

lurgist, and engineer, all applying the broad principles of chemistry to industry that has made such important and far-reaching development.

Waste has, in some industries, been reduced to a minimum and their efficiency is great indeed, yet in no single case has perfection been reached.

R. J. STRASENBURGH Co., Rochester, N. Y.

DRUGS AND THE MAN.*

DR. ARTHUR E. BOSTWICK, LIBRARIAN, ST. LOUIS PUBLIC LIBRARY.

The graduation of a class of technically trained persons is an event of special moment. When we send forth graduates from our schools and colleges devoted to general education, while the thought of failure may be disquieting or embarrassing, we know that no special danger can result, except to the man who has failed. The college graduate who has neglected his opportunities has thrown away a chance, but he is no menace to his fellows. Affairs take on a different complexion in the technical or professional school. The poorly trained engineer, physician or lawyer, is an injury to the community. Failure to train an engineer may involve the future failure of a structure, with the loss of many lives. Failure to train a doctor means that we turn loose on the public one who will kill oftener than he will cure. Failure to train a lawyer means wills that can be broken, contracts that will not hold, needless litigation.

Congressman Kent, of California, has coined a satisfactory word for this sort of thing—he calls it “mal-employment.” Unemployment is a bad thing. We have seen plenty of it here during the past winter. But Kent says, and he is right, that malemployment is a worse thing. All these poor engineers and doctors and lawyers are busily engaged, and every thing on the surface seems to be going on well. But as a matter of fact, the world would be better off if each one of them should stop working and never do another stroke. It would pay the community to support them in idleness.

I have always considered pharmacy to be one of the occupations in which mal-employment is particularly objectionable. If you read Homer badly it affects no one but yourself. If you think Vera Cruz is in Italy and that the Amazon River runs into the Arctic Ocean, your neighbor is as well off as before; but if you are under the impression that strychnine is aspirin, you have failed in a way that is more than personal.

I am dwelling on these unpleasant possibilities partly for the reason that the Egyptians displayed a skeleton at their banquets—because warnings are a tonic to the soul—but also because, if we are to credit much that we see in general literature, including especially the daily paper and the popular magazine, *all* druggists are malemployed. And if it would really be better for the community that you should not enter upon the profession for which you have been trained, now, of course, is the time for you to know it.

* A valedictory address delivered at the commencement exercises of the St. Louis College of Pharmacy, May 19, 1915, wherein a layman presents his views anent influences affecting pharmacy.

There seems to be a widespread impression—an assumption—that the day of the drug is over—that the therapeutics of the future are to be concerned alone with hygiene and sanitation, with physical exercise, diet, and mechanical operations. The very word “drug” has come to have an objectionable connection that did not belong to it fifty years ago. Even some of the druggists themselves, it seems to me, are a little ashamed of the drug part of their occupation. Their places of business appear to be news-agencies, refreshment parlors, stationery stores—the drugs are “on the side,” or rather in the rear. Sometimes, I am told, the proprietors of these places know nothing at all about pharmacy, but employ a prescription clerk who is a capable pharmacist. Here the druggist has stepped down from his former position as the manager of a business and has become a servant. All of which looks to me as if the pharmacist himself might be beginning to accept the valuation that some people are putting upon his services to the community.

Now these things affect me, not as a physician nor as a pharmacist, for I am neither, but they do touch me as a student of physics and chemistry and as one whose business and pleasure it has been for many years to watch the development of these and other sciences. The fact that I am addressing you this evening may be taken, I suppose, as evidence that you may be interested in this point of view. The action of most substances on the human organism is a function of their chemical constitution. Has that chemical constitution changed? It is one of the most astonishing discoveries of our age that many, perhaps all, substances undergo spontaneous disintegration, giving rise to the phenomena now well known as “radio-activity.” No substances ordinarily known and used in pharmacy, however, possess this quality in measurable degree, and we have no reason to suppose that the alkaloids, for instance, or the salts of potash or iron, differ today in any respect from those of a century ago. How about the other factor in the reaction—the human organism and its properties? That our bodily properties have changed in the past admits of no doubt. We have developed up to the point where we are at present. Here, however, evolution seems to have left us, and it is now devoting its attention exclusively to our mental and moral progress. Judging from what is now going on upon the continent of Europe, much remains to be accomplished. But there is no reason to believe that if Cæsar or Hannibal had taken a dose of opium, or ipecac, or aspirin, the effect would have been different from that experienced today by one of you. This is what a physicist or a chemist would expect. If the action of a drug on the organism is chemical, and if neither the drug nor the organism has changed, the action must be the same. If we still desire to bring about the action and if there is no better way to do it, we must use the drug, and there is still need for the druggist. As a matter of fact, the number of drugs at your disposal today is vastly greater than ever before, largely owing to the labor, and the ingenuity, of the analytical chemist. And there are still great classes of compounds of whose existence the chemist is assured, but which he has not even had time to form, much less to investigate. Among these may lurk remedies more valuable than any at our disposal today. It does not look, at any rate, as if the druggist were going to be driven out of business from lack of stock, whether we regard quantity or variety. To what, then, must we attribute the

growth of the feeling that the treatment of disease by the administration of drugs is on the decline? From the standpoint of a layman it seems to be due to two facts, or at least to have been strongly affected by them: (1) The discovery and rapid development of other therapeutic measures, such as those dependent on surgical methods, or on the use of immunizing serums, or on manipulations such as massage, or on diet, or even on mental suggestion; and (2) the very increase in the number and variety of available drugs alluded to above, which has introduced to the public many new and only partially tried substances, the results of whose use has often been unexpectedly injurious, including a considerable number of new habit-forming drugs whose ravages are becoming known to the public.

The development of therapeutic measures that are independent of drugs has been coincident with popular emancipation from the mere superstition of drug-administration. The older lists of approved remedies were loaded with items that had no curative properties at all, except by suggestion. They were purely magical—the thumb-nails of executed criminals, the hair of black cats, the ashes of burned toads and so on. Even at this moment your pharmacopœia contains scores of remedies that are without effect or that do not produce the effects credited to them. I am relying on high therapeutical authority for this statement. Now when the sick man is told by his own physician to discard angle-worm poultices, and herbs plucked in the dark of the moon, on which he had formerly relied, is it any wonder that he has ended by being suspicious also of calomel and ipecac, with which they were formerly classed? And when the man who believed that he received benefit from some of these magical remedies is told that the result was due to auto-suggestion, is it remarkable that he should fall an easy prey next day to the Christian Scientist who tells him that the effects of calomel and ipecac are due to nothing else than this same suggestion? The increased use and undoubted value of special diets, serums, aseptic surgery, baths, massage, electrical treatment, radio-therapeutics, and so on, makes it easy for him to discard drugs altogether, and further, it creates, even among those who continue to use drugs, an atmosphere favorable to the belief that they are back numbers, on the road to disuse. Just here comes in the second factor to persuade the layman, from what has come under his own observation, that drugs are injurious, dangerous, even fatal. Newly discovered chemical compounds with valuable properties, have been adopted and used in medicine before the necessary time had elapsed to disclose the fact that they possessed also other properties, more elusive than the first, but as potent for harm as these were for good. Many were narcotics or valuable anesthetics, local or otherwise, which have proved to be the creators of habits more terrible than the age-long enemies of mankind, alcohol and opium. When the man whose wife takes a coal-tar derivative for headache finds that it stills her heart forever, the incident affects his whole opinion of drugs. When the patient for whom one of the new drugs has been prescribed by a practitioner without knowledge of his idiosyncrasies reacts to it fatally, it is slight consolation to his survivors that his case is described in print under the heading, "A Curious Case of Umptiol Poisoning." When a mother sees her son go to the bad by taking cocaine, or heroin, or some other drug of whose existence she was ignorant a dozen years ago, she may be par-

done for believing that all drugs, or at least all newly discovered drugs, are tools of the devil.

And this feeling is intensified by one of our national faults—the tendency to jump at conclusions, to overdo things, to run from one evil to its opposite, without stopping at the harmless mean. We think we are brighter and quicker than the Englishman or the German. They think we are more superficial. Whatever name you give the quality it causes us to “catch on” sooner, to work a good thing to death more thoroughly and to drop it more quickly for something else, than any other known people, ancient or modern. Somebody devises a new form of skate roller that makes roller-skating a good sport. We find it out before anyone else and in a few months the land is plastered from Maine to California with huge skating halls or sheds. Everybody is skating at once and the roar of the rollers resounds across the oceans. We skate ourselves out in a year or two, and then the roar ceases, the sheds decay and roller-skating is once more a normal amusement. Then someone invents the safety bicycle, and in a trice all America, man, woman and child, is a wheel. And we run this good horse to death, and throw his body aside in our haste to discover something new. Shortly afterward someone invents a new dance, or imports it from Spanish America, and there is hardly time to snap one’s finger before we are all dancing, grandparents and children, the cook in the kitchen and the street-cleaner on the boulevard.

We display as little moderation in our therapeutics. We can not get over the idea that a remedy of proved value in a particular case may be good for all others. Our proprietary medicines will cure everything from tuberculosis to cancer. If massage has relieved rheumatism, why should it not be good also for typhoid? The Tuntum Springs did my uncle’s gout so much good; why don’t your cousin try them for her headaches? And even so, drugs must be all good or all bad. Many of us remember the old household remedies, tonics or laxatives or what not, with which the children were all dosed at intervals, whether they were ill or not. That was in the days when all drugs were good: when one “took something” internally for everything that happened to him. Now the pendulum has swung to the other side—that is all. If we can ever settle down to the rational way of regarding these things, we shall discover, what sensible medical men have always known, and what druggists as well as mere laymen can not afford to neglect, that there is no such thing as a panacea, and that all rational therapeutics is based on common sense study of the disease—finding out what is the cause and endeavoring to abate that cause. The cause may be such that surgery is indicated, or serum, or regulation of diet, or change of scene. It may obviously indicate the administration of a drug. I once heard a clever lawyer in a poisoning case, in an endeavor to discredit a physician, whom we shall call Dr. Jones, tell the following anecdote: (Dr. Jones, who had been called in when the victim was about to expire, had recommended the application of ice). Said the lawyer:

“A workman was tamping a charge of blasting-powder with a crowbar, when the charge went off prematurely and the bar was driven through the unfortunate man’s body, so that part of it protruded on either side. A local physician was summoned, and after some study he pronounced as follows: ‘Now, if I let that bar stay there, you’ll die. If I pull it out, you’ll die. But I’ll give you a pill

that may melt it where it is!" In this emergency," the lawyer went on to say, "Dr. Jones doubtless would have prescribed *ice*."

Now the pill to melt the crowbar may stand for our former excessive and absurd regard for drugs. The application of ice in the same emergency may likewise represent a universal resort to hydrotherapy. Neither of them is logical. There is place for each, but there are emergencies that can not be met with either. Still, to abandon one method of treatment simply because additional methods have proved to be valuable, would be as absurd as to give up talking upon the invention of writing or to prohibit the raising of corn on land that will produce wheat.

No: we shall doubtless continue to use drugs and we shall continue to need the druggist. What can he do to make his business more valued and respected, more useful to the public and more profitable to himself? For there can be no doubt that he will finally succeed in attaining all these desirable results together, or fail in all. Here and there we may find a man who is making a fortune out of public credulity and ignorance, or, on the other hand, one who is giving the public more service than it pays for and ruining himself in the process; but in general and on the average personal and public interest run pretty well hand in hand. Henry Ford makes his millions because he is producing something that the people want. St. Jacob's Oil, once the most widely advertised nostrum on the continent, cost its promoters a fortune because there was nothing in it that one might not find in some other oil or grease.

What then, I repeat, must the pharmacist do to succeed, personally and professionally? I welcome this opportunity to tell you what I think. My advice comes from the outside—often the most valuable source. I have so little to do with pharmacy, either as a profession or as a business that I stand far enough away to get a bird's-eye view. And if you think that my advice, based on this view, is worthless, it will be a consolation to all of us to realize that no force on earth can compel you to take it.

It is doubtless too late to lament or try to resist the course of business that has gone far to turn the pharmacy into a department store. But let me urge you not to let this tendency run wild. There are side-lines that belong properly to pharmacy, such as all those pertaining to hygiene or sanitation; to the toilet, to bodily refreshment. I do not see why one should not expect to find at his pharmacist's, soap, or tooth-brushes, or sponges. I do not see why the thirsty man should not go there for mineral water as well as the dyspeptic for pills. But I fail to see the connection between pharmacy and magazines, or stationery or candy. By selling these the druggist puts himself at once into competition with the department stores. There can be no doubt about who will win out in any such competition as that. But I believe there is still a place in the community for any special line of business if its proprietor sticks to his specialty and makes himself a recognized expert in it. The department store spreads itself too thin—there is no room for intensive development at any point of its vast expanse. Its general success is due to this very fact. I am not now speaking of the rural community where there is room only for one general store selling everything that the community needs. But my statement holds good for the city and the large town.

Let me illustrate by an instance in which we librarians are professionally in-

terested—the book store. Once every town had its book-store. Now they are rare. We have few such stores even in a city of the size of St. Louis. Every department store has its book-section. They are rarely satisfactory. Everybody is lamenting the disappearance of the old book-store, with its old scholarly proprietor who knew books and the book-market; who loved books and the book-business. Quarts of ink have been wasted in trying to account for his disappearance. The Public Library, for one thing, has been blamed for it. I have no time now to disprove this, though it is very clear to me that libraries help the book trade instead of hindering it. I shall simply give you my version of the trouble. The book-dealer disappeared, as soon as he entered into competition with the department store. He put in side lines of toys, and art supplies, and cameras and candy. He began to spread himself thin and had no time for expert concentration on his one specialty. Thus he lost his one advantage over the department store—his strength in the region where it was weak; and of course he succumbed. If you will think for a moment of the special businesses that have survived the competition of the department store, you will see that they are precisely the ones that have resisted this temptation to spread themselves and have been content to remain experts. Look at the men's furnishing stores. Would they have survived if they had begun to sell cigars and lawn-mowers? Look at the retail shoe stores, the opticians, the cigar stores, the bakers, the meat markets, the confectioners, the restaurants of all grades! They have all to compete with the department stores, but their customers realize that they have something to offer that can be offered by no department store—expert service in one line, due to some one's life-long training, experience and devotion to the public.

I do not want the pharmacist to go the way of the book dealers. Already some of the department stores include drug departments. I do not see how these can be as good as independent pharmacies. But I do not see the essential difference between a drug department in a store that sells also cigars and stationery and confectionery, and a so-called independent pharmacy that also distributes these very things.

I am assuming that the druggist is an expert. That is the object of our colleges of pharmacy, as I understand the matter. As a librarian I want to deal with a book man who knows more of the book business than I do. I want to ask his advice and be able to rely on it. When I have printing to be done, I like to give it to a man who knows more about the printed page than I do. When I buy bread, or shoes, or a house, or a farm I like to deal with recognized experts in these articles. How much more when I am purchasing substances where expert knowledge will turn the balance between life and death. I have gossiped with pharmacists enough to know that all physicians do not avoid incompatibles in their prescriptions, and that occasionally a combination falls into the prescription clerk's hands, which, if made up as he reads it would produce a poisonous compound, or perhaps even an explosive mixture. Two heads are better than one, and if my physician ever makes a mistake of this kind I look to my pharmacist to see that it shall not reach the practical stage.

I recognize the great value and service of the department store, but I do not go there for my law or medicine; neither do I care to resort thither for my

pharmacy. I want our separate drug stores to persist, and I want them to remain in charge of experts.

And when the store deals in other things than purely therapeutic preparations—which I have already said I think probably unavoidable, I want it to present the aspect of a pharmacy that deals also in toilet preparations and mineral water, not of an establishment for dispensing soda-water and soap, where one may have a prescription filled on the side, in an emergency. And when the emergency does arise, I should have the pharmacy respond to it. It is the place where we naturally look in an emergency—the spot to which the victim of an accident is carried directly—the one where the lady bends her steps when she feels that she is going to faint. In hundreds of cases the drug store is our only standby, and it should be the druggists business to see that it never fails us. There are pharmacies where a telephone message brings an unfailing response; there are others to which one would as soon think of sending an inquiry regarding a Biblical quotation. To which type, do you think, the public will prefer to resort?

Then there are those little courtesies that no retail business is obliged to offer, but that the public has been accustomed to expect from the druggist—the cashing of checks, the changing of bills, the furnishing of postage stamps, the consultation of the city directory. There can be no reason for resorting to a drug store for all these favors except that the pharmacist has an enviable reputation as the man who is most likely to grant them. And yet I begin to hear druggists complaining of the results of this reputation, of which they ought to be proud; I see them pointing out that there is no profit on postage stamps and no commission for changing a bill. They intimate, further, that although it may be proper for them to put themselves out for regular customers, it is absurd for strangers to ask for these courtesies. I marvel when I hear these sentiments. If this popular impression regarding the courtesy of the druggist did not exist, it would be worth the expenditure of vast sums and the labor of a lifetime to create it. To deliberately undo it would be as foolish as to lock the door in the face of customers.

I do not believe that in St. Louis the pharmaceutical profession is generally averse to a reputation for generous public service, and I base my belief on some degree of personal knowledge. The St. Louis Public Library operates about sixty delivery stations in various parts of the city. These stations are all in drug stores. The work connected with them, though light, is by no means inconsiderable, and yet not one of the druggists who undertake it charges the library a cent for his space or his services. Doubtless they expect a return from the increased attractiveness of their places to the public. I hope that they get it and I believe that they do. At any rate we have evidence here of the pharmacist's belief that the bread of public service, cast upon the waters, will sooner or later return.

You will notice that I am saying nothing about advertising. One would think from the pharmaceutical papers, with which I am not unfamiliar, that the druggist's chief end was to have a sensational show window of some kind. These things are not unimportant, but I do not dwell on them because I believe that if a druggist realizes the importance of his profession; if he makes himself

a recognized expert in it; if he sticks to it and magnifies it; if he makes his place indispensable to the community around him, the first point to which the citizens resort for help in an emergency, an unfailing center of courtesy and favor—he may fill his window with toilet soap, or monkeys, or with nothing at all—there will still be a trodden path up to his door.

Gentlemen, you have chosen as your life work a profession that I believe to be indispensable to human welfare—one of enviable tradition and honor and with standing and reputation in the community that set it apart, in some degree from all others. And while I would not have you neglect the material success that it may bring you, I would urge you to expect this as a result rather than strive for it as an immediate end. I would have you labor to maintain and develop the special knowledge that you have gained in this institution, to hold up the standard of courtesy and helpfulness under which you can best do public service, confident that if you do these things, business standing and financial success will also be added unto you.

THE SCIENCE OF PHENOMENA.*

J. ROEMER.

An interesting presentation relating to the "Science of Phenomena, as applied to drugs, basing the action of such on the energy within the atoms and molecules, which through electro-motive forces of the body in reaction is transformed into kinetic energy, resulting in the Phenomena of Drug Action."

In presenting the subject, "The Science of Phenomena," it may appear that the title is inadmissible, according to the usual interpretations accredited to science and that there is an error in its meaning, but an analysis will prove that such is not so and moreover that previous scientific interpretations are inadequate in explanation.

That explanation of phenomena has always been the objective of science is manifest from investigation of methods employed in endeavors of explanation in the realms of its varied applications in search for truth, but that it in itself can become and is the ultimate science, has until recently not received the recognition that it merits.

Phenomena of science are the accumulated array of facts which through investigation and research are continuously amassing without consistent or reasonable co-relations to one another and therefore unless it finds the means to relate and co-relate these phenomena as concepts to the mind progress is slow, therefore in designating the subject, "*The Science of Phenomena*," we not only postulate a title but open up a channel to the better understanding of their relations.

* Read before New York Branch, A. Ph. A.