blanks mailed to each member for that purpose, of their intention to attend. This fact fully justified the appeal of the secretary during the meeting that in the future members give notification of such intention whenever possible, so that our hosts may have at least an approximate idea of the scale on which preparations for the meeting should be conducted.

THE CHEMIST AND RECONSTRUCTION

By WILLIAM H. NICHOLS, President, American Chemical Society

In accordance with the plans outlined by the Council at its December meeting, the Spring Meeting of this SOCIETY, now beginning, will devote itself in particular to questions of reconstruction facing us at the termination of the most destructive war that the world has ever seen. The solution of these questions will influence for good or evil the next century of the world's history. The chemist will have a very responsible part not only in the discussion, but in the work which will follow; and it is, therefore, with feelings of earnestness, soberness, and eagerness that we should approach the deliberations of the coming days. In all human probability, it will not be long before terms of peace have been agreed upon, and peace itself take the place of the unspeakable horrors of the years since August 1914. During that period, every public and private interest has been subordinated to the one question of winning the war for right and justice, thereby providing the firm foundation on which to build for the future. All over the world, civilized and uncivilized, there has been derangement beyond conception, and the first part of the reconstruction problem is to get back as soon as practicable to an approximation of the conditions of five years ago. Aside from the impossibility of restoring the millions of human lives which have been lost, and the other millions which have been tortured, and homes made desolate, the question of destruction, wanton and otherwise, of untold billions of dollars of property, cannot be adjusted by resolutions to be good in the future, even though regret for the past be honestly felt by the chief sinners, which I fear is not the case. The property has been destroyed and most of it can never be replaced, but out of it all has come the victory of liberty and freedom, the fruits of which if wisely directed will bring a new and better era to the world. Conversely, if directed unwisely or selfishly, we will have a new era just the same, but one which may put civilization back a hundred years.

We will be falling far short of a proper understanding of the difficulties and needs for reconstruction if we consider the task simply of putting back what has been displaced. We might just as well meet the matter fairly and squarely by recognizing at the outset that the world can never go back to where it was five years ago; too many things have happened in the interval, and too many thoughts and ideas have been in process of development during the preceding fifty years. A revolution has taken place, none the less effective because so much of it has been below the surface. It is perfectly true that a number of pressing matters on which the very life of the people depend must be settled, at least temporarily, before we can begin to live even ordinary lives, but we must not deceive ourselves with the thought that having temporarily settled these matters the whole question is out of the way. Let us set ourselves to briefly consider some of the forces that have been at work during the last half century, with the knowledge that whatever form of reconstruction the future has in store, these things cannot be left out of our calculation. Let us look at a few of the elements of this quiet revolution, in order that we may not be taken unawares at a later period by the inrush of some crushing force of whose existence we were wholly ignorant.

Enormous sums have been added to public debts during the last five years, but we must not forget that during a long preceding time this condition of mortgaging the future has been in somewhat steady and continuous practice. I have seen it estimated that public debts of countries and municipalities to-day exceed $315,000,000,000. I do not know how correct that estimate is, but I imagine it is below rather than above the mark. That is what the future has got to pay for what the past, including this terrible war, has done for it. Any honest consideration of reconstruction must contemplate a gradual lowering of this terrible debt, and its ultimate extinction. We have used a large part of our assets, and have gone in debt doing it—not good business practice you will agree, but one in keeping with age-long traditions.

An unknown force confronts us in this country by the gradual growth of sentiment which has resulted to a large degree in giving the vote to women. The question is not whether they are qualified to vote, but rather what will they do with the vote, and what effect will it have on our public life? As far as we have gone, it does not appear to have produced any startling changes in results, but I am not so sure that it will not eventually produce changes that will surprise us. Whatever the effect, it is a new and a little understood question, and must be taken into very careful consideration. Allied with this is the forced necessity of employment of women, in many instances to do the work previously done by men. Our experience of this phase has not been nearly as extensive as that of some of our allies, and yet the question is here, and has got to be considered if we are to make correct diagnosis of the future.

Employers of labor have realized for a long time that they have a problem to solve which is not an easy one. It is perfectly clear that we have passed the stage of public enlightenment which justified the employer, in his own mind at least, of looking upon his workmen as so many hands. It seems likely that the swing of the pendulum has carried it to the other side in which labor feels its ability to lead rather than follow. One of the greatest problems in the reconstruction period will be to find the point where both sides (if we can properly use that term) are fairly and justly treated. We have accustomed ourselves too much, I think, to consider the rate of wages paid to workmen as differentiated from the results the payment of a dollar will produce. We have got to learn, if we have not already done so, that labor efficiency is of much more importance than the rate of wages. The problem, therefore, must be solved not by one side yielding to the other, but by both meeting on terms of mutual friendship and understanding, so that the employer can pay the largest possible share to labor which, on its part, is rendering the largest possible amount of return. When this happy state is reached, it will be found, in my opinion, that labor in this country will receive higher reward than anywhere else in the world, and the employer of labor will at the same time be able to compete with any country in the world.

A careful study of this question cannot be made without due consideration being given to the change in the character of our population within the last fifty years, rendered inevitable by the large influx of immigrants, many of whom have remained to become incorporated into our body politic, but many of whom, I fear, have not lost the old world notions which they brought with them and which they strive, by unlawful methods, to force upon the freest people on the planet.

One of the recent questions which has unsettled our minds, as much as almost any other, has been the apparent necessity of the Government taking over the management of railroads and other public utilities. While this was done doubtless as a war measure, although it had been long in the air, there is an overwhelming feeling that we have had enough of it. This is a question which must be decided promptly and for all time.

It does not stand alone, but is part of a larger question, namely, whether ours shall be a government "of the people, by the people, and for the people" or something sadly different.

For many years, there has been a feeling, shared by a small but respectable minority, that the manufacture and sale of all alcoholic beverages should be prohibited. Suddenly, and to the surprise of the country, our Constitution has been amended to that effect, and whether it be the will of the majority or not, prohibition is in sight. This is no place to discuss the morals of that question, or whether light wines and beer should be excepted. It is the place, however, to point out that alcohol has many uses of great importance entirely aside from its occurrence in beverages. It is essential in so many of the arts and manufactures that a list of them here would be tiresome, even if it were not already well known to you. To any one not familiar, I recommend a study of an excellent chart prepared by the Industrial Alcohol Company. I hope that in the reconstruction period, no legislature can be fooled into forgetting this fact, or making it more difficult for the chemist and manufacturer to obtain at reasonable cost this highly important raw material.

We have heard much in recent years on the general subject of conservation of natural resources, including the utilization of our water powers. This has had the effect of bringing the importance of this question more or less to the attention of a great many people, but it has not yet led to a thorough appreciation of the vital importance of close attention to making the most of what we have left, after the extravagant uses to which we and our forebears have made of these resources. Petroleum, natural gas, anthracite coal, forest products, and ores of all kinds, hitherto considered to be inexhaustible, we now realize have very decided limits. Most of these when once taken from the ground can never be replaced, but this is not true at least of our forests or our water powers. Yet what have we done to replace the tremendous waste which our utilization of our forests has witnessed? In our reconstruction of the future, we should not only see to it that we use no ores or fuels wastefully, but that our forests should be regularly and methodically replanted and thus, climatic changes prevented, while forest products are produced sufficient for all needs.

Particular attention should be paid our magnificent stores of sulfur which, in spite of apparent abundance and cheap production, should be conserved to the extent that they should not be used where any other form of the element, such as pyrites, blende, etc., can fulfil its functions. At this stage of knowledge, the world should be too intelligent to wait until it has used up its resources before it awakens to the fact that the damage has been done, and nothing is left but to mourn. The reconstruction period will see a great deal done in lines of conservation, and it is on these lines in particular that the chemist will find his opportunity.

We hear a great deal about the unrest of the masses which comprise many of the workers, and much fear is entertained about what this will lead to. There are various reasons for this unrest, and some of these point to unfairness of certain employers of labor, particularly in the past. There is something in this, but not as much as many suppose. The condition of the worker and his reward have been steadily inproving for as long as I can remember, and yet we hear of unrest. You ask why, if the present system results in continuous improvement, should it be changed for something which, as far as evidence shows, produces nothing but sorrow and destruction? I think the answer to the question will be found in the propaganda of men and women who can make an easier living by talking than by working. During the reconstruction period, we must learn how to prove conclusively that our present civilization is based on justice and equity for all and thereby nullify much of the eloquence of the professional agitator.

There are many conditions, not enumerated, that have been quietly developing during the past fifty years, but I have cited enough to indicate the size of the task before us. It is a man's job. All can help who will, by the practice of very old virtues, which never need reconstruction, such as thrift, prudence, and regard for the rights of others. But the chemist can do all of these and much more, which no one else can do. Let him think of the factories to be run on constantly improved methods, the farms and enterprises of all kinds to be made more productive, the wonders to be unbarred by research, the future of the whole world to be ameliorated and broadened by his discoveries, and he may well feel proud of his profession. Joined in a great society like this, with twelve thousand of his fellows, no task should daunt him. He has not failed hitherto; he will not fail in performing his unique and absolutely essential part in solving the problems facing the world.

AMERICAN CHEMICAL INDUSTRIES AND THE TARIFF COMMISSION

By William Smith Culbertson

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The two outstanding general forces that operated during the war to modify and, in some branches, revolutionize the American chemical industries were the isolation of the Central European Powers which cut off their overseas trade and the enormous demand for chemical products in the prosecution of the war. How far-reaching these influences were I need not discuss in detail before this learned society. You are more familiar with them than I, and your work has been a determining factor in assisting our industries to meet the crises through which we have passed. The American public now realizes as never before that the chemical industries are in many particulars essential in the pursuits of both war and peace.

Of the industries affected by the war conditions, the coal-tar dye industry is the most familiar to the general public. The months of famine which followed the last direct shipment of dyes from Germany in March 1915 were more potent arguments for the diversification of American industrial life than a flood of oratory. An infant industry came into being and thrived under the protecting influences of the restrictions on the commerce of foreign competitors. The new industry has shown some of the failings of youth, but it cannot be gainsaid that it has met the situation and that to-day the production of intermediates and dyes represents an important American industry.

Not so spectacular but nevertheless significant was the development under the war influences of many other chemical products—potash, synthetic nitric acid and ammonia, barium salts, synthetic phenol, thorium nitrate, phosphorus, oxalic acid, and chlorine and its products. The natural disadvantage under which some of these products—potash, for example—are produced, makes their production in the United States in the future highly problematical. Others, however, will remain a permanent and important part of our industrial life. Thorium nitrate represents an interesting case of the effect of the removal of German competition. With the exception of the thorium nitrate produced by one large-sale manufacturer of incandescent gas mantles for his own use, our supply formerly came from Germany. But at the present time the monazite sand of Brazil, which before the war was shipped to Germany and there by complicated processes converted into thorium nitrate, is now shipped direct to this country and is being consumed by our own enlarged industry. Such changes as these had taken place in our industrial structure before April 1917. Our entrance into the war brought added complications. War restrictions in some lines delayed development or diverted energy. The progress of the new dye industry was, for example, hampered