

SOCIÉTÉ DE CHIMIE INDUSTRIELLE

On April 24, 1918, the first meeting of the recently formed New York Section of the Société de Chimie Industrielle was held at the Chemists Club, New York City, Dr. L. H. Baekeland, president of the Section, presiding. The deep interest felt in the relations between France and America were clearly reflected in the spirit and enthusiasm of the large and representative assemblage. Dr. Wm. H. Nichols, president of the AMERICAN CHEMICAL SOCIETY, addressed the meeting, welcoming the new association to its place among the chemical societies of America. Prof. George A. Hulett, a member of the first special War Commission sent to France and England from this country, spoke on "Some of the Chemical War Problems," and was followed by Mr. Frederick J. LeMaistre and Mr. Marcel Knecht whose addresses appear below.—EDITOR.

CONDITIONS OF THE FRENCH CHEMICAL INDUSTRIES DURING 1916

By F. J. LEMAISTRE

Member of the American Industrial Commission to France

I have been requested by Dr. Baekeland to present to you this evening a few remarks on the "Conditions of the French Chemical Industries during 1916." I presume the only justification I have for appearing before the Société this evening is that I have had the good fortune of making a visit to France during war times, an experience which I shall not soon forget, and it is my sincere hope that I shall never be insensible to the responsibilities which go with such privileges.

The American Industrial Commission to France, of which I was a member, has issued a very full report of its findings entitled "Franco-American Trade," a volume of over 250 pages. The twelve Commissioners were all representatives of important industrial and technical associations; the speaker was the official representative of the AMERICAN CHEMICAL SOCIETY and The Franklin Institute. It is extremely interesting to look back upon the efforts of this group of men, representatives from a country which was then neutral. A repetition of this visit under present conditions with America on the side of the Allies would, undoubtedly, be of added interest.

It must be remembered that my remarks this evening are not of present conditions, but of conditions as we found them in the fall of 1916. Some supplementary material has been added, and consists of information general in character, which for various reasons it was thought inexpedient to publish at that time. I have also been assisted in selecting material for this paper by statements made to me personally by Professor Grignard and Lieutenant Engel on the occasion of their visit to this country some months ago.

With the latitude Dr. Baekeland has kindly granted, I have gone somewhat afield of the topic selected for

my address, and for convenience my remarks are grouped in two general divisions:

1—Subjects of interest, in France, to the American chemical industry.

2—Subjects of interest, in America, to the French chemical industry.

Before proper consideration can be given to these two subjects, we must presuppose that a state of mind exists regarding the meaning of the word "reciprocity," as no true progress can be made by the industries in these two countries without a full knowledge of what this term implies, and in this connection I think Mr. Frank Hemingway's statement, made at the St. Louis Meeting of the American Institute of Chemical Engineers, is pertinent, that "frequently wrong-minded public action is based on ill-informed public opinion." True reciprocity cannot be had without a knowledge of the facts in the case.

It is important to remember that on such a hurried trip as this—45 days' travel through France—no complete survey can be made of any one industry under normal conditions, let alone during war time, and this was our experience even though the Commission was granted very many unusual privileges by the French Government. I am giving you to-night, therefore, but a few impressions made during a hurried trip under expert guidance. We, of course, heard much from people in authority, and had many privileges not granted the ordinary traveler, such as discussions with Chambers of Commerce, economic associations, special Government commissions, and business organizations.

SUBJECTS OF INTEREST, IN FRANCE, TO THE AMERICAN CHEMICAL INDUSTRY

Any group of American chemical manufacturers seeking trade with France should have a thorough knowledge of the French language, and this is furthermore imperative if we are to be of any permanent help to this country in their period of reconstruction. It was the terse expression of opinion of the foremost American business men in France that "the export of American men should follow the export of American goods," and that these men should be representative and better qualified than those ordinarily assigned to such duties.

Knowledge of France and its people is also essential. Adventures have been undertaken and money lost, due to the lack of appreciation on the part of American concerns of the characteristics of the French people. The French are essentially artistic, are naturally opposed to production in quantity, which they call "series." It must not be overlooked that on account of their love of home, they often lack a knowledge of the possibilities of their own country. The banking system and the thrift of the French people should be common knowledge to all those seeking trade in this country.

The number of French technical schools is surprisingly small. One of the foremost educationalists advised us that there is a great need at the present time, by the French nation, for higher education. In 1914, the total number of students in Government universities was approximately 42,000 and of these about 15 per cent represented the foreign element. The above number of students could be grouped as follows:

| | Per cent |
|----------------|----------|
| Law..... | 38 |
| Medicine..... | 20 |
| Science..... | 18 |
| Arts, etc..... | 24 |

In this connection, it is of interest to note that on a basis of unit population, Switzerland has 300 chemists, Germany 250, while France has only 7.

It is commonly accepted that, pending the development of more technical schools in France, the young men will be forced to obtain their technical education elsewhere, and the United States has been preferred. It has been thought that the intercourse of the French and British soldiers has afforded the Frenchmen an opportunity to learn the English language, so that on this account such a step will be entirely practical. It is, therefore, our duty to prepare now for such a contingency. It seems to me that we should see to it that the rank and file of the French people know what educational facilities we have to offer.

As in our country, there has not been in France sufficient intercourse between the college professor and the technologist. I personally had a subject up for consideration with one of the prominent college professors in France, and failed to obtain an interview with the professor, as he sent back the report through his commercial representative that he was busy on other subjects and could not arrange to visit Paris for two or three weeks, and that on no account could he or his assistants take time to consider the commercial application of this work.

I think it is of interest to all American chemists to know of the work done by the Commercial Attaché of the American Embassy. An inspection of the list of subject matters passing through this office clearly shows how often are the attempts to embark on absolutely worthless projects. These ventures usually represent a serious money loss both at home and abroad.

My own experience permits me to endorse heartily the efforts of Lieutenant Engel and his confrères to have a French chemical publication of special interest to the technologists, as a gulf at present separates the college professors from those in direct charge of chemical plants. Lacking this intercourse, antiquated methods of manufacture are followed in certain branches of the chemical industry, which it is hard to believe can still be in use.

It is of interest for the American chemist to know that the French chemists are generally at a loss to account for our lethargy and slowness in adopting the metric system in America. It is to be hoped that one of the beneficial effects of the war will be the more

active study of this problem by the authorities in Washington. We surely ought to look for some accomplishment shortly.

SUBJECTS OF INTEREST, IN AMERICA, TO THE FRENCH CHEMICAL INDUSTRY

Much profit would be obtained by the annual visit of a group of men interested in the French chemical industry to this country, probably at the time of the annual chemical exhibition in New York. This character of legitimate advertisement is much needed and, in my opinion, would fill a very direct need. I consider that such a delegation should be made up of representatives from the industrial sections of France.

It is the duty of the French chemist visiting this country to acquaint himself with the many important associations interested in foreign trade. Such permanent exhibits as the Commercial Museum in Philadelphia and similar institutions should be visited.

It seems to me that much progress could be made by a study of standardization of chemical equipment in America, as well as in France. The manufacturers of both countries should seek counsel together. There is no real reason why prices of this class of equipment should maintain at the present high level, when in many cases the selection of three sizes—large, medium, and small—and the manufacture of these in quantities would satisfy all demands. The French chemical industry, however, is greatly influenced by the general tendency of the French people to have variety rather than quantity.

In the future development of the chemical industry in France, liberal use will, undoubtedly, be made of woman labor, as very gratifying results have been obtained in this direction during the past three years. Those best qualified to judge are emphatic in their statements that a return to old conditions cannot be made if competition is to be met and the quality of German goods equaled.

Raw materials from America is a subject which has received very active study by many companies throughout France. Much work still remains to be done before specifications are clearly understood by both parties. In many cases misunderstandings arise, due to poor translation. The present facilities for the translation of technical French in this country are wholly inadequate. Could not our universities profitably take over this work?

It was the consensus of opinion of all the Commissioners that the French people were more favorably disposed than ever before to American products. In certain factories making munitions of war, as high as 60 per cent of the mechanical equipment came from America. This surely affords a wonderful opportunity for follow-up trade.

It was our general observation that an arduous task will devolve upon the French manufacturer upon the return to normal conditions. Under stress of war-time manufacture, chemical control is not always

possible of attainment. It is generally conceded that the maximum efficiency can be secured only by the entire regrouping of many industrial sections, as a number of the chemical plants are illogically located. The majority of the more active chemical manufacturers fully appreciate the importance of increasing efficiency, but hesitate in branching out on new methods of manufacture on account of the enormous expenditures such a change involves. It is believed that the necessary encouragement from this side would enable them in future to compete with the efficiency of the German chemical manufacturers.

It would, no doubt, be of interest to give a few specific statements which may indicate the view-point taken by some members of the affiliated chemical industries of France.

PERFUMES—The French manufacturers were warned by some of their own trade specialists of the inroads that might be made by the synthetic perfume manufacturers of Germany. They did not take heed, however, maintaining that these artificial compounds could not approach the true perfumes of France. They have, however, recently decided to embark on the artificial perfume industry and to develop this trade in a logical way.

PETROLEUM—It was also acknowledged by a number of manufacturers that many changes will be needed in the factories now refining crude petroleums. They acknowledge that this industry before the war was conducted on altogether too small a scale to be profitable.

CELLULOID—This old established industry of France was inactive during our visit, owing to the fact that most of these factories have been commandeered by the War Department for the manufacture of nitro-cellulose. The love of the French for the artistic is well illustrated in this case. The French manufacturers in recent years have purchased large quantities of sheet celluloid from Germany and have manufactured this stock material into miscellaneous artistic articles.

ELECTROCHEMICAL INDUSTRY—This industry appears to receive very active study by both chemists and engineers. Extensive programs have been outlined and are now in process of development which will undoubtedly bring about many economies which were not formerly enjoyed by the French manufacturers. We heard of a number of cases where the Field Commanders were requested to release men from the front who were specialists along this line. These men were assigned to three to four months' study of this special problem.

RECOVERY OF SULFURIC ACID—We had the pleasure of meeting Mr. Kessler of the company by this name. He informed us that since the war began they had sold, up to November 1916, some 300 Kessler apparatus of varying sizes, and that their apparatus alone installed in France was equivalent to a daily capacity of 4,000 metric tons of sulfuric acid, 66° Bé.

DYES—The manufacture of dyes was receiving in

1916 the same attention in France as elsewhere. It is unfortunate that many are rushing into this industry wholly ignorant of the difficulties of this line of manufacture. It seemed to the Commission that the tendency in France was towards Government supervision and ownership of the dye industry.

PHARMACEUTICAL CHEMICALS—Few pharmaceuticals were manufactured in France prior to the war. Plans are now on foot to return to this manufacture, which, due to the special trade agreements with Germany, had entirely passed into their hands.

DENATURED ALCOHOL—The laws regarding denatured alcohol and its uses are being gradually revised. The same problem exists in France as we find in this country. On several occasions the writer had an opportunity to recommend a liberal extension of privileges for the use of this valuable solvent. As in many other cases, the Germans have been the leaders in this direction. There is no real reason why much of the Government red tape now required should not be eliminated.

It is of interest to note that, in 1913, 70 per cent of the denatured alcohol sold in France was used for heating and lighting, the balance representing that consumed in the manufacture of ether and explosives. It is also of commercial interest to note that some of the leading French economists have recommended to the Government fixing the price of denatured alcohol for a period of five years.

I cannot close my remarks this evening in a more fitting way than to voice the impression of all the Commissioners that the present industrial effort of France commanded our fullest admiration and to quote the following from our official report:

There is a striking resemblance between many of the social, industrial and commercial problems of the two sister republics, and there is evident a tendency to solve them on similar lines. Nothing could be more profitable than a joint comparative study of them.

THE GREAT EFFORT OF THE FRENCH INDUSTRIES

By MARCEL KNECHT

Member of the French High Commission to this Country

France has been invaded; France has suffered terribly. But France is in no way bled to death as the propaganda of the German emperor has tried to make you believe.

The French army—and I give you these, not my figures, but the official figures given recently to your War Secretary, Mr. Baker, by the French Commissioner, Mr. André Tardieu—the French army at the beginning of the war sent 1,500,000 fighters, and you know with what heroism those soldiers have been fighting, and you know how many of those have been wounded and disabled. Yet, still, through the energy of our soldiers, through the energy especially and the great spirit and sacrifice of the mothers of France who have sent all their sons to the front, we now have a fighting force of 2,600,000 men ready to keep up the conflict.