

Sidgwick, N. V.

Coördination compounds

Pharm. J., 119 (1927), 251

Smith, E. L.

Method for the estimation of small quantities of water in alcohol

J. Chem. Soc., 131 (1927), 1284

Stokes, John H., and Chambers, Stanley O.

Bismuth arsphenamine sulphonate

J. A. M. A., 89 (1927), 1500

Surun, P.

Contribution to the study of vegetable charcoal

Bull. sci. pharmacol., 34 (1927), 471

Taylor, Haywood M.

Application of the U. S. P. X yeast fermentation test to colloidal silver compounds

Jour. A. Ph. A., 9 (1927), 820

CLINICAL TESTS.

Kleyer, G.

Simple method for the quantitative determination of acetone in urine

Pharm. Ztg., 72 (1927), 1262

Lieboff, S. L.

Simple method for determining chlorides in blood and urine

J. Lab. Clin. Med., 12 (1927), 702

PHARMACEUTICAL ANALYSIS IN HOSPITAL PHARMACIES OF CHINA.

BY JOHN CAMERON.*

Two recent articles by Wulling¹ and Swain² in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION on the results of their analysis of medicinal preparations, purchased in retail drug stores in Minnesota and Maryland, suggested to the writer that there is another avenue of drug supplies which sometimes requires watching. We refer to the wholesale chemical and drug supplies which come to the various pharmacies from their wholesale dealers. Having had many years' experience in retail pharmacy in Great Britain and overseas we realize that it is well nigh impossible in a busy pharmacy to check up the purity and strength of all chemicals and drugs purchased for use in the compounding of prescriptions. It would be interesting to know of retail pharmacies where the majority of the items purchased from the wholesale houses were subjected to analysis to ascertain if they were up to the standard required by the U. S. Pharmacopœia.

It is perhaps different with the hospital pharmacist. He should have time (or take time) to analyze most of the chemicals and drugs which come to his pharmacy from the wholesale houses. During our tour of the United States in 1925 we were certainly impressed with the amount of routine analysis which was carried out in most of the hospital pharmacies visited. Might we suggest that some of these pharmacists should publish their analytical results—in many cases they would be very interesting and instructive.

In China we have for many years systematically checked by analysis most of our shipments of chemicals and drugs.

We say shipments because all of our chemicals and most of our drugs come to us here from abroad. We receive supplies from the world's markets—sometimes purchasing in New York, sometimes in Paris, or again it may be London. Occasionally we have purchased in Tokio.

* Member of The Pharmaceutical Society of Great Britain, Member of the AMERICAN PHARMACEUTICAL ASSOCIATION. Pharmacist, Peking Union Medical College, Peking, China.

¹ *Jour. A. Ph. A.*, August 1927, pp. 722-724.

² *Ibid.*, same issue as foregoing, pp. 724-726.

It may be of interest to wholesale chemical houses in the United States if we list a few items which in the course of our routine analysis we have discovered were not perhaps up to the standard required or specified. We have used the pharmacopœia of the country of origin as the standard by which we assayed the chemical or drug concerned—if the chemical was mentioned in the pharmacopœia. For various reasons we will not mention the firms who have supplied the items listed, but we would state that most of these chemicals were purchased from bona-fide wholesale chemical houses in either the United States or Europe.

LIST OF ADULTERATIONS.

1. **Opium.**—A sample of opium we analyzed contained only 5% morphine. This opium, however, was not sold as complying with the requirements of any pharmacopœia.
2. **Cocaine Hydrochloride.**—The melting point of one sample was 8° above the maximum limit of 186°, but otherwise the sample responded to all the usual tests for this alkaloidal salt.
3. **Iodoform.**—This sample was labelled "Iodoform cryst. puriss B. P." On analysis we found four per cent of same. When gauze was treated with a paste of this iodoform and sterilized the gauze assumed a greenish color.
4. **Formaldehyde Solution 40%.**—On analysis we found this sample to be a 4% solution of Formaldehyde, HCHO. We suspected this sample on opening the bottles owing to the very weak smell of formaldehyde.
5. **Formaldehyde Solution.**—This sample had polymerized and on analysis was found to be of 30% strength only. In this connection we have found that during the very cold winter months of North China, December, January and February, it is advisable to store solution formaldehyde in a store room which is slightly heated; if stored outside in a court-yard during these very cold months there is a fifty per cent loss in formaldehyde.
6. **Acid Salicyl. B. P.**—This sample we found contained about 6% of sodium salicylate as an impurity. The whole sample had a reddish tint.
7. **Methyl Alcohol.**—This sample although labelled "chemically pure" we found to contain 14% of acetone.
8. **Sodium Hydroxide.**—This sample contained about 5% iron and was of a reddish color. The color in our opinion was due to the fact that the sodium hydroxide was shipped and stored in five-pound tin containers which were badly rusted when delivered to us.
9. **Bleaching Powder.**—This sample on analysis showed a very high available chlorine content. It was expensive but on the basis of chlorine content was economical.
10. **Bleaching Powder.**—This sample on analysis showed a 25% available chlorine content. It was expensive. In this connection might we point out the desirability of assaying each consignment of bleaching powder for the available chlorine content before using the bleaching powder for the preparations of Carrel-Dakin Solution. It will be evident that if equal amounts of Sample 9 and Sample 10 were used in preparing two lots of C-D Solution the resulting solutions could not comply with all the essential tests for alkalinity, etc.
11. **Saccharose.**—This sample was listed "extra pure" but was found to contain some dextrose. It was useless for the purpose for which it was required.
12. **Tragacanth Gum. Powdered B. P.**—Two samples were analyzed. One was found to be eight times stronger than the other in suspending properties. We were not able to account for this great difference in properties.
13. **Methylene Blue Tablets (Sugar Coated).**—A sample of these tablets was found to have burst the sugar coating. These tablets had been stored in our pharmacy here for three years.
14. **Quinine Tablets.**—One batch of quinine tablets was found to contain small splinters of wood.
15. **Green Soap.**—One sample of a shipment of green soap was found to contain a small percentage of a strong smelling fish oil.
16. **Compound Solution of Cresol.**—One sample of this disinfectant was found not to be properly emulsified. It had to be heated before being used.

17. **Morphine Hydrochloride.**—One sample of Morphine Hydrochloride—the container bearing the label of a well-known manufacturing house in Europe—was found to contain 15% of phenacetin. On inquiry it was discovered that this sample had been tampered with in the Orient somewhere. We detached the label and sent it to the firm concerned and they pointed out that the label was not their own but a very clever imitation. The danger of this kind of sophistication is evident.

18. We received early in 1927 a one-pound bottle from a medical man in Hankow labelled "*ACID PICRIC, POISON, TAKE CARE*" with the name and address of a wholesale Chinese drug company at the foot of the label. On analysis of the contents which had a slight yellow coloration we came to the conclusion that the words "Take Care" had a peculiar significance in this case. Our analysis showed the contents of the bottle to be: Picric acid, about 10 per cent; potassium sulphate, about 90 per cent.

Comment is hardly necessary, but we cannot refrain from quoting a few lines from the letter which accompanied the bottle written by the superintendent of the hospital who purchased the picric acid and used a little before discovering that there was something wrong with it.

"This is obviously a case of the most bare-faced and deliberate adulteration or substitution. This firm is supplying a number of mission hospitals in Central China, which use the drugs they send in all good faith."

We have listed some interesting findings from our records of analysis in this laboratory which will prove our previous assertion¹ that sometimes chemicals and drugs coming to us from bona-fide wholesale houses fall below the standards of purity required and specified in the Pharmacopœia of the country of origin.

THE PURITY OF DRUGS FROM ABROAD.

There is another side, however, to the picture—the purity or freedom from adulteration of the chemicals and drugs we purchase from wholesale houses. In this laboratory we have submitted to analysis thousands of samples of drugs and chemicals during the past six years and it has certainly been most gratifying to find that in the great majority of examinations the samples were actually purer than required by the Pharmacopœia of the country from which the drugs came.

We have systematically checked the arsenic and lead limits of most of the chemicals in daily use in our pharmacy items such as boric acid, magnesium sulphate, sodium chloride, sodium citrate, etc., and in no case have we found these to be outside of the pharmacopœial requirements of purity.

Our surgical department is perhaps the busiest one we have and, therefore, we are continually receiving large shipments of anæsthetics—ether and chloroform. We analyze samples from each shipment received and it is gratifying to be able to report that in no case have we found any impurities present in these anæsthetics.

The percentage of impurities discovered is only about one; this, we think, reflects a great credit on the wholesale and manufacturing chemical houses of America and Europe. In our opinion we, who are separated by many thousands of miles from our sources of supplies, owe a great debt to the wholesale manufacturing chemical firms of America and Europe for the great care they must be continually exercising in the manufacturing and labelling of their products for foreign shipment. They have certainly established a very high standard in the purity and reliability of the chemicals and drugs they send out, which some of the recently organized Chinese pharmaceutical houses would do well to imitate.

We had the privilege of visiting most of the leading pharmaceutical manufac-

¹ J. Cameron, in *China Med. J.*, April 1927.

turing houses in America and Europe during 1925-26 and we realized then that it would be well-nigh impossible for any chemical or drug to leave the laboratories of the firms unless they were of proper standard.

We take this opportunity of thanking the various laboratories visited for the wonderful hospitality shown to us by the staffs; for their kindness in explaining many of their private processes to us and for their ready answers to the many questions we asked during our tour.

In the analysis of the various items listed I have had the assistance of Mr. Moody Meng, Ph.C., M.P.S. (London).

EDITOR'S NOTE: In a letter to the Editor, Pharmacist Cameron expresses the hope that his communication will stimulate many hospital pharmacists to publish results in their laboratories in the JOURNAL A. PH. A.

SCHIEFFELIN & CO.—THE OLDEST WHOLESALE DRUG HOUSE IN NEW YORK CITY.*

BY OTTO RAUBENHEIMER.

One of the chief divisions of that interesting subject "History of Pharmacy," as outlined in another paper before this Section, is the "History of Pharmacies and Drug Stores." During the preparation of a paper "Old Drug Stores in New York State," presented at the meeting of the New York State Pharmaceutical Association June 1927, at Thousand Islands, I came across the Oldest Wholesale Drug House in New York City, still in existence to-day. To record its history for future reference is the object of my paper.

In 1781, Effingham Lawrence established himself in New York as a drug merchant. His place of business was located at 227 Queen St., now Pearl St. He was directly descended from William Lawrence of Flushing, L. I., who was fined, in 1666, for being somewhat too independent in his views to suit Richard Nicolls, the English Governor to whom New Netherlands had capitulated in 1764.

In 1794, John B. Lawrence and Jacob Schieffelin bought the business from Effingham Lawrence, the firm being changed to Lawrence & Schieffelin. John B. Lawrence was a younger brother of Effingham and Jacob Schieffelin was their brother-in-law, having married Hannah, their sister. The firm was located at 195 Pearl St., opposite what was then called the "Fly Market" at the foot of Maiden Lane, in the ancient Dutch House, built in 1626.

In 1799, on October 18th, John B. Lawrence withdrew from the firm and the business was continued under the name Jacob Schieffelin. According to the *Dissolution Notice* Schieffelin sold both at wholesale and at retail.

In 1804, Jacob Schieffelin, 193 Pearl St., N. Y., published "A Catalog of Drugs, Medicines and Chemicals Sold Wholesale and Retail," printed by William A. Davis, 39 William St. This, on August 6, 1806 was "Examined and Approved by The New York Druggists' Association, Henry J. Schieffelin, Secretary." Here is the proof that as early as 1806 there existed a "New York Druggists' Association."

* Section on Historical Pharmacy, A. PH. A., St. Louis meeting, 1927.