

The oil of orange peel is an entirely different product from the flower oil, which on analysis is found to contain linalol, nerol, linalyl acetate, phenyl ethyl alcohol, indol and methyl anthranilate. The characteristic odor of the flower is due to this latter constituent which is present to the extent of only 1%. It also gives the fluorescent appearance to the oil. The basic odor of orange peel oil is due to decylalcohol of which only about 2% is present.

Synthetic neroli replaces the natural product for most purposes at one-fifth the price. No natural products of the orange flower are produced in the U. S. but California is turning out a fine quality of orange peel oil cold pressed. An experiment was made with orange peel to test the quality of the product obtained by steam distillation but the results were disappointing. A series of products were made from sweet orange, grape fruit, mandarin, kumquat and lemon peel by means of a volatile solvent which produced very fine flavored oils. Dextro limonene, which constitutes the greater portion of citrus oils, is also prepared commercially, and is also sold as an adulterant of the pure oils. Beta naphthol ethyl ether or nerolin is a synthetic chemical which is used as a substitute for orange flower products in soap flavor and has about the same odor value. The methyl ether is also used extensively and in trade is known as Yarayara.

Gardenia or cape jessamine introduced from South Africa is one of our most fragrant flowers produced in great abundance during the summer. The perfume is intensely diffusive and even objectionable to some persons. The flower is not used to prepare perfume compositions. The basic odor materials are benzyl, styrolyl and linalyl acetates with methyl anthranilate and terpineol.

Sweet olive is another one of our highly fragrant flowers which blossoms during the winter and spring. The flowers are quite insignificant but exhale an intensely diffusive fragrance, especially during the night. They are native to China and India where they are used to flavor tea. No natural flower products are employed in reproductions of the odor. The odor base is identical with that of the orange blossom but modified by the addition of traces of aldehydes C_{10} and C_{12} and their esters.

(To be continued.)

THE PURPOSE OF COÖPERATIVE WHOLESALE DRUG COMPANIES, AND WHAT THEY ARE ACCOMPLISHING.*

BY R. E. LEE WILLIAMSON.

A profound and widespread interest has, for several years, been shown in the plans and progress of the coöperative wholesale drug business. This has largely been caused by the great volume of business which has flown through the coöperative companies, and the natural interest of the trade in a new and unusual method of merchandising.

At the commencement of this method of wholesaling, the influencing reason that prompted the effort was largely, if not entirely, due to the status of the retail drug business in most of the large metropolitan cities which made it almost impossible for the retailer to secure a gross profit that would allow him to make more than a living. There was no such thing as the average retailer getting ahead and accumulating a surplus. In fact, the great majority of the retail pharmacists in the large cities were reaching a condition in which they were conducting their stores practically without profit, eking out a bare existence. This was a crushing and disheartening situation, which was having a ruinous effect upon pharmacy, blasting the lives of those in the profession, and lowering the standard of pharmacy in regard to the class of men entering the schools of pharmacy. Something had to be done; some help had to be secured. Pharmacists, in their extremity, turned in many

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directions, and applied to every source from which they had a right to expect help, but none was to be found. There was no hope of remedying conditions except through their own ingenuity. The help had to come from their own ranks. Necessity for imperative relief is, and always will be, the impulse behind any new or unusual idea or movement.

To meet the serious conditions confronting them, and to measure up in some manner to the situation which called for quick action to save their professional and business lives, they did a very natural thing in calling together a group of pharmacists, men of their own profession, affected by the same conditions, and suffering from the same business troubles, to discuss ways and means of producing a remedy. Out of such conferences sprang a determination on the part of these men to pool their interests.

It was determined to do collectively what they could not do alone—to buy their big selling items in large quantities direct from the manufacturer, thus securing the lowest price; and to divide the purchases into such proportions as each required, thereby putting themselves in a position to be able to sell these goods at the same price that their competitors were selling them, and keeping their customers from going to the cut-rate stores, thus holding the business that naturally belonged to them, and at the same time making at least a sufficient profit on that class of merchandise to pay a small net profit, where actual loss had previously been incurred.

The idea slowly developed and the results were so eminently satisfactory that it was a natural step on the part of these pharmacists to enlarge the group, so as to make it possible to increase the number of items dealt in and thereby enlarge their profits in the aggregate. It was from this small and crude beginning that the large coöperative drug companies have grown.

About thirty years ago, the first group to make this effort was organized in the city of Philadelphia, and from this very small group of determined men sprung a large coöperative company. From the earliest formation of this company, the ruling spirit was coöperation, unselfish help, determined and intelligent teamwork.

Sincerity of purpose and honest dealing won out, and from this small beginning one of the largest and most complete wholesale drug companies in the United States has been built. Five or six years after this beginning a company was started and established in Washington, D. C., on the same principle, and with the same ideals, and because of the same conditions there and, about two years later, in this same manner and for the same causes, one in Baltimore, Md.

The underlying business principles upon which these companies were founded are that of supplying a simple but efficient means of distributing merchandise, and to lower the cost of same by eliminating many unnecessary, and often much-abused, accommodations, in deliveries and extended credit.

It is not difficult to visualize the financial advantages derived from being a stockholder and a customer of the wholesale or jobbing companies conducted upon such principles. Not only are the financial returns considerable, but there are many other benefits that grow out of the close relationship which stockholders and customers are bound to have through their association as such, placing them in a position to greatly improve their business methods—through the facilities thus offered to become more intimately acquainted with each other, giving an opportunity for

the exchange of business ideas, business information and business methods—all of which have shown to these retail pharmacists the absolute necessity for proper book-keeping and accounting methods, and the handling of their affairs in a business-like, intelligent manner.

There has been but one fundamental purpose influencing the coöperative wholesale drug companies, and that has been to supply a retail pharmacist with merchandise at as low a cost as possible, in order that his net earnings or profit will be sufficient to compensate him for his labor, and the commercial risk of his capital.

The plan is a most natural one, and is in keeping with the efforts of all experts on economic questions—to eliminate the waste practices in the distribution of merchandise of an essential nature. At this time the Government, and many technical institutions and commercial associations are making efforts to eliminate uneconomic methods and wasteful practices that are being shown to exist in the established handling and flow of raw material to the finished product, and on into the hands of the consumer. Without doubt, the coöperative wholesale drug companies in the past thirty years have been accomplishing this identical thing. Those are the reasons for, and the purpose of, the many coöperative drug companies that have been developed during the past quarter of a century or more.

WHAT THEY HAVE ACCOMPLISHED.

In the first place, they have clearly shown that the idea is thoroughly practicable, and can be financially and safely maintained; they have grown from one small company, with little capital, and very few customers, to over twenty-five companies, with a total invested capital of over \$7,000,000.00 with over 12,000 customers, and an annual business of over \$60,000,000.00, saving their customers annually over \$6,500,000.00 on the purchase of their supplies. These are the cold, unsentimental figures, and, if that was all, I feel that it can be said, without boasting, that it is a wonderful accomplishment; but it is not all, this coöperative plan has been the means of bringing the pharmacists of the communities in which they are located together in an intimate business relationship, and there has grown out of this association a very marked improvement in the general character of the stores, reflecting better service to the customer, and indirectly creating a more substantial distributing service for the manufacturers and importers. It has taught retail pharmacists the value of paying bills promptly, and in this important feature of business has made them better business men. It has put them in a position to buy merchandise in the quantities that are required for a healthy and normal turnover at approximately as low a price as if bought in larger quantities than the business required. Because of this feature a more rapid turnover of merchandise is possible and does not require the tying up of an unnecessarily large amount of the capital on the shelves. In other words, the benefits secured mean less money tied up, and quicker turnover of stock: two of the soundest principles of good merchandising.

Another of the many things that the coöperative wholesale drug companies have accomplished for the real benefit of the retail pharmacists (and this may be the most vital benefit) is that it has given them the means by which they can successfully compete with the cut-rate drug stores, and the rapidly growing chain store problem; to meet such competition, undoubtedly the coöperative wholesale drug companies are the independent retail pharmacists' only salvation.

In conclusion, notwithstanding the fact that practically 25 per cent. of all of the retail pharmacists of this country are stockholders and customers of the coöperative wholesale drug companies, if the movement was more thoroughly understood and the ideals and unselfish efforts were better known, a very much larger number would be enjoying the benefits and help that these unselfishly conducted companies are offering.

DISPENSING AND DISPENSARY PRACTICE FOR STUDENTS.

BY FREDERICK J. WULLING.*

Introduction: In commenting on the relative importance of dispensing as a part of the pharmaceutical curriculum, a teacher of dispensing, seemingly speaking for an entire faculty, stated to me recently that he felt dispensing should begin immediately upon entrance of the student and should continue and be graded throughout the two-, three-, or four-year courses. He would include in the course the study of Latin, weights and measures, medical properties, and doses. After the student would have mastered the beginning of metrology, this teacher would take advantage of the fact that some dispensing is very simple, involving nothing more than removing portions of the contents of a larger container to a smaller one and labeling properly, and begin the simple technique of dispensing and then grade into more difficult work concurrently with the student's progress in his work in other subjects. This instructor felt that the student should be imbued at the earliest moment with the sense of responsibility and with the consciousness of professional dignity, which he thought accrued from the nature of the work of dispensing and from the contact with the public which it involves, more than from other divisions of the curriculum or practice.

According to some inquiries and observations I have made since, this view-point is not an isolated one. It may therefore be pertinent to discuss the matter here briefly under three headings:

1. The Place of Dispensing in the Curriculum.
2. The Quantitative Relation of Dispensing to Other Subcourses.
3. The Scope and Nature of the Course in Dispensing.

I. The Place of Dispensing in the Curriculum: A thoroughly competent pharmacist recognizes that all of his training and experience culminate in that part of his professional activity which consists in the compounding or dispensing of prescriptions, because the delivery of the compounded medicine to the patient is the direct and final service which the pharmacist renders to the public. In this final service is involved a previous and indirect study and knowledge based upon and extending deeply down into the roots of all of the basic sciences and arts constituting the foundations of all the departments of every well-formulated pharmaceutical curriculum. Dispensing is therefore the specialized application of a broad, comprehensive knowledge and training towards the particular end, with the participation of the physician, of providing competent medication for those who need it. The responsibility and liability of the pharmacist reach their greatest degree at this point, for here the practitioner surrenders possession of the compounded medi-

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