

into settling-basins, and the mud, bacteria and precipitated limestone are deposited. Practically all of these impurities are removed by sedimentation, but, in order to remove all suspended particles, the clear water from the settling-basins is passed through sand filters. The water passes through the sand, into a large covered concrete reservoir; and from this reservoir is pumped to the distribution system.

Purity of Filtered Water:—Columbus has now one of the most modern, fully-equipped water purifying systems of the world.

The water delivered to the consumers is satisfactorily soft, is always sparkling-clear, has a wholesome taste, and is absolutely pure.

During the year 1912, the average number of bacteria present in the river water was nineteen thousand two hundred and ten per cubic centimeter, and the average number in the purified water was only fourteen per cubic centimeter, a reduction of 99.93%. Another evidence of the purity of the water, is the decrease in the typhoid-fever death-rate, which has fallen from one hundred and thirty-nine in 100,000, to about eighteen in 100,000.

THE RELATION OF PHARMACY TO MEDICINE.

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Historically, pharmacy and medicine had a common origin. If we would advance the contention that pharmacy is the mother of medicine, we must at the same time admit that the parent is subservient to its offspring. However that may be, the fact remains that, somewhere in the past there arose the necessity for a separation of the two professions. This necessity was undoubtedly an economic one, which had its foundation deep-rooted in the very nature of the two professions.

The ancient pharmacist, who spent his time in collecting and curing drugs, of both animal and vegetable origin, and making, from these drugs, the various preparations required in the treatment of disease, could not become very highly proficient in the diagnosis and treatment of human ills, crude and imperfect as these arts may have been at that time. Conversely, the physician, who devoted his time to attendance upon and treatment of the sick, had not the time to become skilful in the recognition of the growing plants used in medicine, nor in the art of their preservation and preparation for use.

Hence, the separation of the two professions, was one of the mighty factors that made for the increased efficiency of both. And, right here, it might be pointed out that the more skilful and efficient a physician became, through a conscientious devotion to his work, the more he stood in need of the services of a skilful and efficient pharmacist, while the pharmacist's profession depended wholly upon that of medicine. This mutual inter-dependence of the two professions, without doubt, increased the efficiency of both and its re-establishment in

modern times for the sake of increased efficiency is one of the important questions confronting these two sister professions to-day.

On down through the ages, this division of labor in the interests of economy and efficiency has continued, until to-day we live in the greatest age of specialization the world has ever known.

One factor which has influenced this evolutionary development in pharmacy, more than in medicine, is modern business organization and the influence of large combinations of capital. From the very natures of the two professions, this fact is more applicable to pharmacy than to medicine. For example, a large manufacturing-establishment can make a thousand gallons of a given preparation better and more economically than a thousand individual pharmacists can make a gallon apiece; but neither the application of modern business principles, nor large combinations of capital have yet devised a machine which will perform a thousand appendicitis-operations collectively, more economically or more efficiently than a thousand such operations can be performed individually.

Because of this influence of modern business organization, the processes of pharmaceutical-manufacturing have practically passed out of the hands of the individual pharmacist. And long ago, because of the area from which drugs are collected, market-conditions, and a differential-price for labor, the collection and preservation of drugs had passed out of his hands.

What then remains, at present, as the pharmacist's work? "Compounding and dispensing," if we apply ordinary subtraction to our time-honored definition and scan not too closely the forces that are even now grasping for these.

It is admitted on every hand, that the gross income from the compounding and dispensing of physicians' prescriptions in the average drug store to-day does not exceed ten *per cent.* of the total gross income. The other ninety *per cent.* comes from the commercial end of the drug business, which is, largely, retail merchandising-operations, into which the pharmacist has entered in order to earn a livelihood.

In this connection, it might be pointed out, that the same natural law, which made it impossible for the ancient pharmacist to become proficient in the art of healing the sick, because he devoted his time to the collection and preservation of drugs and their preparation for use, to-day makes it impossible for the pharmacist to become skilled in the real work of pharmacy, because he is assiduously devoting his time to side-line merchandising, bargain-store methods, advertising, window dressing, etc., etc.

This brings up the very important question,— "What is the real work of pharmacy to-day?"

Even as the ancient pharmacist, by intelligent assistance, made the ancient physician more efficient in his work, so it should be the real function of the modern pharmacist, by intelligent assistance, to make the modern physician more efficient in the work that he is endeavoring to do.

With the remarkable amount of research that is constantly being carried on in the field of medicine, there is, inevitably, a broadening of, and in many cases, fundamental changes, in our knowledge of the nature and cause of disease. This progress and development in medical knowledge, mean corresponding changes and progress in the treatment of the disease.

Not many years since, if the physician desired an infusion or decoction, an ointment or emulsion or pill or any thing else, well prepared, for the treatment of a patient, he turned to his reliable helper, the pharmacist, and received an efficient and potent preparation. To-day if he desires a blood-count, a urinalysis, a gastric- or fecal-analysis, an autogenous vaccine, a Widal or Wasserman test, or any one of a long list of things, which the physician in most cases must delegate to some one else, does he turn to the pharmacist? And if not, why not? Simply because the pharmacist of to-day is neither equipped, nor prepared, nor competent, to do this kind of work. He is too busy selling tin watches and sugar-coated prunes: his mind is on the weighty problems of how to compete with the chain-store or the copy for his next week's cut-rate advertisement. While the physician has been learning new facts about disease, leading to new methods of treatment, the pharmacist has been adding side-lines. There is no reflection in pharmacy of the changes and progress occurring in medicine.

As before indicated in this paper, a man becomes most efficient in that to which he devotes his time, his energy, and his attention. The commercial pharmacist who devotes his time and attention almost wholly to the problems of the business world, can be of but little professional assistance to the physician. The physician who devotes himself to his practice, cannot continue to be an efficient and reliable laboratory-worker, and yet this laboratory-work must be done and done well, if the physician is to do full justice to his patient and to himself.

There are many things in the diagnosis and treatment of disease to-day that, for a variety of reasons, the average modern physician cannot do for himself, but must delegate to some one else to do for him. Who is to do this,—the physicians' "delegated work"? We may admit that the physician who has at his command the services of an educated, experienced, competent, reliable laboratory-worker, in a thoroughly equipped laboratory, is a far better and more efficient physician than he would be without such assistance. If we admit, also, that such a laboratory-worker will increase the efficiency, not only of a given physician, but of every physician who will avail himself of the opportunities of such assistance, then we may catch a glimpse of the tremendous uplift that such a class of men could give to the medical profession.

Nobler, holier, more useful work was never entrusted to human hands than the medical profession is doing to-day in its efforts to stamp out human disease. To have had part, however humble, in such a work, is a rare privilege and worthy of any man's ambition and his life's best efforts. And yet, we find this field almost wholly unoccupied, with not a single university, or college of medicine, or college of pharmacy, fitting its graduates to do this most useful, necessary and important work.

This feature of the situation could undoubtedly be overcome, but another feature, less easily provided for, is the question of legal registration for the practice of such a profession.

I believe it is an indisputable fact, that the men now registered as pharmacists or those who may hereafter become registered under our present pharmacy laws, are not and will not be qualified for this kind of work. Graduates of our pharmacy colleges are not excepted in this statement.

The purpose of registration as a legal pre-requisite for the practice of any

profession, is, we may assume, two-fold in its nature. First, it would protect the public against incompetent and inefficient practitioners, and second, it would protect the qualified practitioner against the unjust and unfair competition of the unqualified practitioner.

If it is ever hoped to raise up a reliable and competent class of professional men who are capable of being a real help to the medical profession, the individual must have the protection of registration upon a plane high enough to actually protect him against the competition of unqualified men.

Elsewhere I have referred to the pharmacist of to-day as a commercial pharmacist and I should like to make clear, my idea of the distinction between the commercial pharmacist and the professional pharmacist. The commercial pharmacist practices a kind of pharmacy which is wholly independent of the medical profession, while the professional pharmacist practices a kind of pharmacy which is wholly dependent upon the medical profession. To be sure, these two kinds of pharmacy are hopelessly mixed in the drug store of to-day and, united with them, is a miscellaneous lot of retail merchandising, that bears no relation *whatsoever to any kind of pharmacy*. But the fundamental distinction between commercial and professional pharmacy, is their relationship to the profession of medicine. Whether professional pharmacy,—and that means the physicians' delegated work, and, practically, that means the prescription-business,—can ever be separated from the "hodgepodge" we now call the drug business, is a question, but it, undoubtedly, belongs with the rest of the physicians' delegated work, in the hands of a well-educated, well-equipped, competent, reliable man, who for lack of a better term, we may call a professional pharmacist.

ATROPA BELLADONNA.*

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History.—Atropa Belladonna is the subject of many legends and how it came by its name is interesting to know. Atropa (Greek, Atropos) was the eldest sister of the Three Fates, who were worshipped by the ancient Greeks and were supposed to preside over accidents and events; to determine destiny; and the period of human life. Their names were Clotho, spinner of the thread of life; Lachesis, the second, who twisted it and under whose fingers it was made now strong, now weak:—

"Twist ye, twine ye! even so
Mingle shades of joy and woe.
Hope and fear, and peace, and strife,
In the thread of human life."

Atropos, the third sister—"the inflexible," the fate that cannot be avoided—armed with a pair of shears remorselessly cut short the thread of life. Belladonna from the Latin (Bella) Handsome, (Donna) Lady—so named because Italian

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