2 | 3.94% | 4.47% | 4.20% | 2.5% alkaloids | 2 | 0 |
| Hyoscyamus..... | 2 | 0.059% | 0.066% | 0.062% | 0.065% alkaloids | 1 | 1 |
| Ignatia..... | 1 | 2.88% | 2.88% | 2.88% | 2% alkaloids | 1 | 0 |
| Ipecac..... | 14 | 1.66% | 2.65% | 1.95% | 1.75% alkaloids | 13 | 1 |
| Jalap..... | 6 | 5.95% | 16.92% | 8.89% | 7% total resins | 3 | 3 |
| Kola..... | 9 | 1.36% | 2.35% | 1.71% | 1.5% caffeine | 6 | 3 |
| Kola, Fresh..... | 1 | 1.176% | 1.176% | 1.176% | 0.65% caffeine | 1 | 0 |
| Lobelia..... | 3 | 0.50% | 1.14% | 0.745% | 0.5% alkaloids | 3 | 0 |
| Nux Vomica..... | 5 | 2.35% | 2.63% | 2.53% | 2.5% alkaloids | 4 | 1 |
| Opium Gum..... | 4 | 9.58% | 10.48% | 9.90% | 9.5% anhydrous morphine | 4 | 0 |
| Opium, Powdered..... | 9 | 9.98% | 10.50% | 10.16% | 10% anhydrous morphine | 8 | 1 |
| Pilocarpus..... | 1 | 0.67% | 0.67% | 0.67% | 0.6% alkaloids | 1 | 0 |
| Podophyllum..... | 7 | 3.10% | 6.70% | 4.31% | 3% resin | 7 | 0 |
| Sanguinaria..... | 2 | 3.37% | 3.95% | 3.66% | 2.5% alkaloids | 2 | 0 |
| Stramonium Leaves..... | 4 | 0.12% | 0.30% | 0.23% | 0.25% alkaloids | 3 | 1 |
| Stramonium Seed..... | 2 | 0.238% | 0.278% | 0.258% | 0.25% alkaloids | 1 | 1 |
| Totals..... | 131 | | | | | 113 | 18 |

COMPARISON WITH REPORTS PREVIOUSLY SUBMITTED.

| Year. | Total. | Above. | Below. | Percent. above. |
|------------------|--------|--------|--------|-----------------|
| 1909 Report..... | 395 | 313 | 82 | 79.3 |
| 1910 Report..... | 340 | 291 | 49 | 85.6 |
| 1911 Report..... | 263 | 224 | 39 | 85.1 |
| 1912 Report..... | 298 | 235 | 63 | 78.8 |
| 1913 Report..... | 382 | 264 | 118 | 69.1 |
| 1914 Report..... | 286 | 221 | 65 | 77.2 |
| 1915 Report..... | 133 | 98 | 35 | 73.6 |
| 1916 Report..... | 214 | 156 | 58 | 72.9 |
| 1917 Report..... | 172 | 147 | 25 | 85.3 |
| 1918 Report..... | 131 | 113 | 18 | 86.8 |

Last year practically none of the averages ran below standard. This year only aconite root, hyoscyamus and stramonium leaves ran below standard but only very slightly below. The general yearly average 86.8%, is the best yet recorded and is a very satisfactory indication that the general quality of drugs on the market is excellent, in spite of war conditions.

Reported by G. E'wre.

Committee { CHARLES E. VANDERKLEED,
 CHARLES H. LAWALL,
 O. W. OSTERLUND,
 J. G. ROBERTS, *Chairman.*