

ANNUAL MEETING AMERICAN CHEMICAL SOCIETY

The spacious buildings of the Massachusetts Institute of Technology in their new and beautiful setting on the banks of the Charles River in Cambridge, Mass., constituted a symbolical environment, in this new period of chemistry in America, for the Fifty-Fifth Meeting of the American Chemical Society, which was held from September 10 to 13, 1917. In spite of the unusual demands made upon chemists at this time, the registration exceeded seven hundred, and it was the unanimous sentiment that a fresh and vitalizing stimulus had been gained from this convention for all branches of chemical activity. Three features stood out preëminent as characteristic of the meeting: *first*, the intense loyalty and patriotism of chemists; *second*, their eagerness to learn in what ways they might possibly be of assistance to the government; *third*, the woeful shortage of chemists in every line to meet the present intensified demand.

On Monday afternoon, September 10, the Council of the Society met in the rooms of the Engineers' Club, sixty-eight Councilors being present. The Committee on Constitutional Amendments regarding modifications in the method of election of the President and the creation of a Board of Control reported informally. As a result of the discussion which followed, the Committee was enlarged to five members and continued for the purpose of reporting to a later meeting of the Council. It was voted that a Code of Ethics for the Society is not desirable. To the proposal that the Society should unite with other national bodies in the formation of a national organization of technical societies, the Council expressed its appreciation of the invitation and of its desire to coöperate in every way possible with the other scientific societies on any matter pertaining to national welfare; nevertheless, it was felt that the present well organized activities of the Society would be hampered by a formal union such as was proposed.

Dr. E. G. Love was re-elected Treasurer for a three-year term. Dr. W. A. Noyes having tendered his resignation of the office of Editor of the *Journal of the American Chemical Society*, Dr. A. B. Lamb, of Harvard University, was unanimously elected to this office. Mr. E. J. Crane and Dr. Chas. H. Herty were also unanimously re-elected Editor of *Chemical Abstracts* and Editor of the *Journal of Industrial and Engineering Chemistry*, respectively.

To serve upon the committee advisory to the President of the Society on national affairs, Drs. B. C. Hesse and M. C. Whitaker were elected from the Councilors-at-Large.

The Council unanimously recommended to the Society the election to honorary membership of Professor Victor Grignard of the University of Nancy, France, now a Major in the French Army and serving on a commission to this country.

The invitation of the Cleveland, Ohio, Section to hold the next Fall Meeting in that city, was accepted.

The time, place and desirability of holding a Spring Meeting was referred to the Directors.

A hearty vote of thanks was passed in appreciation of the courtesies extended by the Massachusetts Institute of Technology and members of the various Local Committees whose efficient labors added so materially to the success of the meeting and the comfort and pleasure of the members.

Immediately after adjournment the Council was entertained at dinner at the Engineers' Club by the Northeastern Section.

After dinner the meeting of the Directors was held.

At the General Meeting, on Tuesday morning, which filled to overflowing the large lecture room of the Chemistry Department, Prof. H. P. Talbot, Chairman of the Local General Committee, in gracious words welcomed the Society and introduced Dr. R. C. Maclaurin, President of Massachusetts Institute of Technology.

ADDRESS OF WELCOME

By RICHARD COCKBURN MACLAURIN
President Massachusetts Institute of Technology

It must always be an honor to welcome the American Chemical Society: it is especially so to me under present circumstances of place and time. I am sure that all my colleagues at Technology share my gratification that you are meeting within the walls of these buildings that have been so recently dedicated to the great cause of science. It seems especially appropriate that you should meet in Cambridge, longer than any other city in the country a centre of intellectual effort and influence. Your meeting here will recall to your minds the long line of great teachers and thinkers who have made this city of Cambridge famous, and you will think with sympathy of the immense influence that has radiated therefrom throughout the length and breadth of the land. It may link you, too, in imagination to the older Cambridge and through the associations of that historic university to the intellectual accomplishments of Europe as a whole. Happily for men of science they are subject less to intellectual isolation and consequently to intellectual provincialism than are most other men. In the field that you cultivate you simply must know much of what is going on in other parts of the world. In this sense you men of science are necessarily internationalists.

Happily, however, no man is merely a scientist. As healthy human beings, men of science are keenly alive to all the grave issues of life, and so to-day, all are taking sides in the greatest of all moral issues—that raised by the war. Of course I have no thought of discussing these issues, but it would be absurd when we are meeting at one of the greatest crises of our national history, to pass by the greatest of all the questions of the day.

It would indeed be peculiarly absurd because there are so many questions raised by the war that seem full of significance to all who think seriously of the great work that your society is doing and will do. I venture to hope, therefore, that when you get down to business you will give serious consideration at this meeting to the problems of the war that are related to the work of the chemist. The man in the street may not pay much attention to the proceedings of your society, but none the less it is probably true that no body of men similarly associated is capable of contributing so much to the solution of the great problems that the war presents as are the chemists. I need hardly refer to the possibilities, nay the actual achievements, in the opera-

tions of the war. Much is being done by the members of your society, the best of it quietly and without being heralded in the press, so that it will probably not be till the war is over that the public learns of the actual accomplishments of American chemists in the field that I have indicated. When the story is told it will add luster to the name of American science.

After all, however, it is in the beneficent paths of peace that the labors of the chemist do their greatest and most lasting good. We cannot see the dawn of peace yet, but we can see that when it comes it will bring pressing problems to the man of science and particularly to the chemist. Indeed some of the problems are pressing urgently now. Think only of one of them—What can be done to offset the prodigious cost of war? Congress has already appropriated billions for war purposes and of course that is only the beginning. How is such a load of debt to be carried? Clearly only by spending less and earning more. Every patriotic citizen to-day, whatever his calling, should be preaching and practising the doctrine of economy—the absolute necessity for avoiding all needless expenditure, which is only another word for waste.

This must be done everywhere—in our households, in our business, in our government—and few can render so much service in saving waste as the chemist. You must rub this into the minds of all who are in a position to make changes, and rub it in by particular instances and not merely by general statements. I could name a single invention made in the last few years, and scarcely heralded at all by the newspapers, that means the saving of over a hundred millions annually to the people of this land. Doubtless you could name similar instances and you see of course that it does not take many such improvements to pay for even so costly a war as this.

There is, however, more to be done than to avoid waste: there is the development of countless new ways of earning more. I need not refer in this presence to the practically infinite possibilities of the great science that you represent, possibilities resting not on the baseless fabric of a dream, but on the solid rock of scientific knowledge. To make these possibilities actual we must have two things: *first*, a large supply of competent and well trained men; and, *second*, appreciation on the part of men of business of the possibilities of science. Happily we are getting both, although of course there is still room for improvement. In such matters an ounce of experience is worth many tons of speculation, and so I may be permitted to refer to the recent experience of this Institute in the field that I have just indicated.

We have been much encouraged, not only by the rapidly increasing numbers who are taking chemistry for a profession, but what, of course, is of far more import, by their quality. And we have been particularly encouraged by our experience in conducting chemical education in coöperation with manufacturing concerns in various states of the Union. We have been dealing of course with a selected group, but we have no reason to suppose that there are not many other concerns with an equal appreciation of the value of sound scientific training to business enterprise and an equal readiness to coöperate with scientific workers.

May I add that I see great good in such coöperation, not only to business but to science. It will bring about, I think, among men of science, more appreciation of the scope and intellectual interest of practical problems. There has been too much monasticism in science, too much aloofness from the affairs of daily life, too much looking down on the world as from another sphere. Even in the field of chemistry, itself, the relations between so-called "pure" chemistry and so-called "applied" chemistry have been oftentimes far from ideal. And the coöperation of which I have spoken will also bring about, I hope, a greater appreciation among business men of the value to business of the scientific method and spirit.

When this appreciation becomes general, the victory will be

complete. We have, I think, good grounds for looking forward to a time when science will be cultivated by the minds best adapted for its progress and under circumstances that make for its steady improvement. The day will dawn when there will be none of the niggardliness and littleness in the support of scientific research that marked the earlier generations, and that still are too much with us. We may look forward with confidence to an era of great accomplishment, not merely in the application of science to the so-called "practical" problems, but within the strict realm of science itself. It should go without saying that these two things should move forward together, each helping the other and with full appreciation of the importance of both. And I feel sure that one of the great instruments for bringing about this splendid development will be the American Chemical Society, whose members I have the pleasure of welcoming to-day.

In behalf of the Society, President Stieglitz thanked Dr. Maclaurin for his hearty welcome and assured him that the American Chemical Society had thoroughly organized its forces and stood ready to aid the Government in every way possible. He also pointed out tremendous strides which the chemical industries have taken during this war period, and spoke with strong confidence of the future of chemistry in this country.

The Society adopted unanimously the recommendation of the Council that Prof. Victor Grignard be elected an honorary member of the Society.

Dr. Arthur L. Day, Director of the Geophysical Laboratory, Washington, D. C., aroused the enthusiasm of the meeting by his portrayal of the activities of his laboratory in meeting the shortage of optical glass so necessary to the proper equipment of our Army and Navy with periscopes, range finders, field glasses, etc. His account of the rapidity and thoroughness with which the work has been prosecuted, and his statement that next month the output will be 45,000 lbs., furnished another stirring illustration of the ability with which chemists have met the sudden calls upon their resourcefulness.

Professor Grignard having arrived during the address by Dr. Day, President Stieglitz stated, after the close of the address, that he desired to inform Professor Grignard officially of his election to honorary membership in the Society. Professor Grignard was invited to the platform, and President Stieglitz addressed him as follows:

"Professor Grignard, it is my valued privilege as President of the American Chemical Society, to inform you that in consideration of your brilliant and fundamental contributions to chemistry, and especially to the theory and experimental methods of organic chemistry, and in consideration also of your invaluable services to the cause of freedom and democracy through your scientific activity in this war, the American Chemical Society has elected you at its meeting to-day to honorary membership in the Society. We welcome the fact that we may count you as one of our associates and trust that you will feel yourself quite at home with us as your devoted friends and admirers."

Professor Grignard, speaking in his native tongue, expressed his deep appreciation of the honor which had been conferred upon him, which honor, however, he considered as bestowed, not upon him personally, but as an honor to France which had given to chemistry such illustrious men as Lavoisier, Dumas, Berthelot,

and many others, and also as a tribute to our ally with whom we are now standing shoulder to shoulder in the common cause of the world's struggle for liberty.

Continuing the program, Dr. E. C. Kendall of the Mayo Clinic, Rochester, Minnesota, gave a paper on "The Isolation and Identification of the Iodine-Containing Compound which Occurs in the Thyroid."

Special interest attached to the Tuesday afternoon General Session because of the direct bearing of the program on the many questions connected with the war situation. The first speaker was Dr. William H. Nichols, Chairman of the Committee on Chemicals of the Council of National Defense.

ADDRESS

By WILLIAM H. NICHOLS

Chairman Committee on Chemicals, Council of National Defense

It cannot be impressed too frequently or too strongly on the minds of the American people that the war on which we have entered is one which will require the faithful services and intelligent coöperation of every loyal citizen of the Republic, male and female, until the very end. No half-way measures will suffice. We are pitted against a power which has been preparing for many years and which did not strike until its preparations were complete. With that thoroughness for which the German people are deservedly noted, assisted and guided at every step by a highly intelligent Government, which, for many years, knew what it was aiming to accomplish, and intended to be ready for any eventuality, there was probably nothing which could be foreseen by human intelligence which was not provided for when the Belgian frontier was crossed. While this was true in all fields it was particularly true in the field of chemistry, which was proved to be in many ways the most important science made use of in the titanic struggle. Many of those present will remember the striking lecture of Dr. Bernthsen, delivered during the 8th International Congress of Applied Chemistry to an audience which packed the hall in its eagerness to learn the last, and to many the first, word on the fixation of atmospheric nitrogen. Probably no one among them realized the enormous influence which the process described was so soon to have on the fate of the world. We had been accustomed to consider that nitrogen fixation was practically dependent upon the electric arc and involved the consumption of enormous electrical energy. Dr. Bernthsen's exposition of what is known as the "Haber Process" was so clear and so skillful that even those who gave it only a passing thought could see the great potentialities of employing hydrogen instead of oxygen in the fixation process. Since the date of the delivery of that lecture in 1912, the production in Germany of nitric acid and ammonia in its several forms has become colossal and it may be safe to say that without the process alluded to the war, from the German side, would long ago have languished from scarcity of explosives, and the fields have become barren from lack of nitrogen. It is conceivably not too much to infer that the war was not launched until the way was clear for the production of nitrogen compounds after the vast accumulated stores of Chilean nitrate had become exhausted. This is one instance of many which might be cited to show the extreme preparedness of the German nation. From my own knowledge I can say that by comparison, the English and French were unprepared, both in men and equipment, and this was thoroughly understood by their enemies. As for Russian preparation, it was carefully looked after in Berlin.

While the beginning of the war found England and France not only unprepared but almost stunned by the suddenness of the shock, they lost no time in getting under way. At first many mistakes were made, and many steps taken which had to

be retraced, but fortunately no vital errors were committed. As a result of the gigantic program laid down, covering every phase of preparedness, these countries found themselves able to supply the vast armies which they organized, with every article, to the last detail, needed to make them effective. This offers one of the most extraordinary examples of intelligent coöperation which the world has ever seen. It is little short of a miracle.

It was well known in Germany that England and France were but comparatively small producers of fuming sulfuric acid or oleum. Not having a great dye industry, they felt little need for it outside of their explosive requirements and these were not large except in commercial explosives, used in mining and the like. But modern warfare cannot be conducted without oleum; and in a war like the present the quantities used of this article are enormous.

I have been told that the chemical works in England built since the beginning of the war, particularly for the production of war chemicals, such as oleum and nitric acid, covers an area of 27 square miles. Compared with anything existing anywhere previous to this time, such a chemical plant is unheard of. My informant, who spent some time inspecting it, referred more than once to the fact that a large proportion of the labor was done by young women who were reported to be extremely efficient. He saw them firing boilers and doing work of like heavy character and apparently thriving on it. These great chemical works are the backbone of the enormous output of munitions that has made the English artillery, as well as every other branch of the service, so efficient. I presume many of you are aware that the chemical engineer who superintended the construction of these great plants in England is an American.

Hardly less astonishing, and from many points of view more so, was the work done in France. When the history of the war shall have been written, one of its most brilliant and inspiring pages will be that recounting the exploits of the French chemists and the marvelous increase in the output of French munitions.

I have touched on these matters in order to indicate the great task confronting this country in organizing its forces. We have not yet a plant for the fixation of nitrogen, but I think I can truthfully say that this is not the fault of the chemists. We have, fortunately, a large output of oleum. I regret to say politics continues to be spelled with a capital P while patriotism is too frequently spelled without it. Up to the time when this country was forced to take part we may just as well admit that we as a people were living in a fool's paradise with little thought, except in the minds of a few, that we would be drawn into the whirlpool sooner or later. One of the great battle-cries of the last presidential campaign, which had much to do with the result, was "He kept us out of war." It seemed as if the height of the ambition of vast numbers of our people were to keep out of war no matter what it cost in moral fiber or self-respect. To many who hold the same views as I do, it was astonishing that in view of what was taking place on the other side of the ocean we did not in ordinary prudence prepare long ago for a shower in case the wind should change and come our way, which it was almost certain to do. The fact that we had not commenced preparing three years ago is, to my mind, the reason why we are in the war at all; but at this late date there is little to gain by discussing what might have been or what should have been. We have now definitely entered and we are committed to do our part until the end and this part we pledge ourselves to make worthy of our great Nation and its traditions. We are fighting for great principles under a leader who is able to state them so that all may understand who will.

Promptly after the declaration of war our authorities at Washington proceeded to take steps with commendable rapidity. They have been criticized a great deal because these steps have not been more rapid, but those who are acquainted with the