

Scientific Section

Papers Presented at the Sixty-Second Annual Convention

MINUTES OF THE FIRST SESSION OF THE SCIENTIFIC SECTION, INCLUDING CHAIRMAN'S ADDRESS.*

The Scientific Section of the American Pharmaceutical Association was called to order at 2 o'clock p. m. in the Red Room of the Bellevue Hotel, San Francisco, Dr. H. Englehardt in the chair, and W. L. Scoville acting as Secretary, in the absence of Professor William Mansfield.

Chairman Englehardt: The meeting will come to order.

The first order of business, in conformity to the by-laws, will be the Chairman's address.

Mr. Scoville: We will listen to the reading of the Chairman's address.

Dr. Englehardt: In my address, I present a brief account of some of the problems which have had publicity in both the chemical and pharmaceutical periodicals.

The subject of my address is, *The Present Opportunities and Possibilities to Produce Chemicals and Remedial Agents in this Country.*

THE CHAIRMAN'S ADDRESS.

You recall that shortly after the European war started the price of a great many remedies which are usually imported from Europe advanced considerably. I may mention only a few items; carbolic acid which could be purchased at 13c a pound before August, rose to 36c a pound. The price of salicylic acid and sodium salicylate was nearly doubled. That of eserine salicylate was increased 66 per cent, of hyoscine hydrobromide 120 per cent, etc. As might be expected, as the war proceeded, the prices of some of these drugs have gradually increased. Thus we find at the present time carbolic acid selling at \$1.25, sodium salicylate at \$3.00 and salicylic acid also at \$3.00 per pound.

You will note that none of these products are protected by letters patent but are preparations which may be made by any one.

In order to give you a fair idea of how backward we are in this country in producing remedial agents I will quote the "New and Non Official Remedies," the splendid compilation issued by the American Medical Association. This book, as its name implies, contains the names and descriptions of the majority of new and non-official agents, particularly those of a synthetic character, which have been found by clinical experiments to give reliable results. Here about 500 products are given of which 259 are produced in the United States, 181 in Germany, 18 in Great Britain, 7 in Switzerland and 6 in France. On looking more closely into the character of the various products we find that the United States leads in the production of digestive

* Discussions will accompany the papers when they are printed in the Journal, hence omitted from the minutes. By request of the chairman the related paper by Dr. A. R. L. Dohme is printed in this issue.

ferments, medicinal foods and organo-therapeutic preparations. Forty-one of the above classes of products are given in the book, and deducting these from the total of 259 preparations made in the United States leaves 218, of which 163 are serum preparations. Deducting the serum preparations we find that only 68, almost entirely synthetic preparations are produced in this country compared with 168 obtained from Germany. In order to get this figure I have deducted from the 181 German preparations 13 serum products of German manufacture.

From these figures you will note that about two and one-half times as many synthetic products are obtained from Germany as are produced in this country. Most of these products which are of established repute and are most valuable and effective remedial agents, are protected by letters patent and are the result of continuous, painstaking research work carried out in the laboratories of the large manufacturing houses of Germany. It is interesting to note that of the 13 synthetic anesthetics given in the "New and Non Official Remedies" only one is produced in the United States and only one in France. The valuable arsenic compounds, the well-known atropine derivatives are not produced in this country at all, but all originated abroad and are covered by letters patent. The same holds good for bromine derivatives, the large number of hypnotics, the formaldehyde derivatives, antipyretics, quinine derivatives, salicylic acid derivatives, etc.

A compilation of the imports and exports of the United States kindly furnished me by the Secretary of Commerce gives the following startling figures. In the year 1913 we imported 8,155,098 lbs. of carbolic acid valued at \$532,211 of which 3,709,294 lbs. valued at \$244,147, or 46 per cent, were imported from Germany. Of the 4,964,367 lbs. of duty-free coal-tar distillate preparations, valued at \$370,293 imported, 91 per cent came from Germany. Of the 69,805,678 gallons of creosote oil valued at \$3,711,340 imported, 34 per cent came from Great Britain. France furnished us with 4,511,229 lbs. casein out of 8,808,891 lbs. imported, or 52 per cent.

Dutiable medicinal preparations were imported at a value of \$2,265,578, 38.5 per cent of these came from Germany, 22.5 per cent from Great Britain and 17.1 per cent from France, while in 1911 we imported medicinal products valued at \$2,145,642 of which 65.5 percent came from Germany, 11.3 per cent from Great Britain and 12.7 per cent from France. The export of medicinal products was almost entirely confined to patent and proprietary medicines valued at \$7,110,493 of which 26 per cent were exported to Great Britain.

There is no reason whatever why such articles as carbolic acid, salicylic acid, salicylates, etc., and in fact, all those chemicals not covered by letters patent should not be manufactured in this country. You may recall that soon after the European war started the price of hydroquinone, so widely used in photography, was advanced from \$1.50 to \$15.00 per pound. This product could no doubt be produced in this country just as cheaply as in Europe. Naturally, at first, a good deal of experimenting would be required to evolve a profitable manufacturing basis.

Most of the imported chemicals are derivatives of coal-tar products. Carbolic acid which is used to such a large extent both for medicinal purposes and for producing explosive could easily be manufactured in this country by fractional distillation of coal-tar, or synthetically by sulphonizing benzene and melting the benzene monosulphonic acid with alkali. I am informed that most of the carbolic acid is now produced by diazotizing aniline and boiling the diazo benzene with water. By rational utilization of the much neglected coal-tar immense quantities of phenol could be produced in the United States. There is no patent in existence covering the conversion

of carbolic acid into salicylic acid by the old but by no means obsolete Kolbe method or by other processes.

Now when we consider that most synthetic products are derivatives of comparatively few fundamental substances which can easily be produced in this country, we are at once convinced that an industry for the manufacture of synthetic remedies can and should be established in the United States. The supply of coal-tar in the United States is more than sufficient to provide for all the crude products required both in the manufacture of medicinal agents and coal-tar dyes. It is estimated that the amount of valuable by-products not at present being utilized in our present coking plants amounts to \$75,000,000 annually.

What becomes of the vast quantities of coal-tar produced in this country? It is partly exported to England and Germany where large distilleries are in operation, partly used for increasing the illuminating power of gas, and, although a small amount is distilled here, the largest quantity is no doubt thrown away. Only recently, after the scarcity of organic remedies became acute and the possibility of producing many of these products in this country became evident, have some coal-tar distilling plants been established in the United States. Naturally we should not expect an industry which has been neglected for half a century or more to be put on a paying basis within a few months. It will require a tremendous amount of research work to find out profitable methods for isolating the various products from coal-tar and converting these into organic remedies. This is very probably the reason why chemical plants in this line have been established only on a comparatively small scale. As a rule the American capitalist does not like to tie up his money for several years. He prefers to get a handsome dividend for his invested money as quickly as possible. Putting up a dollar today and getting two dollars in return tomorrow is apparently the aim of the average capitalist in this country.

Another excuse given by capitalists is the fear that when the war is over, preparations produced in this country will be unable to compete in price with those produced in Europe on account of the low wages paid to workmen, even skilled ones, in European countries. In Germany the average workman receives about 15 marks a week, this is less than \$4 and a skilled laborer can easily be had for 25 marks or about \$6. In other European countries similar conditions prevail. I remember that about 20 years ago when I was manufacturing acetphenetidin in Germany, the finished product stood us about 3.60 marks per kilo or about 38c a pound. This product, I believe is sold today in American markets for about \$4.75 per lb.

So much may be said in regard to the production of chemicals which are not protected by letters patent.

Why is it that this country is so far behind in producing synthetic remedies? This, in my opinion, is due to the small amount of research work done in the laboratories of most of the manufacturing houses.

A research chemist is considered by many manufacturing houses as a non-producing person because he may work for months and even years before he is able to produce anything new and profitable.

But how else could we have any synthetic remedies except by elaborate research work? The physiologic action of only a few of the synthetics was discovered accidentally, acetanilid and sulphonal being examples. Most synthetic remedies were produced on a strictly scientific basis by taking as guides the effect of the comparatively simple fundamental product, the structural formulas of remedial agents of established value, such as alkaloids, etc., and the substances which are formed from them in the organism.

Let us consider, for instance, the various cocaine substitutes. When it was

found that cocaine was methyl-benzoyl-ecgonine and when the structural formula for the latter was established, research chemists undertook to find out which of the three most important groups in the cocaine molecule produced the anesthetic action. These three groups were the complicated piperidine nucleus, the benzoyl group and aryl substituted amino group. Based on the supposed action of complicated piperidine nucleus, substances chemically nearly related to this nucleus were prepared, such as the eucaines and euphthalmine, the latter, however, being not an anesthetic but a mydriatic. When it was found that ecgonine did not produce an anesthetic action unless directly combined with the benzoic acid radical, the research chemists thought that the benzoic acid radical combined with simple groups might also produce an anesthetic action. This hypothesis led to the production of such substances as orthoform, subcutin, propaesin, etc. When it was finally established that a substance which contains several ethyl groups linked in a certain manner has hypnotic properties, and when it was further found that tertiary alcohols exert a still greater hypnotic action, the research chemists considered the aryl substituted amino group as essential for producing anesthesia, and thus the most valuable synthetic anesthetics, novocain, alypin, stovain, etc., were produced.

With the exception of stovain, which is a French preparation, all substitutes for cocaine were produced in Germany, the country in which systematic research work has been carried on for more than half a century. The extent to which research work is carried on in Germany is evident when we are told that in the large manufacturing houses such as Elberfeld Farbenfabriken, the Farbwerke Höchst, the Badische Anilin—and Soda Fabrik about 20 percent of the chemists employed devote themselves entirely to research work. Some of these chemists, who, as may be expected, are thoroughly acquainted with every field of chemistry, devote their time to organic and inorganic synthesis; others are engaged in working out the first steps of the manufacturing process of such substances which have been found to be of approved value. All these chemists devote their entire time to this specific work and are not bothered with analytical work or otherwise.

At the first view it may seem that keeping up a research laboratory is a rather expensive undertaking, especially when we bear in mind that comparatively few really valuable therapeutics are discovered by this large number of chemists. But again it is not the isolation of the final product alone which is done by them, but the intermediate products are also thoroughly examined and protected by letters patent in order to close up any loop-hole in the final application for a patent, and thus prevent competitors from obtaining a product by a process similar to that worked out. This is absolutely necessary in countries which have stricter patent laws than the United States. A great drawback in our patent law is that an application for a patent is not published by the Patent Office prior to the investigation and granting of the patent. If this were done in many cases the issuing of a patent would be prevented by proving that the product to be patented had been isolated many years before the patent was applied for. As the matter stands now the manufacturer is confronted by a granted patent, and when he doubts the validity of the patent, he is compelled to take the matter to court and fight it out, usually at great expense.

In this connection I may mention phenacetin and aspirin. How many million dollars have been spent for these two products which never should have been patented in this country because they were well-known and well-defined substances long before the patent was applied for. In no other country in the world are acetphenetidin and acetyl salicylic acid patented.

It is gratifying to know that many of our large manufacturing houses have established well-equipped research laboratories. However, the work in these laboratories is devoted largely to physiological products rather than to real inor-

ganic or organic research work. The time, without doubt, will come, especially if this terrible war should last for many years, when the American manufacturer of chemicals and therapeutic agents will have to equip research laboratories not alone for the purpose of producing chemicals such as carbolic acid, salicylic acid, etc., which now command exorbitant prices or are almost unobtainable, but at the same time to give more dignity to chemistry in America and to show that the American chemist, given the opportunity, can play his part in the achievements of research chemistry.

Now, many persons familiar with the chemical industry in this country claim that thorough research work cannot be done here because we do not have chemists sufficiently qualified to do this kind of work. This may be true to some extent. For my part I am convinced that there are just as many bright students in this country as on the other side of the big pond. But the students in this country, with few exceptions, make the great mistake in believing that having passed through a college or university successfully, they are through with their studies. It is their aim to leave the college as soon as possible to earn the first dollar. This is why so many young men remain in special branches of manufacturing all their life-time, analyze day in and day out, year in and year out fertilizers, steel, ore, etc., and get acquainted with only those methods and discoveries which pertain to their special work. Such chemists, will, of course, never make research chemists, not even in their special line of work. I have found that, with a few exceptions, only those chemists who after having passed their final examinations have done post-graduate work and have kept up with the progress of chemistry and are desirous to keep up with it all the time, are equipped to do accurate research work.

To some extent the low entrance requirements of most colleges have a great influence on the inability of many students to develop into efficient chemists. It is simply impossible to follow the achievements of chemistry with a knowledge of only one language. Most of the important work in chemistry is published in the German language, a good deal in French, and quite recently in Dutch and Italian. Although our domestic periodicals give very good abstracts, particularly those published by the American Chemical Society, it is in many cases impossible to work according to abstracts and, in order to get the details of the operation, one is compelled to consult the original article.

So much for the production of chemicals and remedies. I wish to call your attention to the existence of a somewhat analogous condition in regard to some medicinal plants, the cost of which advanced to abnormal and almost prohibitive figures immediately after the war began, and which still prevail.

Here again the natural resources of our country such as diversity of climate and soil and the large areas of uncultivated lands make it quite an easy matter to grow certain of the drugs now imported and thus create a profitable industry and at the same time avoid dependence upon European markets for our supplies.

It is a question well worth our consideration, and I present it to you in the hope that the possibilities and difficulties of drug culture may be discussed by those of you better qualified by experience than I am.

In conclusion, it may be said that considering the great natural resources in this country, which so far have been developed only to a limited extent, it is more than possible that a well-paying industry for producing chemicals and therapeutic remedies, including synthetic products could be established if the manufacturers were willing to spend the time and money necessary to do such work. As already stated an industry of this kind cannot be developed from today to tomorrow, a large amount of research work is necessary which naturally cannot give a fair profit to the invested capital in a short time. But one will soon find that many young men having heretofore considered their scientific work as finished when

leaving the university or college, will continue studying the new achievements in chemistry, because they will find out that in order to do extended research work such a course is absolutely necessary; these young men will also find that chemists with a thorough knowledge of all branches of chemistry can at all times command well-paying positions. Once this fact is realized there will be no lack of properly-trained men.

It is, therefore, incumbent upon the two closely related sciences, chemistry and pharmacy, and to the American capitalist to work hand in hand in order to establish an industry which will make us entirely independent of the European markets and which will preclude the possibilities of such conditions as existed after the outbreak of the European war and which still continue.

Such an industry would not only retain in this country much money which now goes abroad, but as already mentioned would place American chemistry and the ingenuity and education of American chemists upon a basis whereby scientific competition with the progressive European chemistry may be established.

DISCUSSIONS ON CHAIRMAN'S ADDRESS.

Dr. Turner: I think that Dr. Englehardt's address is a splendid one. He has covered the subject from several points of view and has summarized the condition as it exists today better than I have ever heard it presented anywhere else.

This address may be divided into three parts. The first in relation to the conditions of the chemical industry in this country. The second related to the chemical research laboratories of manufacturing houses which should be in a position to produce such compounds as are necessary for the chemical industries to manufacture. The third part was in relation to the schools, which should produce men who, in turn, should be able to work in these research laboratories.

Speaking relative to the first proposition, the condition of the chemical industry in this country is deplorable. It is due to a great many factors, and particularly I suppose it is due to the question of capital more than anything else. Chemical manufacturing involves a large amount of capital, particularly the organic part. It requires a large amount of capital invested in machinery, apparatus, and so on, as well as in laboratories which are necessary in connection with manufacturing. No capitalist is willing to invest his money unless he sees not only a safe return of his money, but also a future. As the condition exists today, there is absolutely no incentive for any capitalist to invest his money in chemical manufacturing. The conditions as they exist in Germany enable them to dump on this market the over-production, and the over-production enables the German manufacturer to reduce his cost of manufacture, and, through syndicates, maintain a price over there on a sufficiently high level. In order to overcome this condition, it seems to me we should stick closely to the recommendation which was made by the Committee which investigated the possibility of the manufacture of organic products in this country for the General Chemical Company. They made an exhaustive report and went closely into the question not only of various products which could be manufactured profitably in this country, but also in regard to the relation of wages as compared with this country, and so on. They recommended that the chemical manufacture in this country would be possibly under the condition that Congress pass a tariff which would be about 30 percent ad valorem and 7 cents per pound specific in addition. Under those conditions the chemical industry could exist in this country. There would be an incentive for the capitalists to invest their money.

I know from my personal experience that there are many capitalists ready to invest their money today. Even with the high price of benzoyl-ecgonine as it exists, there is sufficient return on the capital and business to enable the manufacturer to recoup himself before the war is terminated.

At the same time, most of these capitalists are very progressive men; they like to build; they don't like to start an industry today and get their money back tomorrow and then close the factory afterwards. They want to see a future for it. And the only way they can see a

future is by the government regulating the tariff in such a way that the production of chemicals in this country will insure to them a return in the future.

I would like to present a resolution from this section to be introduced before the General Session of the American Pharmaceutical Association, recommending that they bring before the proper authorities this view, that is, that Congress be urged to pass a tariff which would be based on those terms, that is, 30 per cent ad valorem and 7 cents per pound specific.

Now, in regard to the second part of Dr. Englehardt's address, that is, in regard to research laboratories, the conditions that exist in this country today, both in chemical and pharmaceutical particulars do not permit of the manufacture or the discovering in research laboratories of the same amount of synthetics as are discovered in Germany.

In the first place, in Germany the medical profession is very willing to co-operate not only with the chemical departments of universities, but with manufacturing houses as well, in investigating in clinics and hospitals the effects of various remedies produced in the laboratories, adopting those that are found good and rejecting those found wanting. It is very easy, and no one looks upon that phase of the question as below the dignity of a professor in a college of medicine; if you approach a man he will be glad to aid in this work of investigation. It is done very easily, and hence, whenever a new remedy is put on the market in Germany it has a great amount of clinical reports behind it.

In this country the manufacturer is compelled to go on the market with secret reports of those physicians who are willing to do the investigation work. It is next to impossible, if not impossible, to obtain any clinical reports which would be published in medical journals and which would be given to the medical profession as impartial evidence of the value of the new remedy.

Another condition which is of great value in Germany is that the college professors, and particularly the professors of chemistry, have a great deal of time to devote to work. Various compounds have been introduced which are the products of their work. It is also true that the manufacturing houses have done very valuable work.

But before we can speak of manufacturing and producing new synthetics, the conditions in this country will have to be changed greatly in the way of affording the college professors more time and enabling the students to devote more time to research. For this reason, I think the laboratories of research houses devote their time to physiological products rather than chemical. They do not require as much time.

But it is undoubtedly possible with the material at hand in this country to do research work. I have known many who received their education in this country who had the same ability as any foreign chemist had for research work.

I believe that is all I have to say on the subject of the President's address.

Dr. Asher: I did not hear the first part of the Chairman's address, but I was impressed with one phase of it that we will have to take up, and at the proper time I think we should pass a resolution.

What has been said regarding our condition is true, but there is one condition with which we are confronted that is more serious than all. That has to do with our patent laws. No matter what we do in this country today, no matter how proficient chemists or physiologists may be, it amounts to nothing unless there is a revision of our patent laws. The patent laws as they exist today are such that they do not offer any inducement for capital to engage in manufacturing.

There is one other point, and I am not saying it in criticism of Dr. Engelhardt's paper, but I want to quote or abstract some remarks made by Dr. Bonnerheise at the chemical meeting in New Orleans this last April. A great deal has been said in the newspapers against the American chemist. The chemical industries, the manufacturing people of this country, have looked upon the American chemist as a joke. I don't think that the American chemist is a joke. I have as much regard for the American chemist as I have for any chemist. Conditions are different in this country. There is more inducement for study and research abroad than in this country, but if we study the proposition in its proper light

it all comes down to a commercial basis. Why has not the chemical industry of this country made greater strides? It is because there is no opportunity here. It has been shown that the capitalist can make more money investing it in other channels than investing it in the line of chemical industry. Take the synthetics or the color industry as an example. There are 900 different colors on the market, each factory practically specializing in one particular color, and having an outcome for the by-products which in this country we could not have because most of those are covered by patents. He showed in his report of some of the stores—I will not mention the names—that they are selling more in the line of candy in one year than the profits from the chemical industry of Europe, and all down the line, so that the American capitalist is looking to that end where he will get the best results whether scientific or not. That is the real situation.

We could do more no doubt if our patent law was changed; so if I am in order, I would offer as a resolution, after this discussion is through, that we petition Congress to change the patent laws to afford the American chemist protection such as is afforded in Europe.

Dr. C. E. Caspari: One phase of this which has been touched on but about which something might be said, and that is the coal tar industry.

Dr. Engelhardt has referred to the fact that we send coal tar to Europe and it is shipped back here under different names, a part of it is used for increasing the value of illuminating gas, the light value. But a great percentage of it is used in making roads and roofing. Up to the present time it has been found more profitable to use it that way than to distill it and use the profits. No matter what our facilities in this country are or will be for manufacture, even if protected by a tariff, you cannot create in a year or five years or ten years the coal tar industry of Europe.

The coal tar industry is analogous to the packing house. The packing houses could not exist today if they didn't utilize every particle of a steer or of a hog. Their profits are really in the by-products; they are not in the meat itself. And so it is in the coal tar industry. After we obtain the various raw materials from coal tar by distillation, it then becomes necessary to manufacture these into other products. There will be certain by-products and a use must be found for those by-products to make the entire program profitable. And until we have devoted sufficient time in this country under the most favorable conditions to developing the industry as it has been done in Germany, we will never be able to compete with the German coal tar in this country.

Since the war began the scarcity of carbolic acid has been felt in this country. I know positively that carbolic acid is being made here now in large quantities and can be purchased in drums containing a thousand pounds or more. I know the concern that buys it from Mr. Edison in these quantities. I know that is another instance where because of lack of material coming from Germany a factory was compelled to manufacture its own material. So when the necessity arises I believe we will be able to meet the situation provided we have protection from Congress in the way of tariff.

Mr. Lichthardt: I will discuss another phase of the matter, and that is the production of crude drugs. We in California have been interested in that. Dr. Schneider is the pioneer in that line, and through my connections with the City of Sacramento, I have interested the school department, and they have taken up the propagation of crude drugs in the agricultural department of the city schools. The children are taking up the growing of belladonna, hyoscyamus and other drugs of vegetable origin, and I think that that is a very good way of starting such an industry in the United States. If we could find out just exactly what would grow in our locality, it would help us. I will admit that in the Sacramento Valley everything will grow, but it may not grow as well as it does in other parts of the United States. I haven't any doubt but that we can raise peppermint, and I know I have done some original work on digitalis. Belladonna, I think, would do pretty well there, but, nevertheless, the idea is worthy of being taken up throughout the United States, of trying to get the school children interested. They are willing to raise these drugs. And when they have raised them, let us, who know how to do research work, do it for the good of the community and analyze these drugs and see if they will compare with the European grown.

Dr. Schneider: I don't want to relate my experience in growing plants in California, because it is a very sad one. Some of the difficulties referred to by one or two of the speakers I have encountered also. To find money interests sufficient to start an enterprise of any kind is not an easy matter. In regard to the growing of belladonna, I will second the statement of Mr. Lichthardt of Sacramento that everything grows in California and grows very well. Mr. Lichthardt made the statement that some things grow better in other states. I don't agree with him. Nothing grows better than it does in California, belladonna included! We can grow here belladonna of very superior quality and can grow it profitably if we can use the stems. The manufacturers do use the stems. The content of California grown belladonna stem is equal to the leaf. I will not state my experience as I think I have done so at other meetings, but I will announce for the benefit of those present that I am now preparing a bulletin on the growing of belladonna which will be issued by the University of California Agricultural Department. Keep that in mind, and if you should be interested in growing belladonna, write for that bulletin, which will contain the details regarding the seeding and transplanting and cultivating and alkaloidal content and so forth. Nearly every drug plant, with the exception of purely tropical plants, can be grown profitably in the State of California and in other states, provided enough money is invested, and also provided enough energy is exerted to make the enterprise a success. That is all that is necessary, two things, money and effort. If those are forthcoming, it will be a success. Whether or not the government grants a tariff or a bounty, we know that a number of enterprises have been made a success, including the sugar beet industry of California, through the granting of a bounty. I have that in mind and I think it is an excellent idea. I know of no way to awaken interest better than that. Congress seems to take cognizance of those things of which it wishes to take cognizance, that is all there is to it.

Mr. Newcomb: Does the address contain any resolution?

Mr. Scoville: There have been two recommendations made.

Dr. Englehardt: Neither of them have been seconded.

Mr. Newcomb: Does the address contain any recommendations?

Dr. Englehardt: No.

Dr. Turner: I move the President's address be accepted and take the usual course.

(The motion was seconded, put and carried.)

Dr. Turner: In regard to the resolution, I would like to make it formal, that it be recommended to the House of Delegates and asked to be passed, as follows:

"In order to promote the chemical industry in this country, and particularly the manufacture of synthetic organic compounds necessary for medicinal purposes, a duty should be imposed on all compounds of that nature to the extent of 30 percent ad valorem and 7 cents per pound specific."

(The motion was seconded.)

Dr. Schneider: Mr. Chairman, while we are waiting, I wish to second the resolution which Dr. Asher is preparing now, namely, that our patent laws be properly revised.

Dr. Englehardt: While the resolution is being written down, we want to go ahead with the program, and I wish to appoint a committee to nominate officers for the coming year, and for that purpose I will appoint Dr. Schneider, repre-

senting the West, Dr. Caspari representing the Middle West, and Dr. Koch representing the East.

Is there any miscellaneous business? If not, we will proceed with the reading of the papers.

Dr. Asher: I have the resolution now:

"Be it Resolved, That, owing to the existing patent laws entailing a hardship on the chemical industry of this country, the Congress of the United States be requested to change the laws in keeping with those of foreign countries."

Dr. Englehardt: You have heard the resolution. What is your pleasure?

After some discussion, Dr. Turner moved as substitute, that a committee be appointed to look into the question of patent laws in this country as compared with patent laws in other countries, and to have a resolution passed for submission to Congress or to such other authority as may be found necessary.

After further remarks by other members, Mr. C. A. Mayo seconded the motion of Dr. Turner that a committee be appointed by the Section to study the question, and said this, of course, will be a committee of the Section. In the ordinary course, the action taken by the Section would be referred to the General Session, and there would be acted on with the full knowledge of the Committee on Patents and Trademarks.

The question was called for and adopted by vote. After consultation with the members the Chairman appointed a committee of four, consisting of Messrs. F. E. Stewart, Caspari, Asher and Turner.

Dr. Englehardt: Now there is the other motion of Dr. Turner which the Secretary will read.

Mr. Scoville (reading): *"Resolved*, That in order to promote the organic chemical industry in this country, and especially the manufacture of organic synthetic products used in the practice of medicine, a duty should be imposed on all such products, as well as the raw material entering into the composition of such, to the extent of 30 percent ad valorem and 7 cents per pound specific. It is further

Resolved, That the Congress of the United States be petitioned to enact legislation to this effect."

Dr. Englehardt: You have heard the resolution. Is there any discussion?

(The question on the resolution was put and carried.)

Dr. Englehardt: We will proceed with the reading of the papers. The next paper on the program is a paper by Prof. Scoville on Tinctures.

After discussion the paper was referred for publication.

The other papers read at this session are as follows:

The Increase of Acidity of Hydrogen Peroxide on Standing—By C. F. Ramsey and A. M. Clover.

The Retarding Effect of Certain Substances on Pepsin Digestion—By C. F. Ramsey.

Standardization of Colors—By H. V. Arny.

Hydrolysis of Some of the Common Vegetable Oils—By W. F. Rudd.

History of the Discovery of Alkaloidal Affinities of Hydrrous Aluminum Silicate—By J. U. Lloyd.

These papers after discussion were referred for publication. The discussions will accompany the papers when printed in the Journal.

Dr. Caspari: Mr. Chairman, this Section will have two more sessions, one tomorrow afternoon and one Thursday morning, and this room is to be used at 5 o'clock by another organization, and it is pretty near that now.

Dr. Englehardt: Then a motion to adjourn is in order. But before we adjourn I would like to ask the Nominating Committee whether they are ready to report.

Dr. Caspari: The Nominating Committee is ready to report. We beg leave to submit the following nominees: For Chairman, W. L. Scoville, H. V. Arny; First Vice Chairman, L. A. Brown, C. W. Johnson; Second Vice President, Joseph L. Turner, A. Thurston; Secretary, E. L. Newcomb, William Mansfield.

Dr. Englehardt: Then a motion to adjourn is in order.

(It was moved, seconded and carried that the meeting adjourn.)

(Adjourned.)

SCIENCE AS A BALANCE WHEEL.

Thinking and doing are for the time out of balance. Science has the power to restore and maintain the balance by breathing more of its spirit into practical life, and if an instrument to guide this work is needed—if it is right for men of science to have a confession of faith—I know of none more inspiring than the words that Huxley used in defining his own life purpose. To promote the increase of natural knowledge and to forward the application of scientific methods of investigation to all the problems of life to the best of my ability, in the conviction which has grown with my growth and strengthened with my strength, that there is no alleviation for the sufferings of mankind except veracity of thought and of action, and the resolute facing of the world as it is when the garment of make-believe by which pious hands have hidden its uglier features is stripped off.—*Ross G. Harrison, Science.*