

COMMITTEE REPORTS

REPORT OF THE COMMITTEE ON DRUG MARKET.*

In preparing our report for the past year, we were confronted with a double problem as practically one-half of the year from June 1st to the middle of November witnessed what was undoubtedly the greatest effort ever made by our nation in war and in industry. The other half of the year brought another phase, or what might be termed the re-adjustment period. Each of these periods presented their different problems and the review of the work accomplished under these conditions necessitates its consideration from the two angles. During the period of actual warfare, consumers frequently did not have much choice and were obliged to accept what was available, even though it was of inferior quality and not what they were accustomed to receiving. After the cessation of hostilities these conditions were not so pronounced as the demands of our Army and Navy were considerably decreased and men were released from the fighting forces to again occupy their places in the army of industry. While this condition relieved the stress in many lines, particularly in chemistry, it did not have a pronounced influence on the vegetable drugs, as their growing and collecting period had passed and no improvement to any extent can be expected before another season. Other lines of goods were in a somewhat different position, as the release of goods formerly held in large quantities for war purposes and the increased facilities for manufacturing satisfied the normal demand. These conditions, however, placed the analyst in a difficult position as he had to determine whether or not the article he was examining was still subject to war conditions or was an effort on the part of a manufacturer or dealer to market an inferior article, even when the production of a superior article was possible.

As in other lines of industry, the analytical staffs of the various laboratories have been severely handicapped by the lack of assistants, both by the requirements of private plants engaged in war work and the urgent demand of the Army for all available chemists. For these reasons the report of your committee does not have quite as wide a scope as we desire, but in accordance with our usual custom, we have endeavored to make it comprehensive in order to fully inform you concerning the quality of drugs and chemicals found on the market. In general, the important question that we have to consider is not whether a few unscrupulous dealers have succeeded in evading the law for a short time and have disposed of adulterated goods, but whether the trade, as a whole, has maintained its high standard of quality, or if there has been a general lowering of quality. In this connection we wish to report that notwithstanding the unsatisfactory industrial condition we feel justified in stating that the condition of drugs, oils, chemicals, etc., is fairly satisfactory. In commenting on this phase of the situation, Mr. E'we states as follows: "Considering the dearth of labor during the past year we find upon an analysis of our records that the quality of medicinal substances during the past year has been gratifyingly satisfactory. The most striking result of the dearth of labor has been its effect upon the collection and marketing of crude vegetable drugs. These drugs have been offered with the undesirable parts of the plants either still attached or not removed to a sufficient extent to permit the drugs to come within the standard laid down for them. This condition has made necessary a higher proportion of rejections than usual."

Many of the cases of inferiority were entirely unwarranted and were evidently an effort on the part of some to profit by the abnormal conditions and also to dispose of goods of decidedly inferior quality. However, in some instances the fault is probably due to the fact that some persons were engaged in this occupation who had no previous experience and were ignorant of the exact requirement for the drug they were handling. A great many cases were due to carelessness or indifference to standards such as shipping Blackberry Root Bark containing 30% of whole roots, Butternut Bark and Cotton Root Bark each containing 30% of wood; Cramp Bark with 25% of whole roots and adhering wood; Goat's Rue consisting almost entirely of stems; Pipsissewa containing 50% of stems and fruits instead of leaves; Water Pepper consisting almost entirely of stems, whereas the whole herb is desired; Stronger Orange Flower Water containing 70 times and Stronger Rose Water containing 63 times more non-volatile water-soluble matter than is per-

* Presented to the 1919 Convention of the Pennsylvania Pharmaceutical Association at Buena Vista Springs, 1919.

mitted by the U. S. P.; and Zinc Borate containing 18% of zinc sulphate. In this class could also be considered instances where the active principle was considerably under standard, such as the instance of two shipments of Cinchona Bark, which contained only 0.36% and 0.68%, respectively, of alkaloids, Guaiacol containing a notable amount of impurities, Hydrastis containing only 0.73% of alkaloids, Ipecac with only .029% alkaloids and *Stillingia* Root containing 70% to 80% mouldy root.

Other cases, although gratifyingly few in number, are clear adulterations or substitutions. Under this heading we quote Kamala containing 46% sand, Oil of Cade containing Rosin Oil, the presence of another gum in Myrrh to the extent of 70%, the substitution of other members of the fern family for Male fern, *Rhus Copalina* for Rue, a mixture of other plants and grasses for St. John's Wort, *Ruellia* for *Spigelia* and *Cynodon dactylon* for *Triticum*. Occasionally, a particularly pernicious practice is uncovered where the valuable principle has been removed and the inert portion sold. This year we have two instances of this character, such as Australian Red Gum, which had been deprived of its water-soluble tannin and Hydrastis from which the alkaloids had been extracted.

An improvement in the quality of gum-resins and like products is essential, as of the twelve samples of Benzoin examined only five were of U. S. P. quality; only three of the seven samples of *Asafetida* and only one of four samples of Myrrh.

The usual number of cases were found where only slight inferiority was discovered. These items were usually not entirely satisfactory in color or contained impurities slightly in excess of the standards and were rejected or accepted according to whether or not the conditions noted were harmful.

In reviewing the data contributed to our report, we are re-impressed with the importance of a close examination of drugs and chemicals, not only to detect adulterations and determine the strength of preparations but to prevent the lowering of quality. It is only in this manner that the pharmacist can be assured that the prescription he is compounding contains the actual amount of the ingredient prescribed, as substances like *Pipsisewa*, which was found to contain 50% stems and fruits when only the leaves are desired, is in reality only one-half strength; Cramp Bark with 25% roots is only three-fourths strength, and Kamala with 46% sand is only about one-half strength.

Following its usual custom, the committee has taken advantage of the offer of the firms of H. K. Mulford Co. and the Smith, Kline & French Co., and has taken the following data from their files. The matter presented at this time does not represent all the substances examined by these firms but is typical of the articles examined during the period from June 1st, 1918, to June 1st, 1919.

ACETONE: One lot was 2.25% low in strength but was otherwise of U. S. P. quality.

Reported by J. G. ROBERTS.

ACETYLSALICYLIC ACID: Although this substance is subjected to rather rigid tests, we find that by far the greater number of samples submitted complied with the requirements. Of the forty-one lots and samples examined only five were rejected. These were not very inferior but as they contained more than a faint trace of free salicylic acid and had a decided odor of acetic acid when triturated, they were not considered of acceptable quality. The results obtained with these samples show that most of the acetylsalicylic acid on the market is of excellent quality. No talcum or other adulterant was present in any sample.

Reported by J. G. ROBERTS.

ACID BENZOIC: All lots were of U. S. P. quality except one which had a decided yellowish color.

Reported by J. G. ROBERTS.

ACID SALICYLIC: While all samples gave satisfactory results with the U. S. P. tests it appears difficult to obtain an entirely satisfactory product as most of the samples examined had a yellowish appearance and when used for the manufacture of sodium salicylate gave a product with a decided pink color.

Reported by J. G. ROBERTS.

ACONITE ROOT: The rejection of one lot was recommended because it contained only 0.44% of ether-soluble alkaloids and because it contained about 45% of decayed and soft spongy material.

Reported by J. G. ROBERTS.

ALKANET ROOT: It was considered that one sample was of very undesirable quality on account of an excessively high ash yield, which indicated the presence of a notable amount of

dirt. The highest ash heretofore obtained was 15.18%, which was also excessive as all other samples examined yielded 6.45% to 10.27%. Reported by J. G. ROBERTS.

ALGIN: A trifle more residue and water insoluble matter than is permitted by the U. S. P. was found in one lot. The very slight excess present, however, was not considered objectionable. Reported by J. G. ROBERTS.

ALUM: A lot of Ammonia Alum was not of U. S. P. quality on account of the presence of excessive amounts of iron and heavy metals. Reported by J. G. ROBERTS.

ASAFETIDA:

Sample.	Alcohol-soluble.	Ash.
1.....	18.6%	62.0%
2.....	60.0%	34.4%
3.....	73.6%	10.0%
4.....	59.3%	...
5.....	72.0%	4.7%
6.....	51.9%	18.0%
7.....	68.6%	7.5%
U. S. P. requires not less than	60.0%	Not more than 15.0%

ASAFETIDA-POWDERED:

Sample.	Alcohol-soluble.	Ash.
1.....	48.0%	27.4%
U. S. P. requires not less than	50.0%	Not more than 30.0%

Reported by F. J. KEENAN.

BELLADONNA LEAVES: One lot was infested with insects and although assaying 0.5995% alkaloids was rejected for use in pharmaceutical preparations. Two other lots, offered as Belladonna Leaves, consisted of *Solanum nigrum* (Common Black Garden Cherry).

Reported by G. E'WE.

BENZALDEHYDE: Sample was rejected because it gave a strong test for chlorinated products. A complete examination of the sample was not considered necessary on this account.

Reported by J. G. ROBERTS.

BENZOIC ACID: One lot contained 0.25% chloride, calculated as chlorine. This is greatly in excess of the U. S. P. allowance. Seven other lots were normal in this respect.

Reported by G. E'WE.

BENZOIN: The 12 lots examined assayed 65.4%, 65.5%, 65.8%, 66.7%, 67.0%, 69.3% 69.7%, 77.5%, 80.0%, 80.2%, 84.3% and 84.6% alcohol-soluble matter, respectively. The U. S. P. requires 75%.

Reported by K. SURO.

BERBERIS AQUIFOLIUM: One lot contained 50% of rhizomes and roots without bark, whereas the N. F. requires the rejection of Berberis without bark. Evidently the bark was lost in handling. This lot was rejected.

Reported by G. E'WE.

BLACK HAW: Desiring to obtain data on the ash content of Black Haw, comparative tests were made to determine the amount generally present in a commercial sample and in a clean, picked sample. The commercial sample was taken from ordinary stock and represented the quality usually found on the market. It yielded 7.25% ash and 1.4% acid insoluble ash. The picked sample yielded 5.4% ash and only 0.125% of acid insoluble ash was obtained by thoroughly cleaning several pieces of bark until they were entirely free of earthy matter. The results obtained in these tests show that Black Haw as found in the open market is clean and contains but little extraneous matter.

Reported by J. G. ROBERTS.

BLACKBERRY ROOT BARK: Three lots contained 21%, 30% and 25%, respectively, of whole roots, whereas only the bark is desired. This condition was due to the collection and inclusion of the fine roots from which the removing of the bark is an impractical process.

Reported by G. E'WE.

BLACK HELLEBORE: A 1900 lb. lot was rejected because it was found to be Veratrum Viride and not Black Hellebore as labeled.

Reported by J. G. ROBERTS.

BUTTERNUT BARK: One lot contained 30% of wood. Reported by G. E'WE.

CATECHU (Not pale Catechu, U. S. P.): The five lots examined assayed 66.1%, 81.0%, 83.0%, 88.5% and 89.2% of alcohol-soluble matter, respectively. The British Pharmacopoeia requires 60%.

Reported by G. E'WE.

CHESTNUT LEAVES: One lot was rejected because it was gathered too late and was hard and brittle and brown in color as a consequence. Another lot contained leaves of other castanea species than prescribed by the N. F. Reported by P. COHN.

CHICORY: One lot was rejected because it was infested with insects.

Reported by G. E'WE.

CINCHONA BARK: Five lots from Ecuador assayed 0.36%, 0.68%, 2.22%, 2.56% and 5.32% total alkaloids, respectively. Two lots from Peru assayed 2.80% and 3.82% total alkaloids, respectively.

One lot of extremely thick Cinchona Bark assayed only 0.76% total alkaloids. Evidently this bark was taken from an extremely aged or abnormal tree. Reported by G. E'WE.

CINCHONA, YELLOW: An average sample from a forty bale lot was found to contain 6.05% alkaloids.

Reported by J. G. ROBERTS.

COPAIBA, PARA: This lot was not of U. S. P. quality as its specific gravity was appreciably below the U. S. P. standard of .940 to .955 at 25° C and its acid value below the U. S. P. standard of not less than 28 nor more than 95. It also gave unsatisfactory results with the U. S. P. paraffin oils test and yielded about 1% less resin than the standard of not less than 30%.

It was soluble in 0.6 part and less of absolute alcohol. The addition of more than this amount showed a decrease in solubility. The U. S. P. does not give a limit of solubility and simply states that Copaiba is "Soluble," showing not more than a slight opalescence in dehydrated alcohol. In view of the foregoing results it was considered that the lot was of undesirable quality.

Reported by J. G. ROBERTS.

COLCHICUM SEED: The colchicine content of a three-bag lot was found to be 0.625%, which is well above the U. S. P. standard of "not less than 0.45%."

Reported by J. G. ROBERTS.

COLCHICUM ROOT: Two lots were of very desirable quality and contained 0.57% and 0.5%, respectively, of colchicine.

Reported by J. G. ROBERTS.

COTTON-ROOT BARK: One lot contained 30% of wood, whereas the N. F. limits the wood to not more than 5%.

Reported by G. E'WE.

CRAMP BARK: One lot contained 25% of whole roots and adhering wood. Two other lots also contained excessive wood. The N. F. limits the wood to not more than 5%.

Reported by P. COHN.

Two samples labeled "Cramp Bark, so-called," consisted of the bark of *Acer spicatum*.

Reported by G. E'WE.

CREOSOTE: Considerable difficulty has been experienced in obtaining strictly U. S. P. creosote during the past year as three of the five lots examined contained coeruleignol according to the U. S. P. test.

Reported by F. J. KEENAN.

CREOSOTE: The examination of one lot showed that it complied with all the U. S. P. tests except that for the detection of coal-tar creosote. As the lot had been obtained from a reliable and well-known manufacturer the matter was taken up with them and we were informed that their product was pure and that the purest grades of creosote do not produce a clear mixture with glycerin, as stated in the U. S. P. They also stated that products of a lower degree of purity, such as the German products heretofore found on the market, will produce a clear mixture with glycerin, as they contain more cresols.

Upon consulting the U. S. P. Revision Committee, we were informed they had investigated the matter and had revised the test to read as follows: "Mix 4 mils of creosote and 4 mils of glycerin, then add 1 mil of water, shake gently and allow to stand. A creosote layer equal to or greater in volume than the creosote taken separates (Coal-tar creosote)."

As the lot complied with the revised test it was accepted and considered to be of U. S. P. quality.

Reported by J. G. ROBERTS.

DAHLIA BULBS: One lot contained many flinty and many soft, brownish, mushy bulbs, and was rejected as both flinty and soft, mushy bulbs give low yields of inulin. Only firm, white bulbs are satisfactory.

Reported by G. E'WE.

DAMIANA LEAVES: One lot contained an excess of stems.

Reported by G. E'WE.

DIASTASE: One lot assayed very much less than the 1:50 required by the U. S. P. This lot readily converted starch paste to the "thin" stage but not to the stage of complete conversion.

Reported by K. SURO.

GAMBIR: Four lots assayed over 60% alcohol-soluble matter as required by the U. S. P. Two other lots assayed 45.0% and 55.0%, respectively. Reported by L. J. LIPMAN.

GLYCERIN: Five of the six samples examined were of U. S. P. quality except that they each had a yellowish color. This condition has been prevalent for some time and was probably due to the very heavy demand for war purposes which necessitated the production of the highest possible yield but which resulted in lowering the quality to some extent. A slight improvement has been noted since the cessation of hostilities but it does not yet have the water-white color required by the U. S. P. Reported by J. G. ROBERTS.

GOATS RUE: Two lots consisted almost entirely of stems, whereas only the flowering tops are desired. Another lot contained 22% of stems. Reported by G. E'WE.

GRINDÉLIA ROBUSTA: One lot contained 30% of foreign plants. Another lot contained an excess of stems. Reported by G. E'WE.

GUAIACOL: One lot contained oily hydrocarbons but was of U. S. P. quality in every other respect. Reported by J. G. ROBERTS.

GUAIACOL: Two lots did not separate into two layers as required in the "U. S. P. petroleum benzine" test and also did not congeal as required in the U. S. P. "15% solution Potassium Hydroxide" test thus indicating according to the U. S. P. the "presence of impurities." Reported by F. J. KEENAN.

GUAIAC:

Sample.	Alcohol soluble.	Ash.
1.....	81.3%
2.....	77.4%
3.....	75.2%	3.95%
4.....	87.3%	3.00%
5.....	81.9%
6.....	74.7%
7.....	69.0%
8.....	77.4%
9.....	83.4%	3.80%
10.....	81.9%
11.....	76.5%
12.....	84.1%	3.4%
13.....	79.9%	3.2%
14.....	77.6%	3.9%
15.....	74.8%	6.4%
16.....	83.2%	3.2%
U. S. P. requires not less than	85.0%	Not more than 4.0%

Reported by L. J. LIPMAN.

HELLEBORE ROOT: A sample of powdered root was found to contain 1.28% alkaloids and to yield 23.25% ash. Reported by J. G. ROBERTS.

HYDRASTIS: One lot of powdered drug assayed only 0.735% alkaloids whereas the U. S. P. requires not less than 2.5%. This lot was rejected as it had probably been partially extracted. Reported by G. E'WE.

IPECAC: One lot from Honduras assayed only 0.012% emetine and 0.029% total alkaloids. Reported by G. E'WE.

IPECAC: The only shipment examined contained 2.36% ether-soluble alkaloids which is well above the U. S. P. standard of 1.75%. It also contained about 3.5% stems. Reported by J. G. ROBERTS.

IRON, REDUCED: All of the many lots of reduced iron examined during the past year contained sulphides in great excess of the U. S. P. allowance. All contained over 90% metallic iron. Reported by G. E'WE.

IGNATIA BEAN: One lot, so labeled, consisted of Calabar Beans.

Reported by G. E'WE.

IRISH MOSS: One lot was rejected because of excessive calcareous matter.

Reported by G. E'WE.

KAMALA: A foreign shipment of 200 lbs. was found to yield 46.45% ash which upon further investigation was found to be a reddish sand. Kamala is subject to adulteration with this substance as on other occasions we have obtained as high as 58.5% ash.

This practice has been going on for a considerable period and no improvement in quality over that furnished in previous years has been noted. Of the nine samples examined since 1908 only two samples, which yielded 2.4% and 2.47%, respectively, were low in ash. The other samples yielded the following amounts: 57.2%, 44.1%, 58.6%, 53.5%, 49.1%, 56.9%, 21.7%.

Reported by J. G. ROBERTS.

KIESELGUHR: Twenty samples were examined. Eight were strictly U. S. P. Six yielded slightly more loss upon ignition than the 10% allowed by the U. S. P., but not above 11%; the other six yielded 11.4%, 11.93%, 13.48%, 14.55%, 19.4% and 23.4%, respectively. All of the 20 samples were calcined Kieselguhrs, but a few yielded a slight amount of smoke upon ignition, indicating insufficient calcination.

Reported by G. E'WE.

KINO: The 6 lots examined assayed 37.8%, 40.6%, 45.5%, 62.7%, 91.5% and 93.6% of alcohol-soluble matter, respectively. The U. S. P. requires not less than 45%.

Reported by L. J. LIPMAN.

KOLA NUT: Every lot examined was of good quality and yielded from 1.5% to 2.04% of caffeine.

Reported by J. G. ROBERTS.

LACTIC ACID: It has been difficult to obtain lactic acid of 85% total lactic acid strength during the past year. Eleven of the lots assaying between 75% and 84% were otherwise U. S. P. and were used in proper proportion.

Reported by K. SURO.

LIME, CHLORINATED: One lot contained only 27.2% available chlorine instead of not less than 30% as required by the U. S. P.

Reported by J. G. ROBERTS.

(To be concluded in September Issue.)

CORRESPONDENCE

CINCINNATI, July 28, 1919.

THE EDITOR:

Druggists are having an experience with vexatious taxes which ought to convince them that the time has come to direct public attention to other sources of revenue besides taxes on business. The average citizen seems to think there is just one way to raise public revenue and that way is by taxing business and industry. As long as people think that way, druggists, other merchants and business men generally, will be penalized with taxes for rendering service.

You have observed how men buy land and hold it unimproved until its value is doubled—often quadrupled, by the extension of public improvements and increase in population, and how they then sell, pocketing the increase in land value which the people created. Men have amassed untold wealth rendering no service whatever, just holding land unimproved and out of use. The people create the land values and land speculators appropriate them to enrich themselves.

There is an organization of business men and manufacturers who have organized to urge this simple and practical proposition—that instead of permitting individuals to appropriate the socially created land values for private use, the people appropriate them for public use. Then it will not be necessary to confiscate the profits of business and industry for public purposes. It is not a new theory; it is proving successful in Canada, in parts of California, in towns in Maryland; and Pittsburg and Scranton, Pennsylvania, have taken steps in this direction.

I am sending you a copy of a little publication¹ containing an article of mine that will, I am sure, become of more and more interest, as the burden of taxation increases, especially in the drug trade.

Signed, CHAS. G. MERRELL.

¹ *Ohio Site Taxer*, June 19. The paper is printed in this issue of the JOURNAL.