THE SPIRIT AND SERVICE OF PHARMACY.

(Delivered as a radio talk from Station WPTF, Raleigh, N. C., on March 11, 1929.)

BY J. G. BEARD.*

In order that the subject of this talk, "The Spirit and Service of Pharmacy," may be accepted in its broadest implications, it is necessary first of all to explain what is really meant when the word "Pharmacy" is correctly used.

Two definitions are given for it. (1) A place where drugs are compounded and sold. In other words, a drug store. This definition deserves very little consideration because of its incompleteness. (2) Pharmacy is the Science and Art of Collecting, Elaborating or Preparing, and Dispensing Drugs, Medicines and Poisons.

Please consider the full meaning of the second definition. From the time the crudest, simplest herb or animal product or ore is taken from its native source, until it has been sent on its way to prevent or cure disease, no other agencies and processes than those belonging to Pharmacy have been in motion. The difference and distance between poppy juice in Asia Minor and morphine in an American hospital are tremendous, but the whole route of travel is engineered by a pharmaceutical personnel. A cinchona tree is stripped of bark in the jungles of Java, and a chain of processes then begins that ends only when quinine, an indispensable agent in controlling malaria, is available for administration. The collection, importation, elaboration and sale of this and all other drugs are exclusively managed under the auspices of a science that is perhaps less widely advertised than are any of the major technical practices.

The average layman thinks of Pharmacy in terms of the average American drug store—and he does not even understand a drug store. To him Pharmacy is a merchandising enterprise that distributes a variegated assortment that includes medicines among other items. He does not see the ramifying and intricate processes that finally focus in the prescription room of the corner drug store. The packaged medicine that he purchases there may have had its origin in the depths of an African forest; it may have gone through manufacturing methods requiring the utmost exactness and scientific skill; it may have been blended with other therapeutic agents by the druggist in a dispensing service that only one in every fifteen hundred persons is competent to render. But the final buyer—the layman—sees nothing of the complicated and costly procedures that led up to his purchase. All that he sees is a bottle of something for which he believes he paid too much.

I am asking you this afternoon to accept a broader, fairer conception of Pharmacy than the average citizen holds; asking you to analyze with me the definition of a moment ago. "Pharmacy is the science and art of collecting, elaborating, and dispensing drugs and poisons." It is not simply a science nor merely an art, but a combination of both. Science is systematized knowledge; Art is knowledge made efficient by skill. The laws and principles of Pharmacy are exhibited in an ordered and inter-related system, and they appear in the character of a science. These same laws and principles are then applied by means of skillful technique in

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the preparation of a refined medicine from crude material, and therefore they become the working rules of an art. Consequently we say that Pharmacy is a combination of science and art.

It comprehends three distinct functions, namely, collecting, manufacturing and distributing drugs.

A word about collecting. It is perhaps no exaggeration to say that in no other field of effort is it so necessary as in Pharmacy to search the entire world for raw materials. Every country on the globe, every hamlet almost, and every division of nature, are levied upon to furnish the vast supplies that are needed to satisfy society's demand for agents against disease. Savages and scientists, earth, air and ocean, contribute to the collection that Pharmacy secures in promoting the health interests of mankind. Startling stories could be written around the collection of any one of a dozen drugs that in their finished form show no hint of the thrill and danger that were involved in taking them from their native surroundings.

After a crude drug has been collected, it is deprived of non-essential material and usually sent to an exporter in some seaport city who has customers all over the world. The exporter grades the crude drug according to quality and fixes its price in relation to market conditions. He then ships it either to a firm of drug dealers or else to some manufacturing house. If the shipment goes directly to a manufacturer, and this plan is usual nowadays, the first step in the refining process is then begun. Some drugs, such as Balsam of Peru and Gum Arabic, require very little treatment to make them ready for final use. Most drugs, however, must be milled, purified and elaborated by tedious and expensive processes before they are ready for shipment to the wholesalers, who are usually the next unit in the system of supply. Ordinarily his establishment is simply a depot for quantity distribution, but oftentimes it is also a small-scale manufacturing plant. The main function of a wholesaler is to maintain a stock of between fifteen and sixty thousand drug store items in quantities sufficient for the needs of one hundred and fifty retail patrons. Located in convenient centers, able to carry infrequently used items that no single retailer could afford to stock, and affording a rapid delivery service, the wholesale druggist is a very important element in getting drugs from their source to their users.

The final unit in the scheme of drug production and distribution is the retail pharmacist. His 56,645 drug stores, scattered over this country in the proportion of one store to every three thousand persons, are the agencies in dispensing the vast number of remedial substances that go to make up our modern materia medica. The part played by the retail pharmacist in the plan that has just been sketchily described is at once as necessary, important and exacting as that of any of the others, and yet when all factors are considered he is rewarded less generously than any member of the producing personnel.

Having learned what Pharmacy is and having seen that its energies range far beyond the confines of the corner drug store, let us examine briefly what Pharmacy seeks to do; what service it tries to render. Naturally its aim centers in drugs, but as will be pointed out later, a certain amount of attention must necessarily be paid to products that only by association can be related to drugs. The fundamental obligation, the primary duty of Pharmacy, is to provide conveniently,

quickly and at moderate cost an unfailing supply of agents that prevent, alleviate or cure pain and disease.

In carrying out this purpose, Pharmacy searches constantly for new drugs and experiments unceasingly in an effort to improve the quality and effectiveness of those already in use. Every generation has found its medicines more active, more palatable and more reliable because of the extensive research conducted and financed by pharmaceutical manufacturers, teachers and distributors. In recent years this search for drug additions and improvement has been singularly fruitful. A generous share of credit for this progress belongs to chemists, physicians and others, but since drugs as such are the primary concern only of pharmacists, and since they have enormous facilities for carrying on their operations, it follows naturally that they—the pharmacists—have played the major part—oftentimes the only part—in improving the character and usefulness of modern medicines.

To illustrate:

A decade ago cod-liver oil was a highly nauseous product tolerated only by strong stomachs and almost in disrepute by physician and layman. To-day, by clever manufacturing methods, it is no more objectionable than olive oil. Furthermore it is treated by electric rays and in other ways so that it has become the main medium for administering the vitamine that prevents and cures rickets in children. In addition it is highly nutritious.

Or consider digitalis, a drug that has no satisfactory substitute in certain heart conditions. A generation ago its strength was indeterminable because its unstable constituents could not be measured by any known assay method. In an emergency a doctor was never quite certain that he could count upon its usual stimulating effects. Pharmacy concentrated upon the digitalis problem; removed certain objectionable elements such as fat; joined forces with the pharmacologist; found that the effect of the drug upon a frog's heart was an index of its strength; and finally developed standardized digitalis preparations that are potent, reliable and permanent.

Turning to another type of drug we find that serums and vaccines are becoming increasingly numerous, effective and reliable as pharmaceutical research supplements the work of the bacteriologist and physician in extending the scope of biological therapy.

The discovery of Insulin, still another class of drug, is credited altogether to two Canadian physicians, and so it should be. But the lay world knows nothing of the unselfish service of a large pharmaceutical firm in making Insulin available quickly and cheaply. Every facility of the big plant was utilized, profits were forgotten, and very shortly the world was provided with a plentiful supply of standardized drug that controls diabetes.

But pharmacists are not simply the developers or refiners of therapeutic agents that are discovered by other scientists. For example, the first alkaloid ever to be isolated was Morphine. Sertürner, a European apothecary, separated it from opium in 1815, and named it in honor of Morpheus, the god of dreams, who in mythology was the servant of Somnos, the god of sleep. His discovery and the publication of his methods so stimulated investigation into vegetable drugs that other pharmacists in rapid order announced the finding of quinine, strychnine, atropine, codeine, nicotine, picrotoxin, etc. Iodine was made known by Courtois,

a French apothecary. Bromine likewise was a pharmaceutical discovery. The list is numerous and is constantly being added to. The contributions that pharmacists make to medical science have oftentimes been credited wrongly to physicians, chemists or biologists simply because of a trait that is one of the finest features of pharmaceutical service; the trait, namely, of thinking almost entirely in terms of results and almost indifferently in terms of credit. The thing discovered or improved, and not the discoverer, is the paramount factor in the tradition of a true pharmacist.

A final word now about the retail distributor of drugs.

In its heart the public feels rather kindly towards the neighborhood druggist, but with its tongue it often speaks of him in sarcastic sentences. It jests about his high prices and his huge profits and the great variety of his stock, but in its serious moments it recalls memories of his countless courtesies and recognizes the nature of his necessary service. People say that druggists realize greater profits than other retailers. But do they? How often do you hear of one retiring? How many rich druggists do you know? They will average working more minutes per hour, more hours per day, and more days per lifetime than any class of citizens you can name. If their profits are great, why do they stay poor and nearly always die in harness? Many people continually complain about the high prices of drugs, particularly prescriptions. These unknowing critics estimate that a bottle and a cork, a grain of drug and a gill of water, go to make up a product that costs about five cents and sells for fifty. The forty-five cents difference is "pure velvet." Such an assumption is so absurd that it would be ignored were it not for the fact that a great many laymen hold notions equally ridiculous about profits on drugs. As a matter of fact there is not a wide margin of profit in the retail drug business. Of the average dollar that comes in over the counter, sixty-five cents goes to pay for the goods sold; twenty-eight cents is paid out for operating and carrying expenses; and seven cents is retained as net profit. Is this unreasonable? So much for prices and profits. A word now about stock.

The reason for the wide variety of goods that a modern druggist displays, and for the unrelated character of many such items to drugs, is easy to understand but is not generally recognized. Numerous side lines have to be carried in drug stores to keep the stores in existence. If everything but medicines and sickroom supplies were eliminated from the stock, then immediately two-thirds of all the drug stores in America would close their doors. Only the populous centers could support the other third. Cities or districts containing less than eleven thousand people could not maintain even one such drug store. Please pause and study that statement; only communities of eleven thousand people could have one drug store. But with side lines to help absorb operating expenses and to speed up turnover and profits, the number of drug stores can be increased until even small neighborhoods are provided with convenient, capable and courteous service, not only in drugs, but in the thousand other items that have found a secure place on drug store shelves. I do not apologize for side lines; they help us to realize the American idea of wanting to get what we want to have very shortly after we have decided we want it.

In concluding let me say that Pharmacy in its collective phases has assumed a solemn obligation in its account with Society. On the one hand it dedicates itself to the purpose of securing for sufferers and for those who heal suffering a

plentiful supply of increasingly effective preventives and curatives. On the other hand it obligates itself to deliver efficiently, courteously, promptly and non-expensively the varied drugs that must always be needed in the battle agaist disease. Other activities will be secondary and supplemental, performed at no sacrifice of the dominating purpose, but simply in order to make achievement more certain.

This is the Spirit and the Service of Pharmacy.

HISTORICAL FRAGMENTS.*

BY EDWARD KREMERS.

NO. 21. A GERMAN DIARIST IN SOUTH AMERICA.

Charles, the oldest son of Archduke Philipp of Austria and of Joanna (the insane daughter of Ferdinand II of Aragon and Isabella of Castile, the protectors of Christopher Columbus), also grandson of the Emperor Maximilian I, reigned as Charles V from 1519 to 1556, Emperor of the Holy Roman Empire of the German Nation, and as Charles I, King of Spain. Of his empire it was said that the sun never set therein.

The year in which Charles V was proclaimed German Emperor, was the year in which Cortez conquered Mexico. Ten years later Pizarro overran Peru. Again ten years later, 1539, De Soto landed at Tampa Bay and in 1541 reached the Mississippi river where somewhat later his remarkable career as explorer of what now constitutes our southern states ended. About the same time Coronado explored corresponding territory west of the Mississippi. In 1534 Don Pedro de Mendoza organized a fleet of 14 vessels and 2500 Spaniards and 150 Germans for an expedition to the Rio della Plata or Parana river. The fleet touched the Canaries and Hesperides, then at Rio de Janeiro in Brazil and finally at Buenos Aires in Argentina. From here expeditions were sent into the interior.

An account of this expedition of exploration and conquest has come down to us from Ulrich Schmidel of Straubing (Bavaria). It is a matter of fact statement of almost twenty years of ups and downs through South American wilderness from the 35th degree of southern latitude northward to the tropic of Capricorn. As to latitude this southern territory corresponds roughly to that traversed north of the equator by De Soto. How any one could survive twenty years of such constant hardship and danger is well nigh incomprehensible, yet Schmidel survived to tell the tale (1) to his old neighbors in Straubing with whom he continued to live upon his return—four times he was elected their burgomaster—until religious differences caused him to move to Regensburg, where he died.

Schmidel's account, like the Hidalgo of Elva's relation of De Soto, goes into minute details as to places visited, the distances traveled, density or scarcity of population, the food of the Indians, and the kind or absolute absence of clothing. He also refers occasionally to diseases and relates that they stopped to allow the

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