

Scientific Section

Papers Presented at the Sixty-Third Annual Convention

MINUTES OF THE SECOND SESSION

(Minutes of the first session in September number, pp. 1120-1130.)

The second session of the Scientific Section was held August 11, 1915, at 2 p. m. The session was called to order by Chairman Engelhardt, Dr. J. A. Koch acting as Secretary.

Upon motion, the reading of the minutes of the first session was dispensed with.

The report of the Committee on Quality of Medicinal Products was read by title and distributed in pamphlet form.

A telegram from Mr. B. L. Murray, Chairman of the Committee on Ebert Prize announcing that the Committee had awarded the Ebert Prize to Mr. E. N. Gathercoal for his paper on "The Pharmacognosy of the Medicinal Rhamnus Bark," was received and approved.

Chairman Engelhardt: The first number on the program will be a paper by Dr. A. R. L. Dohme on "the Coöperation of Science and Industry."¹

DISCUSSION OF DR. DOHME'S PAPER.

The Author: As you see, I have some practical suggestions which seemed to my mind to be the best possible means of approaching this proposition. I do not know whether you have studied it to any extent, or whether you have participated in or followed to any extent the work of the Chamber of Commerce of the United States. But, really, it is so far ahead of any other institution of the country, and the results that it is actually producing are so far-reaching, that I feel that it should be forcefully presented to you; and I might say that during the last year it has practically molded so far as that is possible, the opinion of Congress on such things as the shipping bills, and many other problems confronting it. And as a man who is actually in touch with this work every day, I can tell you that as a result of its work and methods it is in touch today with practically every Chamber of Commerce in the United States, of every city of any size or of any manufacturing center of any size, national associations, and the leading manufacturers of cities, and governors of states; and it has had occasion to put out referenda during the past six or eight months on practically all or at least many of the large questions confronting this country, and I might say that they are really marvels in the way of compilations; are marvels of analysis, and are marvels of work, and they are accomplishing the results.

Senators at Washington and legislators, as I have often had occasion to observe, heed and pay attention to what this body says, and what its men utter and suggest; and while it is only a beginning, while the institution is a young one, its membership is growing, I might say at a stupendous rate, and I think it gives promise, in fact, I am almost sure that it will succeed in the next year, in practically taking from politics the tariff question. I am myself convinced that by its means the tariff will be eliminated hereafter as a political proposition.

They (the United States Chamber of Commerce) are getting the consensus of opinion of all our great economists, all the prominent individuals connected with chambers of commerce, and therefore connected with the Chamber of Commerce of the United States, of all

¹The paper was printed in the September issue of the Journal, page 1105.

our boards of trade, of all our large manufacturers, of all associations, wholesale and retail, and that consensus of opinion and information derived therefrom, is being compiled, and when it is presented to Congress on this question there is no doubt but what it will go before Congress as representing the views of the people of the country, practically representing eighty per cent of those people.

Now, in the opinion of many of the foremost men of this country, such as the great constructive bankers, large manufacturers, and many of our great statesmen, it is and does represent a most wonderful organization, in fact, has their unqualified support, and the cooperation of leading men in science and industry, as represented by the large institutions of learning, and those of the factory, and that is the next great advantage, that the following decade is going to see in this country,—the cooperation of science and industry, the thing most desired to be brought about.

And now, while really only a start has yet been made to bring that about, it seems that this organization, as one of the national bodies cooperating with the United States Chamber of Commerce, might very well suggest such a move as I propose.

I think no one can doubt, after the great experience of Germany in that line, not to mention England, France or Italy, that we need not hesitate one moment in endeavoring to bring cooperation about.

And if it is in order, I move you that a properly drawn resolution be formulated, calling the attention of the Chamber of Commerce of the United States to this suggestion, as made, of calling a conference, and that copies be sent to the Secretary or Chairman of that body.

Mr. C. W. Johnson: I feel that the universities of the West stand more ready to cooperate with manufacturing interests and other interests, and it is tending to develop these industries. We recognize that we have many undeveloped resources, particularly in the northwest section, where I hail from; the University of Washington is doing everything possible and lending every assistance at its command to adjust the needs that Dr. Dohme suggests; in fact, we have stood ready to help in any way possible every industry that will tend to help our northwest section and develop any of the resources we have there. This suggestion that Dr. Dohme offers, cooperation with the United States Chamber of Commerce in the various universities, I think is a very excellent one. I have had considerable correspondence with Mr. B. L. Murray, who is a member of the Chamber of Commerce, I think, or on a committee working in some connection with the drug industry, in which he invited our state to assist in that work; in fact, we stand ready to do so, as I have indicated to Mr. Murray, and shall do everything in our power to assist the Chamber of Commerce.

Dr. Albert Schneider: Would it not be better to have a committee to draw up these resolutions? It would make the resolutions perhaps a little more complete than if drawn up on the spur of the moment.

Dr. C. E. Caspari: Mr. Chairman, while I am heartily in favor of a motion that a committee be appointed, I believe the conditions as pictured and painted are not as bad, or rather, are not quite so bad as they have been outlined. I believe there is a growing tendency of the universities to cooperate, and the institution he mentioned—the one that turns out so many professors—I allude to the Johns-Hopkins University—is having at the present time men doing research work for chemical factories in this country. And, that is also true of Harvard and Columbia, who keep their graduate students busy in each one of these branches, working along lines which are being developed to result in practical advantage afterwards.

A Delegate: Nothing has been said of the Carnegie Institute, in the way of research; while that does not exactly mean cooperation between universities themselves, yet it does take the fresh products of the industries and turn them over to the young graduates for solution; and many of the industries which have accepted the services of the Mellen Institute, have already reaped very material monetary benefits therefrom, and it seems one of the good ways of getting at it.

The Chairman: It has been moved by Dr. Schneider and seconded by Dr. Dohme, that a committee of three be appointed to draw up resolutions, and I

therefore appoint on this committee Dr. Dohme, Dr. Schneider and Dr. Caspari. Is there any further discussion on Dr. Dohme's paper and remarks?

It was moved and seconded that the paper be referred to the Publication Committee to take the regular course, which motion was carried.

The Chairman: The next paper on the program will be a paper by Dr. R. C. Holmes, entitled "A Safety Check Valve for Laboratory Vacuum Pumps."² There is another paper which really belongs to the division on Bacteriology. I shall ask the author if he will be here later in the day, because I want to get through with the chemistry first. The paper of which he is the author, and also the papers of which the authors are present, have been read with the exception of two papers, entitled "Estimation of Atoxyl" and "Stability of Preparations Containing Yellow Phosphorus," by Mr. Winters and myself, which I expect to read now.

(Chairman Engelhardt withdrew from the chair in favor of Dr. Koch.)

These papers³ after reading and discussion, were referred for publication.

The Chairman: Now we have a few papers belonging to the sub-division of Chemistry, of which the authors are not here. There is a paper on "The Estimation of Morphine in Pills and Tablets," by H. W. Jones; a paper by L. E. Sayre on "Sempervirine"; one by Dr. Dodge on "The Assay of Balsam of Peru"; one on "Color Reactions" by E. A. Ruddiman, and a paper by J. Paul Snyder on "Resin of Jalap." All of these are abstracted and can be read in this way, by title, or in full as our time will permit.

We come now to the sub-divisions of Biologic Assay and Bacteriology, and I will say that of all the papers we have, the author of one only is present. The idea of creating those sub-divisions of the Scientific Section has never been fully comprehended by your Chairman, nor could he ever see the reason why that was done. I have had the pleasure of being the first Chairman of the Scientific Section when the Section was divided into sub-divisions. To tell the truth, I had the support of but two of my associates in the attempt to solicit papers; so I tried to do it myself, and I see no earthly reason why we should have four sub-divisions. Now, in the sub-division of Chemistry we have eighteen papers; in the sub-division of Botany we have but two; in the sub-division of Biologic Assay and Bacteriology, we have eight, and in Bacteriology we have only one paper, that by Dr. Schneider. The first on the program therefore, would be the paper by Dr. Francis E. Stewart, on "Principles Underlying the Use of Vaccines, Bacterins, Antitoxins and Immune Serums, as Agents for the Prevention and Cure of Infectious Diseases."

This paper is abstracted as is also the one by Dr. R. Meinhard on "Leucocytic Extract." Dr. Schneider, will you read your paper?

Dr. Schneider: I owe you an apology. I thought I had the paper in my pocket, but find that I have left it in my office and will hand it to you tomorrow.

The paper is entitled "A Biological Test for the Presence of Arsenic, Tellurium and Selenium." The test referred to is not new. It is outlined in the last edition of Autenreith's Chemical Methods and has been in use in Europe for the last ten years. It was originally developed in Italy by Gosio and Biginelli. I am

² This paper was printed in the October issue, see page 1227.

³ The papers will be printed with discussion in this or a subsequent issue.

bringing it before you at this time because I feel that many members of the American Pharmaceutical Association may not be familiar with it and also because I believe it to be a very delicate and satisfactory test which may be employed in preference to the usual tedious and time-consuming chemical tests.

The test depends upon the use of a fungus (mold) related to *Penicillium glaucum*, namely *P. brevicaulis*, which is apt to develop on bread kept in damp, dark places. The test is made as follows: The suspected food substance, chemical or medicinal agent, whether liquid or solid, is mixed with bread crumbs, placed in a suitable flask and sterilized by the usual fractional live steam method, or in an autoclave for 20 to 30 minutes, and then inoculated with the mold, and flask closed with a rubber cap to retain odor. The mold may be kept in stock culture on bread in a moist chamber.

In case *P. brevicaulis* is not at hand, any of the more common species of *Penicillium* may be used. Autenreith claims, however, that *P. brevicaulis* gives the most pronounced reaction. The sterilized and inoculated material in the rubber capped flask is incubated at 30° to 37° C. for 24 hours.

Two other substances give a similar odor reaction with *Penicillium*, namely Tellurium and Selenium. The odor reactions for Arsenic and Tellurium are similar; that with Selenium is somewhat different, more like wet mustard, but quite distinctive. The odor reaction is not interfered with by bacterial, yeast or other contamination, nor by any number or kinds of admixtures of organic and inorganic matter. Should the substances to be tested be sufficiently acid or alkaline in reaction to interfere with the development of the mold, it must first be suitably neutralized.

The Chairman: You have heard the remarks by Dr. Schneider, and now what is your pleasure?

Dr. Dohme: Did you try the percentage, Dr. Schneider?

Dr. Schneider: Well, I tried the extreme limits; in fact, the test is so exact you have limits. It does give a slight reaction in regard to plants which are supposed to contain traces of arsenic. The reaction is so slight I would not call it conclusive—one and one-thousandth—it gives off an odor lasting for several weeks.

Dr. Dohme: As delicate as the Bettendorf Method then?

Dr. Schneider: Yes, I think so.

The Chairman: In connection with the Report on the Quality of Medicinal Products, Professor Day has just informed me that Professor Rusby has left those specimens here, which are referred to in this Report.

The Chairman: We will now proceed to the sub-division of Biologic Assay and Bacteriology, and I shall call upon Dr. Fred I. Lackenbach.

Dr. Lackenbach: Touching the subjects of biological chemistry, and referring first to our Chairman's remarks regarding having four sub-divisions, and knowing that he thinks that perhaps four are too many, let me say that when the matter was first brought up, in naming these sub-divisions, it was difficult to determine the best designation for the sub-division of which I am Chairman. Biologic assay usually refers to the assay of vegetable drugs. It does not popularly refer to the assay of what are termed biologic products. Now it would seem that the subject of biological chemistry has become of sufficient importance to warrant a sub-division devoted to that branch. If we could designate this sub-division "The Sub-division on Biological Chemistry," it could embrace not only the subject of "biologics"—the preparation and dispensing of serums and vaccines—but it could embrace also such subjects as sanitation and disinfection. Immunology also is a new science closely related to these subjects. It bears upon the phe-

nomena of natural and acquired immunity to infectious and contagious diseases. The up-to-date pharmacist should be conversant with these subjects.

Now the Scientific Section partakes more or less of a technical atmosphere. The subject of chemistry, as bearing upon pharmaceutical and chemical laboratory processes; the subjects of botany, pharmacognosy and biologic assay do not bring the pharmacist in very close touch with the practical problems of his vocation. While it does in a roundabout way have this end in view, what the pharmacist most needs is that which will render him more useful to the public and of greater service to the profession of medicine. Now I do not mean that the pharmacist must necessarily adopt a servile attitude toward the physician. When I speak of service to the physician, I mean service to the public *through the physician*. The physician himself is but a servant, a high-class servant. Whenever matters come up which are sources of annoyance in dealing with the physician, I endeavor to bear this fact in mind. I was just discussing with Dr. Dohme the matter of relationship between the manufacturing pharmacist and the Council on Pharmacy and Chemistry of the American Medical Association. Now if there is necessity for coöperation anywhere in matters pharmaceutical, it is for coöperation between the pharmacist and the physician; because the pharmacist has always been the helpmate of the physician. We must work out some scheme that will make the dispensing pharmacist of still greater value to the physician. If there is any means by which this may be brought about through the work of this Section, I am heartily in favor of such a movement.

Now, my sub-division comes very close to great human necessities; that is, to the grave ills of humanity. The greatest progress in medicine during the past ten years has been in the fields of immunology and biological chemistry. The tendency of medicine today is toward *prevention* rather than cure. This hits the conventional pharmacist pretty hard. It enormously cuts down the demand for drugs. You will find in the case of typhoid fever, for example, that it may be practically eliminated through the use of the immunizing agent, typhoid vaccine. It may be eliminated through the enforcement of proper sanitary regulations.

You all know what the demand was upon the pharmacist when typhoid was prevalent; and how about diphtheria, gonorrhoea, and the "blood purifiers" used in syphilis? And tuberculosis: we can easily remember when great quantities of medicines were used in the treatment of tuberculosis—preparations of creosote, guaiacol, cod liver oil and petroleum emulsions, and what not. The approved treatment of tuberculosis now is along hygienic and sanitary lines and prevention. We now deal with *the problem of tuberculosis*, and its prevention. These are but a few which come to mind. There are many other serious ailments which have passed out of the realm of therapeutics into the domain of sociology, immunology and preventive medicine. No humanitarian or broad-minded pharmacist would stem this tide if he could. Re-adaptation is his necessity and his first duty.

Now, I am especially interested in two things: First, that the sub-division on biological chemistry include the subject of immunology and the subject of sanitation as a means of bringing the Section into more intimate touch with the requirements of the pharmacist of today and the pharmacist of the future. The second thought is that we take up Dr. Dohme's slogan, "Coöperation," and start in where coöperation is most urgently needed, and that is between the pharmacist and the physician.

Now, the great problem of pharmacy today is to advance the profession of pharmacy. That is, perhaps, the main ideal of the A. Ph. A.

The great problem of pharmacy today is to advance the profession of pharmacy. We either must advance the profession by improving the mental equipment of the pharmacist, or we must relieve him of all necessity along that line, and permit him to develop along strictly commercial lines. In the latter event he must be discouraged from making any pretensions to professional attainment.

What I am getting at is this: My wife and I were down town one evening. She wanted some soap powder. We went into a big chain drug store, and after purchasing what we wanted we were offered half a dozen other things, having no bearing upon our purchase. That was all well enough. We went out of the store by a rear exit where we observed a small refrigerator marked, "Biological Department." That excited my interest. I ducked down, looked through the glass front, and saw a few scattered packages of bacterial vaccines, and some other products which I won't mention. I then lifted up the top where there was a chunk of ice, about the size of my fist, with three bottles of Mumm's Extra Dry hugging it close. The man in the prescription department was beginning to eye us suspiciously, so we withdrew.

Now, that concern is distinctively "a drug store," but because of the advertising value attached to it, they made a pretense of distributing biological products, because biological products are presumed to be high-class pharmaceuticals.

I recall reading a paper in the last number of the *Journal of the American Pharmaceutical Association* by a Mr. Nelson I believe, in which he advocated pharmacists taking up laboratory work as a means of advancing their professional status. I read the paper very carefully and I found that while his logic was good insofar as taking up the examination of,—we will say, inert materials,—to determine their purity, etc., but when it comes to dealing with clinical problems, that was another proposition. The matter has been discussed before this Association before,—the proposition of the pharmacist doing clinical laboratory work. Now, we have had some experience along this line. We have a department in which we undertake all manner of clinical laboratory work. We tried out every class of help that suggested itself. We have tried out graduate pharmacists; we have tried out thoroughly experienced prescription men; we have tried out nurses,—some very capable ones,—who were graduates and who had taken up laboratory work. The last one we tried out was a young man who received special training under one of our laboratory staff, and was supposed to have developed into a very good laboratory worker. But he gave it up. Clinical laboratory work involves such responsibilities the very best trained man is none too good.

We decided that the best person to do clinical laboratory work is one that has had special medical training. If the pharmacist is going to undertake clinical laboratory work, he must have a certain amount of special medical training; possibly a medical preparatory course. The two-year preparatory course that is given in our universities in California would perhaps be sufficient preparation. When it comes to determining a diagnosis of syphilis, where the happiness of a human being and those dependent upon him is at stake, the laboratory man assumes an enormous responsibility.

We have such matters brought to our attention most every day. Really they are about the most pathetic things on earth. We will receive, for example, a specimen of sputum, and we may find no tubercle bacilli in that sample. If the patient learns of the findings, he, of course, will feel gratified. But perhaps the next specimen from the same case may be chuck full of tubercle bacilli. A laboratory man who is only a laboratory man will report no T. B. to be found. If he reports direct to the patient he will convey the impression to that patient that he has nothing to fear. It is not only the laboratory technic, it is the ability to tell the *significance of the findings* that makes the laboratory worker of real value.

My paper to be read before this Section dwells upon that point, and I would say that it is only a fragmentary presentation of a great subject,—this subject of clinical diagnosis. Yet, with all the responsibility that I lay stress upon, I believe that the future of the pharmacist is along these very lines,—to be able to assist the physician in his diagnosis.

It is a very important subject. The physician endeavors to educate a nurse, perhaps, to handle that work for him, or he sends it to a commercial laboratory,

or he takes a medical student as assistant. But these are all makeshifts. The nurse as a laboratory worker is only occasionally a success. The medical student is working with a view to taking up the practice of medicine, and the commercial laboratory, as a rule, is not interested in the patient. The pharmacist, on the other hand, is usually a man of good judgment; has received special training along kindred lines; is a man of integrity, and broad sympathies, and a responsible person in the community. If the pharmacist can be educated to do that work for the physician, it will certainly elevate his professional status very materially.

There were some other things I had in mind, but I am sure I have already imposed upon your indulgence too greatly.

The Chairman: You have heard the address of Dr. Lackenbach, and it is now open for discussion.

ABSTRACT OF DISCUSSION.

Mr. Hamner: It is very presumptuous on my part to address you, but I do claim that the pharmacist is better equipped by education from every point of view than the average practitioner of medicine. Practically all laboratory work deals to a large extent with reagents, either chemical or biological. A practicing pharmacist, working at his profession constantly, must be familiar with these reagents, while a practicing physician doing such work rarely, is not, and for that reason I rather take exception to his assertion that a man should have medical training rather than pharmaceutical training in addition to biological work.

Dr. Schneider: Would you be willing to say that the medical profession, as such, welcomed the entry on the part of the pharmacist into laboratory work with a view to doing such work?

Dr. Lackenbach: I think so.

Dr. Schneider: I think the medical profession is inclined not to do so, but I may be mistaken there.

Mr. Hamner: In our line, in the Army, we depend very largely upon biological research in our laboratory work, upon our biologists in the Army, and I find from talking to the surgeons, that they are very glad and anxious to have men trained along that line of work, men to whom I can turn over that work to do. As I said before, in their general practice, physicians themselves do not do enough of such work to keep them perfectly familiar with the necessary detail of laboratory work.

Dr. Zieg: I think pharmacists should consider that an important thing, and I quite agree with the last speaker, that from the standpoint of the actual doing of the work, that the pharmacist should have more desire to do it. But there is really another important step between the actual doing of the thing, the thing to be examined, and the interpretation of the result, which is quite important; that is, to see that the obtaining of the thing to be examined, the specimen to be obtained, the actual care of it up to the time it is to be manipulated, and then the actual care in regard to the avoidance of deterioration while it is being manipulated. These are things which the pharmacist, because he has more or less turned his face away from the subject, does not have a full appreciation of.

I think because of the great necessity, and the coming greater necessity, both in actual therapeutic use and in actual sanitary and preventative medicine, that it is certainly one of the biggest fields that the pharmacist could step into if he acquires the proper ability, and also broadcasts that acquirement in such a way that those who depend upon him—that is, the medical profession—can rely upon his ability. So far I agree with both speakers.

Dr. Val Schmidt: My observation has been that many physicians who have a large practice, do that. I know a number who have a large practice in this city who employ a bacteriologist, a man especially trained to do that kind of work. They have him make these examinations for the finding of tuberculosis,—for the examination of sputum in tuberculosis or diphtheria,—or any of those branches, and the physician himself does not do it. In the first place, he has not the time. I am speaking of those who have a large practice, and there are a great many here. They all have their men. And they have a special laboratory, a little laboratory set aside in their offices, and when the physician gets a case that needs

examination he hands it over to his man, and he generally has confidence in him and he acts upon it. Now we cannot expect, at least the public cannot expect a busy physician to make those examinations himself. He must have men to do that sort of work who are well trained and upon whom he can rely, and I believe that is being done, as a general rule.

Dr. Dohme: Mr. Chairman, I would like to set forth the experience of physicians in our city in work of this kind. I believe it is a work growing in importance and extent. I speak of clinical diagnosis. I believe the medical profession has done by far too little heretofore and I believe they are beginning to realize the fact that they have not done enough of it, and in consequence they are doing a great deal more of it now than ever before. And in Baltimore, they are developing certain physicians who are making a specialty of this clinical diagnosis, by equipping themselves with laboratory apparatus and a laboratory which will enable them to practically answer all the requirements of a practicing physician or surgeon, in a most thorough and scientific way. But, as I say, these men who are developing in our city at any rate, are in all cases, or at least in the principal number of instances I know of, physicians who, instead of doing practical work—practicing medicine—are practically making a specialty of clinical diagnosis, and making a very good living at it.

I know one intimate friend of mine who was the originator or beginner of that work, and he makes as much on his work as many of our leading surgeons do, as a source of income. With his equipment and his knowledge, as pointed out by the previous speaker, he is, in addition to being able to say what the sputum contains, or what that blood stain indicates, or this or that secretion contains, able to give the physician some practical idea of what he thinks are the conditions that produced it, or how he can remedy it. And, if this is true, it looks to me as if the added medical attention might serve some added purpose, not merely finding out what is in that particular secretion, because, as the gentleman says, there are many of our physicians who have not the time and who perhaps haven't the ability to go into the intricacies that such an examination would require in order to make a diagnosis and to form a correct conclusion. An expert with this training in clinical diagnosis could give such information to the physician as would probably be the means of indicating treatment or suggestive cause. I am only mentioning that as an experience.

There is, however, one of our retail pharmacists,—by the way, he is here today, Mr. Hynson,—who is also developing a very large practice in that line and whose specialty is, more perhaps than other retail pharmacists, catering not only to the wants of the physicians, not only looking after their prescriptions, but also, so far as his equipment goes, of aiding them in this way, proffering such assistance to them, either at the home or at the office.

And his firm is developing a line of clinical diagnosis which promises to be of quite some value to them. And as I recall it, the man in charge of that work is a pharmacist in this case, but I do not think from my own personal knowledge, it may not be very thorough,—that the results which you would obtain there, or the doctor would obtain there, would be as satisfactory to the doctor as the results he would obtain from the physician diagnostician.

Dr. Lackenbach: I do not think I made notes of all the speakers in the discussion, but to take up Dr. Dohme first, I would say that the physician who specializes in laboratory work is usually the physician who has not been successful in building up a general practice or taking up any special field of endeavor, or he may have a liking for laboratory work. Now, it is hardly possible that he would have a liking for laboratory work, as such, because it is mostly drudgery, very hard work, and it is not profitable work unless he can get a great deal of it to do so that he can employ assistants to do the rough work and run through a number of tests at the same time, as in the case of the Wassermann tests. Another thing is that physicians are not always inclined to send their patients to these laboratories. They fear it might have undue influence on the patient in some way.

Taking up the first speaker: The pharmacists in the Army and Navy are usually pretty well equipped to do clinical laboratory work. In fact, they are the only class of pharmacists who have had such training. I know of some men who have been trained in the Army who have established very prosperous commercial laboratories.

Their time, as a rule, is not so valuable as the time of a medical man,—the man who has had a medical training,—they are able to do the work cheaper, and in that way are aggressive competitors to the medical laboratory specialists.

Mr. Schmidt is perfectly right, that men who have large practices have clinical laboratory workers who do most of their work. Usually a group of medical men will have a clinical laboratory worker, but that is largely confined to a few groups of physicians. The ordinary run of medical men cannot afford such a luxury.

A matter that Dr. Zieg brought up is of very great importance, that the medical men do not often understand how to gather the material for the laboratory worker. The material that comes into the clinical laboratory is an outrage many times. It shows the physician hasn't the remotest conception of what is embraced in the laboratory test. Of course, if the pharmacist were to undertake that work, it is pre-supposed that the pharmacist would be in a position to instruct the physician along these lines. Was there any further point, Dr. Zieg?

Dr. Zieg: Merely touching the point that the physicians are really willing to have the work done by the pharmacists.

Dr. Lackenbach: That is a very important point, and that is where the shoe pinches. The physician doesn't want *the druggist* to do his work. I wouldn't want the average druggist to do my work. But the physician does want a high-class man to do his work, and he receives such a man with open arms. He does not want an incompetent druggist to determine whether or not his patient has syphilis, but he would receive a high-class man, and I do not mean necessarily that a man in order to be a high-class man, must have a number of college degrees. My idea about pharmaceutical education, I am sure, differs very materially from that of the college professor. Our President brought up that subject in his annual address. He commended a system of education permitting elective courses to be followed, not only in the university, but in the high school and grammar school as well. Now my idea is that the ordinary student, after he graduates from grammar school, should select the studies for which he has a natural bent. He should not be put through a set course of studies, with a view to putting him through the university. It is really pathetic, the young people we get from the high schools, and even the people we get out of the college. They are helpless. They cannot do practical things. They have to live more or less in exile for two or three or four years until they find themselves—until they find what they are actually fitted for. I think this idea of putting a student through a regular course of study, graduating him from the grammar school, and then the high school, and then sending him to college is a false idea of education. It makes of the college graduate many times if he is weak, a snob, to use a slang expression. He is a conceited being, with a conceited notion that he is a superior being. Another thing, he uses the college as a means of advancing himself; proclaiming that he is a college graduate, he endeavors to obtain a standing that he is not entitled to by virtue of his own abilities—his own actual worth.

The pharmacy student can take up special studies—certain courses in the pharmaceutical college that he likes, as, for instance, pharmaceutical chemistry. He might take certain lecture courses and certain laboratory courses. Then he can take certain courses in the medical college that will render him capable. He does not necessarily have to work for the college degree.

The Chairman: It is moved that Dr. Lackenbach's address take the regular course of being referred to the Publication Committee.

Dr. Dohme: Mr. Chairman, I would like to move in connection with that, or rather amend that motion, by suggesting that at our next meeting the topic of clinical diagnosis from the standpoint of the pharmacist be considered as one of the subjects to be discussed at the Scientific Section.

The Chairman: You have heard the amendment by Dr. Dohme, that the topic of clinical diagnosis may be made the subject of a paper or papers at the next meeting of the Association. What is your pleasure?

(It having been regularly moved and duly seconded, and the question having been called for, the motion was declared carried, and it was so ordered.)

The Chairman: That covers the address of Dr. Lackenbach, and also his paper, which was read and referred.

We have a paper by Mr. H. A. B. Dunning, on "Remarks on Phenol-Sulphone-Phthalein," and one by Professor E. L. Newcomb* and Mr. R. A. Hall, on "Comparative Physiological Activities of Digitalis Species."

Dr. J. A. Koch: We have a resolution from the committee appointed a short time ago:—

Resolved, That the Scientific Section of the A. Ph. A., request the Chamber of Commerce of the United States of America to call a conference of representatives of universities and educational institutions of this country, and of our leading industries, for the purpose of developing some practical method of bringing about the coöperation of science and industry with a view to perfecting and advancing the industries of our country."

The Chairman: A motion is in order.

(It was then regularly moved and duly seconded that the resolution be adopted; motion carried.)

RESOLUTION PROVIDING FOR COÖPERATION WITH THE INDUSTRIES.

WHEREAS, It is generally admitted that commercial progress in Germany in the past two decades has been the result of a hearty and complete co-operation between the scientific and industrial organizations of that country; and

WHEREAS, All the financiers and business men will concede the application of the science of the university to the practice of the factory will produce similar results in this country; and

WHEREAS, It is our opinion that the next great stride in our commercial growth will be in the direction of applying our scientific training represented by the university to practical use in our industries; and

WHEREAS, The factory and the university have stood aloof from one another to the disadvantage of both these many years; therefore be it

Resolved, By the Scientific Section of the American Pharmaceutical Association, that the United States Chamber of Commerce be requested to call a special meeting of representatives of the leading institutions of learning and of leading large manufacturing interests of the country, together with representatives of the leading banking interests of the country, for the purpose of considering ways and means of generating and fostering a spirit of closer coöperation between them than has heretofore existed or now exists

Professor Edwin L. Newcomb: The paper I have prepared is chiefly on results, and I will not take the time of the members of the Section, to read all of the results, but simply name the methods which were employed and a few of the data concerning the drugs on which they were made.

"Comparative Physiological Activities of Digitalis Species"* is the title. I wish to say that the work has been done jointly by Dr. R. A. Hall, of the Medical School of the University of Minnesota and myself.

There were some thirty or forty animals used. Table "A" includes all the results, and Table "B" is a summary I have prepared.

It might be said in connection with the work on guinea pigs, that the work was quite satisfactory, so far as the investigators were concerned; that is, in only one case was there any great amount of discord.

The Chairman: We have papers also by Mr. L. E. Sayre, C. W. Ballard, C. S. Chase, and others. It is twenty minutes past four, and it might be well, since the authors are not here, that we read some of the papers in abstract as mentioned by Dr. Dohme before.

Dr. Turner: I do not think it is necessary. It seems to me that inasmuch as some of these authors are not here—and the authors should be here to reply

*The paper is to be presented later by the authors and was referred for publication.

to questions and objections which might be raised—that we had better stick to our old motion to read them all by title, and I will make that motion.

The Chairman: It was brought up by Dr. Dohme at the beginning of the meeting, and a motion was made and amended that the old custom be followed, if time permitted—that is, that the abstracts of the papers be read,—and it was accepted. I am willing to dispense with the abstracts, but to read all of them would take but twenty minutes or so. If our Secretary feels so inclined, they will be read. And it was so ordered, and the papers were read in abstract.

The Chairman: I beg to say that I have three papers, one by Mr. Twining, one of the papers covering a well-known assay method and another a well-known diagnostic process, and also a paper on "Approved Methods of Biological Standardization of Drugs," by Dr. C. S. Chase. Also a paper on "Color Reactions," by E. A. Ruddiman. I did not find it necessary to abstract it, as it is a short paper, and might be read in short, since it is against our rules to do otherwise. Dr. Ruddiman dwells on the fact that it is very difficult to distinguish one alkaloid from another, by the specific reactions, because the alkaloid might contain some kind of an impurity which makes the color reaction rather indistinct. He again points out that it is absolutely necessary that the various alkaloidal preparations should be prepared in a certain way.

This is all, with the exception of three which have not been abstracted. You are well acquainted with the diagnostic tests for kidney diseases, and if you so desire I shall be very glad to abstract the one by Mr. Dunning on Urease.

You all know that Urease is an enzyme which has the property of converting urea into ammonium-carbonate. It also determines the urea in the urine. I think we can refer this paper without abstracting it.

Gentlemen this will wind up all the papers we have, so the session tomorrow will, consequently, be only a very short one. We will have to select officers tomorrow morning and install those that might be present.

A motion to adjourn was carried.

MINUTES OF THE THIRD SESSION OF THE SCIENTIFIC SECTION.

The third session of the Scientific Section was held on Thursday, August 12th, at 9:30 A. M. Chairman Engelhardt presided. The first order of business was the election of officers, which resulted as follows:

Chairman, Mr. W. L. Scoville.

First Vice Chairman, Mr. L. A. Brown.

Second Vice Chairman, Mr. Joseph L. Turner.

Secretary, Mr. E. L. Newcomb.

Upon motion, a vote of thanks was given the retiring Chairman.

The Section then adjourned.