

qualifications in instructors, and different equipment and facilities. It is, therefore, impossible for a student to receive a course which would adequately qualify him as a bio-assayist in the average School of Medicine.

Those who have not accepted biological assays frequently raise the question: "Do biological assays reflect the true therapeutic action of the drug?" then, illustrating their point by taking, as an example, digitalis, whose potency is determined by its ability to stop the heart of the frog, whereas in therapeutics it is used as a heart stimulant. Such arguments merely result from a lack of knowledge of facts. It would be just as logical to question the accuracy of the chemical estimation of alkaloids because they are not used therapeutically to neutralize acids in the body. Once the active principle of the drug has been determined, or the desirable type of activity has been ascertained, the method of quantitative estimation of that principle or type of activity, need have no relationship to the therapeutic use, whether it be a biological or chemical method.

I believe that providing training in experimental pharmacology, with particular respect to its branch of quantitative pharmaco-dynamics, in Schools of Pharmacy, will serve to better the standing of the profession, *first*, because, in biological assaying, we will assume a responsibility which is justly ours, and *second*, because we will increase our facilities toward achievement in research.

For obvious reasons, there would be no necessity for making such training a requirement in our curriculum, but it is believed that the provision of such training as elective, would yield results distinctly to the advantage of professional pharmacy.

As a closing thought, I would bring forth an important matter, intimately bearing upon the above, for the consideration and support of workers in pharmacy. Biological assay and standardization requires the preparation and distribution of proper standards. This, as bioassaying itself, should be strictly a function of pharmacy, and would properly be carried out by experienced and qualified pharmacists located in the new American Institute of Pharmacy, at Washington.

---

#### SOME FACTS AS BROUGHT OUT BY THE STUDY OF THE ACTUAL PRICES CHARGED FOR PRESCRIPTIONS.\*

BY LEON MONELL.<sup>1</sup>

"The following paper by Professor Leon Monell again emphasizes the importance of some concerted effort to bring about a uniform method of pricing prescriptions. Teachers of pharmacy should continue to agitate this question until they arrive at a method that is applicable to all parts of the United States, or nearly so, and then proceed to teach this method in the colleges. A bad condition will not be righted until it has been well exposed, and the following paper by Professor Monell materially assists in exposing the unsatisfactory prescription-pricing conditions that now exist."—C. B. JORDAN, *Editor*.

Your secretary, Dr. R. W. Rising, has requested me to present the data resulting from my study of the actual prices charged for prescriptions.

Continuing last year's study of the actual prices charged for new prescriptions,

---

\*Read before Conference of Teachers of Pharmacy, American Association of Colleges of Pharmacy, Toronto, August 22, 1932.

<sup>1</sup> Associate Professor of Commercial Pharmacy, University of Buffalo.

prices have been secured from 377,315 new prescriptions, exclusive of refills and liquor, from thirteen sections of the United States and from a miscellaneous group not sufficient in number to classify as separate units. The store filling the smallest number of new prescriptions reported only 56 for the year 1931. During two months it filled none, one month only one, and another month only two prescriptions. The maximum was eleven new prescriptions during the month of June. In contrast to this store, the one reporting the largest number of new prescriptions during the year reported filling 40,093 new and 34,197 refills.

This study has been possible through the kind assistance of a number of teachers in schools of pharmacy, to be acknowledged at the end of the paper, and *Merck's Report* which editorially solicited prices. Without the assistance of both sources it would have been impossible to secure the data presented herein.

Prices are listed according to the center from which secured and do not necessarily mean that the prices are all from that city but, instead, include neighboring towns. For example: Philadelphia includes stores in the city of Philadelphia, small towns in Pennsylvania, and a few towns in the lower part of New Jersey near Philadelphia.

The method used in compiling was to secure the actual prices of an equal number of prescriptions compounded each month of 1931. In this way, seasonal variation is eliminated. This is the same method used last year. In stores that did not fill 1000 new prescriptions, all that had been filled were included.

The average prices, as a result of this study, are shown in Chart I.

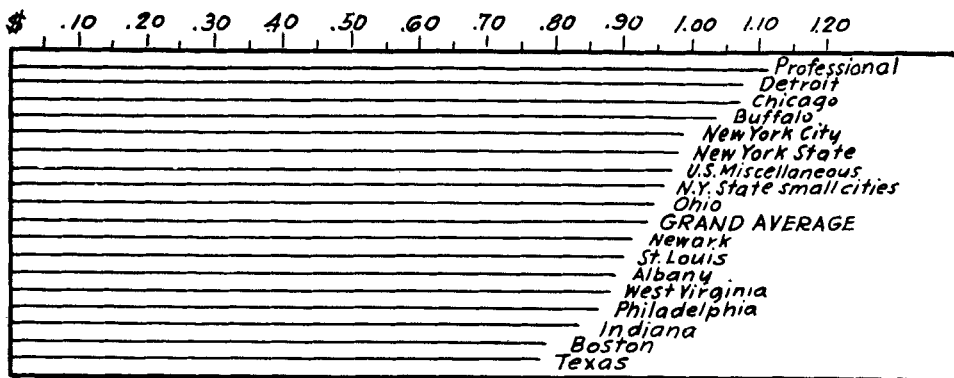


Chart I.—Average price of prescriptions.

The average price this year of \$0.943 is slightly lower than the last year figure of \$0.971. However, it is slightly higher than the figure found in the St. Louis Drug Store Survey of \$0.92. No doubt part of this reduction is due to slightly lower prices being charged this year for prescriptions.

Professional stores, when segregated, showed the highest average price. Next came Detroit followed closely by Chicago with Boston and Texas having the lowest prices.

Albany had the lowest average of any section of New York State. This is due, no doubt, to the fact that it includes practically nothing but small towns. It is much lower than the New York State small cities and towns, exclusive of those secured by the Albany College.

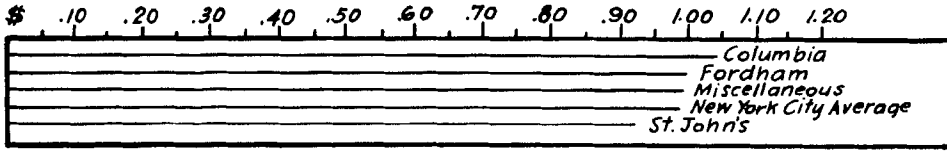


Chart II.—Average prices as secured in New York City.

Chart II shows the variation in prices secured in New York City.

The Committee on Pharmaceutical Economics of the New York Pharmaceutical Association sent a questionnaire to every drug store in New York State. One of the questions asked was: "Will you fill in the actual prices charged for 1000 new prescriptions for the year 1931 if a blank is sent to you?" Over seventy-five stores filled in the blanks, and those from New York City thus secured are recorded under the heading, "New York City Miscellaneous." Please note the small difference in these results as compared with the average for the City.

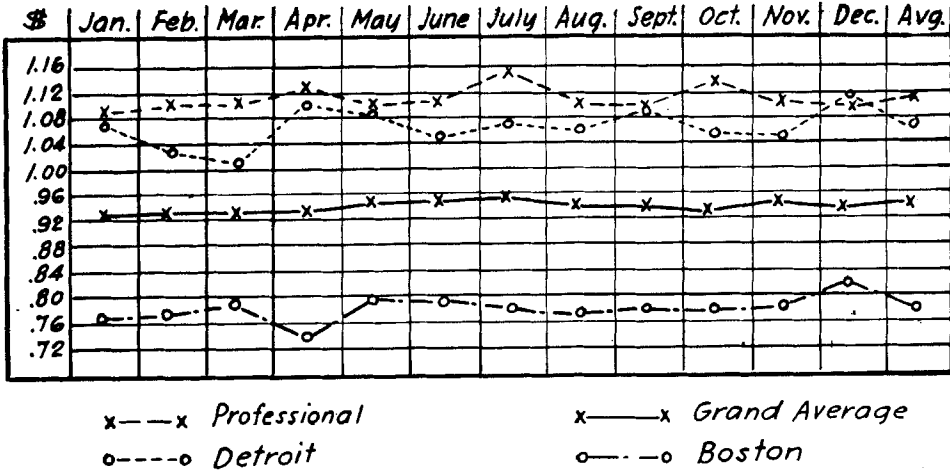


Chart III.—Average price of prescriptions by months.

Chart III shows the average price by months of professional stores, Detroit, grand average, and Boston. The grand average was fairly constant for the entire year, varying only by about \$0.02 during any months, the highest variation being in July and the lowest in January.

In addition to the above-mentioned data, the range of prices of 126,788 prescriptions was studied with the following results:

Range.	126,788 Prescriptions.	Detroit.	Chicago.	Boston.
\$0.00-\$0.50	15.38%	7.33%	7.38%	26.71%
\$0.51-\$0.75	27.20	23.54	23.59	36.52
\$0.76-\$1.00	30.04	36.92	36.80	23.32
\$1.01-\$1.25	12.35	15.50	15.09	6.80
\$1.26-\$1.50	7.53	8.50	9.49	3.72
\$1.51-\$2.00	4.28	5.22	4.58	2.13
\$2.01-\$3.00	1.91	1.79	1.88	0.55
\$3.01-\$5.00	0.74	0.89	1.01	0.16
Over \$5.00	0.15	0.25	0.15	0.05

Unfortunately, these price ranges are not quite the same as those which developed from the St. Louis Drug Store Survey and therefore a direct comparison cannot be made. However, the same conclusions as given on page sixteen of *Prescription Department Sales Analysis in Selected Drug Stores* of the St. Louis survey hold here, namely: "as the price increased or decreased from the \$0.75 to \$1.00 average, the number of prescriptions decreased."

Detroit, Chicago and Boston are recorded to show the almost identical percentages between Detroit and Chicago, as well as the extreme difference between either Detroit or Chicago and Boston. You will note that the stores with the highest average price have the least number in the low-price range.

When we consider the minimum and maximum prices charged for these prescriptions, the minimum price charged was \$0.05 and the maximum was \$40.00. The maximum occurred only once but the five-cent price occurred a number of times. Why should any one fill a prescription for only five cents? It does not seem worthy of the profession to do so. The reason for Boston and some other sections having a low average as compared with Detroit and Chicago is not due so much to their filling them cheaper as it is to filling more at the low rate.

The minimum range for Detroit stores was \$0.25 to \$0.40, for Chicago stores it was \$0.10 to \$0.50, while Boston stores had a slightly lower minimum of \$0.10 to \$0.35. There is a slightly greater difference in the maximum range of these stores. Detroit had a maximum range of \$3.00 to \$10.00, Chicago was from \$3.75 to \$8.50, while Boston had only \$2.25 to \$6.50 thus causing a lower average. The minimum for professional stores was \$0.10 to \$0.25 and the maximum was \$6.00 to \$13.50. Professional stores fill prescriptions as cheaply as other stores except less often.

May I repeat our question of last year? Is it just that even the simplest prescription should be compounded at a price no more than the price of a glass of soda water or a sundae? I may add this year "or a beverage," because we have five-cent-prescriptions this year. More money is made on a soda beverage than all the five-cent prescriptions you can fill.

The results of this study show that some cities and sections have a much lower average than others. Why should Detroit and Chicago have averages over one dollar while Boston and Texas have averages less than eighty cents? Can this be accounted for economically? Is the expense of filling prescriptions less in some cities than in others? In some instances there is a difference. I know that at one time a pharmacist's salary in Boston was slightly less than in Buffalo. On the other hand, is it sufficient to justify this difference? Personally, I do not think so.

While discussing the difference in price in Columbus, Ohio, and in Buffalo on last year's figures with one of my colleagues, Professor Louis Freeman, he told me that he had found the same thing to be true. From data which he was collecting on the pricing of identical prescriptions, there was as much as 300% difference on any one, and certain sections were lower than other sections.

Other than the economical side there is another phase to cheap prescriptions. The other day while discussing this study with a pharmacist he made the old statement that "the fault with the prescription business is that physicians are dispensing their own medicines" and referred to a prominent doctor who has this

reputation. I had an interview with this doctor, and during our discussion he told me that he was dispensing less medicine to-day than formerly. When I asked him his reason, he replied: "I am not being paid for my calls now, so why should I also give medicine for nothing? Now I let them get it at the drug store." When I asked him if he would continue to do so, he replied that he would as long as conditions are as they are. I then asked him why he began to dispense his own medicine and be blamed the pharmacist for it. His reason is this:

Some time before the World War he gave a patient a prescription for an eight-ounce bottle of bromides. The pharmacist charged the patient thirty-five cents for it. The patient remarked to the pharmacist, "This can't be much good when it only costs thirty-five cents." The pharmacist replied that it only contained bromides, with the result that the patient went back to the doctor and told him his medicine was no good, repeated what the pharmacist had said, and concluded he would get another doctor. This second phase of cheap prescriptions is psychological. People who receive cheap medicine lose faith in it. In this case, the pharmacist lost sight of his professional training and did pharmacy a great injury.

According to *Causes of Failure among Drug Stores*, in the St. Louis Survey, "poor business management" was one of the leading causes of failure. Of the thirty who failed, twenty-one never took a profit and loss statement and nine reported they did not know how to determine inventory turnover, etc.

Cannot this statement be made: the causes of prescription failure may be due to poor prescription management? Do we know enough about the prescription department to properly conduct it? Is there a justification for a difference of twenty-nine cents in the prices charged for prescriptions between Detroit and Boston? This study shows that the stores with the high averages fill comparatively few in the low price range.

Many pharmacists say that they have no idea how to figure the price of prescriptions. Do we have enough statistical data on costs of prescription filling to be able to make statements? It would be very beneficial to the pharmacist if we had a good, simple formula for figuring prices. I know of several, but I believe the simplest one to date is the one recently published in the *Pacific Drug Review*. I will not discuss it as I understand some one is going to read a paper on it at one of the sessions of this convention.

As a result of this study, I have these conclusions to offer:

- First.* The prices of prescriptions in small towns and cities are lower than in the large cities.
- Second.* The professional store gets the highest prices.
- Third.* The range of price is a very important factor.
- Fourth.* There is room for considerable work on the economic side of prescription compounding. Schools of pharmacy would do well to consider this problem with their students.

In conclusion, I wish to thank the following who have assisted me in collecting the prices of prescriptions either themselves personally or through their students: Walter Scharbach, Albany College of Pharmacy; Dean Roland T. Lakey, College of Pharmacy of the City of Detroit; Dr. Curt P. Wimmer, Columbia University; Dr. Otto F. Canis, Fordham University; Professors E. N. Gathercoal and R. E. Terry, Illinois College of Pharmacy; Professor Leon Thompson, Massachusetts College of Pharmacy; Dr. R. W. Rising, New Jersey College of Pharmacy; Pro-

fessor C. M. Brown and the Phi Rho Alpha Fraternity of Ohio State University; Professors Harvey Frank and Adley Nichols of the Philadelphia College of Pharmacy; Dean C. B. Jordan and J. L. Weinland, Purdue University; Dean John L. Dandreaux, St. Johns College of Pharmacy; Professor William R. Neville, University of Texas; Professor J. H. Hayman, University of West Virginia; Mr. Frank A. Delgado and his associates of the United States Department of Commerce; C. L. Robertson, Editor, *Merck's Report*; Sigma Alpha Phi Fraternity and the students of the University of Buffalo; and lastly Mrs. Leon Monell for her many hours of tabulating and checking reports.

---

#### WILLIAM WITHERING AND DIGITALIS.

Foxglove was always a medicine with a popular rather than a professional reputation until Dr. William Withering, of Birmingham, published "An Account of the Foxglove, and Some of Its Medical Uses," in 1785. He was a scientific pioneer—a painstaking botanist in whose honor a genus of the Solanaceæ was named *Witheringia*, and a mineralogist whose name is similarly commemorated by *Witherite*. In the account referred to, he narrated that ten years previously his opinion had been asked about a family recipe for the cure of dropsy which had long been the secret of an old woman in Shropshire, and which he was told had cured cases after regular treatment had failed. The medicine was composed of twenty different herbs, of which digitalis was an active ingredient.

Dr. Withering details his experience as well as that of others with foxglove in some hundreds of cases. He noted its action on the heart and as a diuretic. He had also ascertained that it was prescribed in family recipes in Yorkshire. An article in "Parkinson's Herbal"—(written, he believed, by Mr. Saunders, an apothecary of great reputation at Worcester) declared it to be of great value in consumptive cases. It had been admitted into the Edinburgh Pharmacopœia, 1783, but many practitioners were giving it in such dangerous doses that he feared its reputation would not last long.

Dr. Withering died in 1799, aged 58 years. A foxglove is carved on his monument in Edgbaston Old Church, and the plant is also shown in Breda's painting. Most of these data have been taken from "Wootton's Chronicles of Pharmacy."



WILLIAM WITHERING, M.D.

From an engraving by W. Bond from an original picture painted by C. F. Breda in the possession of William Withering, Esq. F.L.S.

---

The following State Legislatures have adjourned:

Arizona, Arkansas, Indiana, Montana, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, West Virginia, Wyoming.