

PODOPHYLLO-RESIN.

This amorphous, physiologically active compound was first isolated and named by Dunstan and Henry¹ in 1898. All attempts to crystallize the compound were unsuccessful. However, a crystalline acetyl derivative was obtained from which the authors concluded that it probably had the formula $C_{12}H_{12}O_4$. They assumed that the physiological activity of the drug is partly due to this compound.

Preparation.—After the removal of podophyllotoxin and quercetin from the resin of podophyllum there remained a dark colored amorphous mass partly soluble in alcohol. After the purification of the alcohol-soluble portion, it is obtained as a reddish brown transparent substance softening and becoming semi-liquid a few degrees above ordinary temperature.

Properties.—An amorphous, reddish brown, transparent substance, soluble in alcohol but insoluble in petroleum ether, ether, chloroform, etc. It yields a crystalline acetyl derivative, and has a suggested formula of $C_{12}H_{12}O_4$.

A. H. UHL.

PODOPHYLLOQUERCETIN.

This yellow coloring material was first isolated by Podwissotski² in 1882, who obtained it in a crystalline form by sublimation. He found it to be without emetic or aperient action, but perhaps the cause of some intestinal pain which accompanies the administration of Podophyllum, Kuersten,³ in 1891, concluded that it probably was not identical with quercetin, and assigned to it the formula $C_{23}H_{16}O_{11}$. Dunstan and Henry,⁴ in 1898, considered it to be identical with the quercetin of quercitron bark.

Preparation.—Podwissotski² prepared podophylloquercetin from podophyllin. After extracting the resin with petroleum ether and chloroform, it was dried and exhausted with ether which removes this substance in a pure form. The ether was recovered and the residue treated with lead acetate, which forms a compound soluble in acetic acid. The lead compound was decomposed in the usual way and the reaction product exhausted with ether. On recovering the ether, podophylloquercetin appears as a yellow powder which may be obtained in a crystalline form by sublimation or by precipitation from an ammoniacal solution with ether. Kuersten³ obtained it in much the same way, *viz.*, after the resin had been exhausted with petroleum ether and chloroform, it was extracted with ether. The ether being recovered, the residue was dissolved in cold glacial acetic acid. On standing crystals of podophylloquercetin appeared. Dunstan and Henry⁴ prepared this coloring material by dissolving the residue from the ethereal solution of the resin which had been previously extracted with chloroform, in hot glacial acetic acid. On cooling crystals were obtained which had the properties of ordinary quercetin.

Properties.—Podophylloquercetin crystallizes in short needles of a yellow color and metallic luster. It melts at 247° to 250° at which temperature it decomposes, partially subliming to minute yellow crystals. It is soluble in alcohol and ether, sparingly soluble in chloroform and insoluble in water. With aqueous ammonia, potassa and caustic soda it forms bright yellow solutions. Its combinations with alkaline earths are insoluble. Continued action of alkalis decompose it. Exposure to air changes the color to green. Alkaline copper solution is easily reduced when warm, as well as ammoniacal silver solution. Kuersten³ records its melting point as being 257° to 277°.

A. H. UHL.

SOME ASPECTS OF PROFESSIONAL PHARMACY.*

BY DEAN CHARLES B. JORDAN.

About five years ago Dean Spease told me of what, at that time, was probably a dream and now it has reached its fruition. He said that he hoped to form an

¹ *Jour. Chem. Soc.*, 73, page 209.

² *Pharm. Jour.* (3rd series), 12, pages 217 and 1011.

³ *Arch. d. Pharm.*, 229, page 220.

⁴ *Jour. Chem. Soc.*, 73, page 209.

* Address before Academy of Pharmacy and Northern Ohio Branch, January 12, 1932.

association of the pharmacists of Cleveland that would be similar to corresponding sub-groups in Medicine, College of Surgeons, etc. Since pharmaceutical education is my life's work, naturally I was much interested in the project and asked many questions about it. Later an article appeared in the *JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION* setting forth these ideas and a few weeks ago there came to my desk *Bulletins 2 and 3* of the Academy of Pharmacy. All of us at Purdue were immediately interested and I wrote Dean Spease for more information. This probably accounts for my invitation to address you and therefore my presence here to-night.

The idea of an organization of selected pharmacists is not a new one. Army's Institute of Pharmacy and Nelson's Trade Marked Pharmacies have been described in pharmaceutical publications, but it remained for the pharmacists of Cleveland to take the first concrete step toward the formation of such a group. You are indeed to be congratulated on this step which, as I see it, bids fair to become the outstanding event in pharmaceutical practice of this decade.

For the past four years I have been studying professional pharmacy and the results of these studies have appeared yearly in the *JOURNAL OF THE A. PH. A.* Perhaps some of you have read these papers. From these studies four facts seem to stand out:

First.—That the development of professional pharmacy is in its infancy but is growing very rapidly. About 45% of these strictly professional pharmacies have been started in the past decade and over 35% of them during the past five years. I believe we may look for a continued development because some very large cities seem to have none of them at present. We all admit that this development must be limited but we are far from the saturation point yet.

Second.—If you start a professional pharmacy, you may expect it to be a losing proposition for six or twelve months. One of the most successful professional pharmacies in the United States, that of Dr. Leonard Seltzer of Detroit, was a financial failure for over a year. Dr. Seltzer said that he filled on the average of three prescriptions a day for the first year. We all know that is not sufficient to pay the rent. However, a determination to pursue an ideal has won for him great personal satisfaction and financial success. Many of the professional pharmacists who gave me the data told a similar story. I believe that only a small percentage of these professional pharmacists were financially successful from the beginning.

Third.—Choice of location is a very important factor in the success of such an adventure. It will require twenty or thirty doctors to each successful prescription store and the store should be located in close proximity to the doctors' offices. This is well illustrated in the city of St. Louis. Within a radius of two blocks there are four successful professional pharmacies and four successful commercial drug stores. This center happens to be the busiest corner in St. Louis, although out in the fifty hundred block, and there are many office buildings with the offices occupied by physicians. One pharmacist who has been very successful with a professional store in one of our cities, told me that his business was failing because a new Medical Arts Building was erected and the physicians had moved from his neighborhood to that new building. Moral: "Move with the doctors." Other things being equal or nearly so, the patients will patronize the most conveniently located professional pharmacy.

Fourth.—If you are successful in the operation of a professional pharmacy, you may expect a good return for your investment and for your labors. Usually the cost of installation is small; rents are low, as you will not need the best corner in the city for your place of business; and overhead is low because of low investment and low rents. Several of these professional pharmacies are making 20% profit on their volume of business which is what should be expected of such a professional practice. I know of no more attractive field than this in pharmacy to-day. If I were a young man, I would certainly endeavor to open a professional store. In addition to the return on investment, the satisfaction of doing a purely professional business must be very gratifying.

Less than fifty years ago many states had no pharmacy laws and anybody who wished could open a drug store and compound prescriptions and sell poisons. My own state secured its first pharmacy law in 1899, only a little more than thirty years ago. When these first laws were secured, all who were practicing pharmacy for a period of years, five or ten, were registered without examination. These early laws placed very low requirements for entrance to the profession, four or five years of experience plus the passage of an examination. Often this experience consisted of time spent behind the soda fountain or the candy and cigar counters and the examinations were ridiculously easy. We can readily understand that, as a result of these low standards, pharmacy was flooded with incompetent and poorly trained practitioners, many of whom were in the business purely to gain a livelihood and therefore knew nothing and cared less about professional ethics. In my own state we still have a number of these men who were registered without any examination as to their competence to perform the professional duties they had assumed and, of course, we still have a great many who became registered when the bars of entrance were very low. However, I must pause here to give credit to some of these men who were registered without examination. Some of them are among our best practitioners to-day. They were imbued with a desire to render good professional service and therefore they were guided by professional ethics, but they are the exceptions that prove the rule. What was true in Indiana was also to a greater or less degree true in the other states. The first law requiring college training for entrance to pharmacy was secured in New York State.

It would seem almost impossible for a professional spirit to make headway against such terrific odds. However, fortunately for pharmacy, two national associations were organized in the early years of the twentieth century and these two organizations, the American Association of Colleges of Pharmacy and the National Association of Boards of Pharmacy, soon became champions for better trained pharmacists and better pharmacies. Later, the AMERICAN PHARMACEUTICAL ASSOCIATION, the Mother Association of Pharmacy in the United States, caught the spirit of her children, the A. A. C. P. and the N. A. B. P., and came to their assistance.

The corner drug store has become a recognized factor in our economic life and, even though we have a great many more drug stores than are necessary for the sale of professional items, we cannot dispense with the conveniences that the corner drug store offers. 'Tis true that we have multiplied our drug stores far beyond reason, but the fact remains that our citizens wish the conveniences that they offer and there will never be a time when all the drug stores can become financially successful from

the compounding of prescriptions and sale of sick room supplies. Since this is true we must expect a great percentage of our drug stores to continue to do a commercial business along with professional practice. These two are not incompatible if the druggist has a proper conception of professional ethics. In my own town of 30,000, we have no dispensing physicians and no professional pharmacies. One of our larger stores, a store that orders paint by the car load and stock food in ton lots, does an excellent professional business. They employ five registered pharmacists, all of whom are college graduates, and every prescription that is brought to that store receives as much care and scientific treatment as it would in a professional pharmacy. The same is true of every store in the city, except perhaps one or two. They employ registered men who are college graduates and they live carefully up to the code of professional ethics. Several attempts have been made to open a professional pharmacy in my city but they have been abandoned because the present stores have a following among the physicians, and the physicians are satisfied with the professional service they are receiving. I speak of this only to emphasize that commercial transactions are not incompatible with good professional ethics if the operator of the store is the right kind of pharmacist.

I know of no profession, no matter how high its ideals nor advanced its code of ethics, that does not have among its practitioners some who are not motivated by these ideals and professional ethics. Pharmacy is no exception in this regard and, unfortunately, we have in the profession men who are in it merely to gain the almighty dollar and who use the professional atmosphere as a cloak of respectability to further their success in securing the dollar.

In practice we have at the head the strictly professional pharmacy operated in accordance with pharmaceutical ethics and at the foot the purely commercial store whose operator cares nothing about pharmacy except as it brings money into his till. Between these two we have all grades of practitioners and it is difficult for an outsider to distinguish the true from the pseudo pharmacists. We need some sort of instrument to separate the sheep from the goats and to place its stamp of approval upon the man who is *first* a true pharmacist and second a business man. I take it that this is one of the objects of the Academy of Pharmacy and I am in hearty accord with this aim. As long as we have registered pharmacists who fail to live up to pharmaceutical ethics we will have need of some way of distinguishing them from the one who does. Since it is impossible for our pharmacy laws to make this distinction, and no law can ever do it, we must look for some other source of classification that the physicians and the laity can use.

The physicians of Cleveland should welcome this instrument of classification of pharmacists and should cooperate with you. If we are to restrict the sale of questionable patent medicines, the practice of self-medication and the forcing upon the public of trade-marked articles at a high price when the same thing can be secured under its chemical name at a much lower price, it will have to be done by the physicians cooperating with the ethical pharmacists to stop such practices. The laity does not know who the ethical pharmacists are and, unfortunately, the physicians do not always know either. Here we have that much needed instrument of classification.

It has been an honor and a pleasure for me to address you and my hearty approval and well wishes go with you in your effort to advance the cause of public health.