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CONTENTS

Page

SPEAKER -- Mr. Howard Coonley, Chairman, Executive  
Committee, American Standards Association .....1

DISCUSSION ..... 11

Captain Worthington  
Mr. Coonley  
Students

THE INDUSTRIAL COLLEGE OF THE ARMED FORCES

Washington, D. C.

RESTRICTED

STANDARDIZATION.

10 December, 1946.

CAPTAIN WORTHINGTON:

It is a pleasure this morning to welcome Mr. Coonley back to this College.

Mr. Coonley was graduated from Harvard in 1899 and has been actively engaged in industry ever since. He served as Chief of the Chemical Warfare Procurement District from 1925 to 1932 and as director of the Conservation Division of the War Production Board from 1942 until the close of the war. He was selected by President Roosevelt as advisor to the Chinese Government in organizing the Chinese War Production Board. He is a past President of the National Association of Manufacturers and was President of the American Standards Association in 1933, 1934, and 1935. He now occupies the position of Chairman of the Executive Committee of the American Standards Association and devotes virtually all his time to that organization. In October of this year he was elected President of a new international organization which will be known as the International Organization for Standardization.

His subject is Standardization.

MR. COONLEY:

I always feel apologetic, gentlemen, after I have listened to a recital of all the crimes I have committed during what to me seems a very short life. This is the fourth time I have appeared before you, though not always in the same capacity.

I am going to divide my talk today into two parts. The first I am going to call anecdotal and the next part I am going to call factual. So that I won't be skipping around too much I am going to read the latter part, but I do want very much to carry you into the background of my interest in standardization; for I think it is perhaps the most basic thing to mass production and through mass production to our American form of economy.

You realize from the Captain's introduction that I have been in possibly a long time. After I had topped the steps from office boy to Salesman and Assistant Manager in one of the old time companies my brothers found that we had inherited from father a small amount of money which we wished to put into some industry of our own, so with that small amount and with what we could get from others and later what we could borrow we started this production manufacturing company. For six years I struggled, first as Vice President and later as President, because my two brothers left and went into business for themselves. I struggled against a situation in which on Friday night I was never sure whether I was going to be

able to handle my Saturday pay roll. It was all a great teacher because somehow and in some way I did find enough money to pay on Saturday what I owed Friday night. At the same time it caused me to do a great deal of thinking and planning. The business was a small one and I officiated as sales manager, production manager, accountant and office boy because I couldn't afford to have experts to do that part of the work that is normally done by experts. I learned the necessity of saving waste and of achieving methods by which to speed up repetitive jobs. I found economic ways of carrying on the business outside of the production end, and those methods and those procedures were real standards. Those were the days of the Frederick Taylor system and I had discovered a good deal of that system and I applied it to my own business with very considerable success. I will call it a modified system, because Frederick Taylor, like most geniuses, was meticulous in dotting every "i" and crossing every "t", and that is not quite practical and that is not what standardization is. But without realizing it I was practicing standardization in the early phases of my business life. Then I went with the War Economy Board in 1913, and soon we acquired another plant in the Middle West, and soon after that I undertook one job which the Captain failed to mention, and that was joining the Emergency Fleet Corporation as an officer in charge of administration, and we were charged with building cargo ships, tanks, and troop ships but not fighting ships. It was in my experience with the Emergency Fleet Corporation that I ran head on into the importance of standardization because in those days we were just beginning to think in terms of interchangeability. I remember going down and talking with Mr. Baruch, who headed up the War Industries Board, and Archie Shaw, who was his right-hand man on the Conservation Committee with Baruch who was one of the fathers of standardization. I remember the situation was so new when we went to building those Rock Island ships, the first prefabricated types, and we ran out of Wilcox boilers and some other boilers. I then went back and began to think in terms of standardization in my own company and I set up a small committee and found that they had done nothing to implement standardization; that they had no interchangeable plans. That led me to realize I couldn't do anything much without bringing my ideas along, and we set up one of the earliest standardizing bodies. I paid the penalty for putting the idea into effect by becoming the Chairman and I have been Chairman ever since. I found we couldn't accomplish much without going to our customers, because our customers as far as the design and performance of valves was concerned had that as their individual problem. As I remember it, one of the most difficult things I faced was where, in a single year about fifteen years ago, six of the major oil companies came out with specifications for a 150 and 300-pound steel valve and steel fitting for the petroleum industry. No two dimensions in any of those two sets of specifications were similar, and the companies announced that beginning at the end of the year they would buy no valves and no fittings in those two pressures that didn't follow their own specifications. My engineer came to me and said, "You know what that will cost?" I said "No. What?" He said, "Two million dollars at least to make all the patterns, tools, jigs, and fixtures for all the sizes in those two lines of valves. We naturally said, "We don't have

the money. We have got to do something about it." So, through the standardizing body the American Petroleum Institute we explained our situation and asked if they wouldn't sit down and help us out of the dilemma. In situations not quite so serious as that, but still serious, I had found in looking around for some group that would bring together the producer and the purchaser and also the distributor, the American Engineering Standards Committee, which was at that time just about to be reorganized as the American Standards Association. I won't describe that at the moment because I am going to tell you something about that later, but here I found an important valve group of the petroleum industry and other groups that were interested in the same type of valve. This group would sit down with our distributors and with some representatives of the Government departments that were concerned and work out a standard that was perhaps a compromise. When it was completed it was satisfactory to all those groups, because no one standard is approved until there is a complete consensus of agreement. With the use of the A.S.A. in connection with those valves we were able to build up a single line, a standard line, which saved our industry millions in money, and has saved much for the oil industry and others. I had felt that having done my bit in world War I, I was immune from World War II, but I was making a big mistake. When I was in El Paso, one of Nelson's assistants asked me to come to Washington and set up a Simplification program. I won't go through the gyrations of my mind at that time. My company was pretty important to the situation and I felt that I was more important to my company. However, I did accept the assignment in Washington for three months to establish a Simplification Branch in the Conservation Division. I am going to say something about simplification later so I won't go into it any further at the moment. Let me say, in the 70-odd orders, as I recall, that were issued by the War Production Board, more than 50% of them had simplification clauses. When it came time for us to examine the methods by which that Committee considered those orders we didn't find a group that wanted to do away with the simplification provisions. As soon as Rosenwald decided he would have that branch of the Conservation Division I became its Director. I was also dealing very largely with what I called the corollaries of standards--specification simplification and substitutions, and what you might call straight standards. All through this time and all through the World War II period we were speeding up our operations of developing standards essential to our production program. There are friends in this room--a number of them--who took part with me in that development. We produced 150 emergency standards during the war. We had to do with such important things as radio and radar, and those emergency standards were in addition to the standards that we developed under the regular A.S.A. procedure.

I will touch on just one more anecdote and that was my experience in China. I went over into China in early November, 1944, and stayed until April, 1945. I have had many interesting experiences in my life but none I feel that compare in interest and in--what shall I say?--contentment and satisfaction with this. Before I went over I was warned

that the Chinese would make promises they wouldn't fulfil; that they wouldn't be frank; that they would take three or four times as long to carry out an assignment as we did in this country. Not one of those things proved to be true, and when I landed in Chungking with Donald Nelson and a group of some fourteen experts, most of them, experts in production of one sort or another and top-ranking experts, we found that the only thing that had been done was to appoint a chairman on the newly created War Production Board and give him a small staff. As they knew nothing about the War Production Board program on this side and know very little about the organization and about the science of management and production, we as advisers were forced to do the job for them, and we had amazingly intelligent cooperation. We arrived in Chungking on the 16th day of November, and my assistant, named Jacobson, who had for 2½ years been one of Donald Nelson's ablest assistants, sat down and wrote what they called the organic law for their War Production Board. As the job had to be done quickly and completely we called on the legal assistants of our various war agencies, the Economic Board, the Vice Premier of China, and we put into that law the ideas of our own War Production Board, the Defense Plants Corporation, the Office of War Manpower, and the Office of Defense Transportation. We completed that and about ten days before Donald Nelson came back it had his blessing. He gave it his blessing and it was then made the law of China on the 16th day of December, in just thirty days. You couldn't call that a slow operation. In the meantime they had their organization set up and were beginning to speed up the war production. I say that because the group of us that went over there on this American production mission was working side by side with the Chinese assisting them, not by a survey or by a report sent to them but by working there with them on the job under the officers in their plants, and the response of the Chinese was amazing. They are wonderful workmen. We found technicians in China that were as good as any we have over here but they didn't know how to use their techniques. They have some marvelous research chemists trying to operate a chemical company, but they had great handicaps. There was practically no transportation. Everything that came into China came in over the Hump. They were up against most amazing difficulties. About 96 percent or 97 percent of everything that was moved was moved on the backs of men, women and children or in push carts pushed by men, women and children. They had only a fraction of manpower that was necessary for all their plants; I have seen plants that were moved from other areas put up in temporary buildings in the suburbs of Chungking and Kunming. The materials they were working with we would hate to put in a furnace, but they were making a product out of them.

What I want to bring to your attention is that with all of those handicaps the greatest handicap that we had probably lay in their lack of standards. Some German machines, some British machines, a few American machines, but they had no standard tools, they had no standard designs, and even the tiny screws and nuts and bolts that we had to use had to be put on a lathe and hand-fitted. That brought to a climax my belief that standardization is essential to an industrial economy.

Now let me pass to what I call the practical part of this talk. This is a practical problem.

Like any other responsible American executive, I am eager to make this country's industrial machinery a tool of peace.

No one could realize more acutely than do I the fact that there is no ultimate profit in war either for industry or for industry's workers, - the average citizens of the United States

I believe firmly, however, that one of the best guarantees of peace is an America so strong industrially that no other nation dares take liberties with its determination for a peaceful existence.

Meantime, however, I judge we were brought together here for a severely practical purpose. You are charged as professional officers with the task of putting together on a continuing basis, plans for war mobilization which will be needed if ever again an aggressor brings conflict to this nation.

I, in my role of citizen and spokesman for industry, am here to tell you why I believe so fundamentally in standardization, and to point out how I think this marvelously flexible tool can be best used for national security.

To tell you this story as simply as possible, I intend deliberately to ignore many of the useful peacetime ends to which standards can be put by industry such as reducing operations and costs, cutting needless executive decisions which take their toll at the top in time and energy of key men, and eliminating needless delay in developing specifications which already should be at hand for emergency use.

I add only that industry must be encouraged to develop all the standards it can in times of peace, and for peacetime use, so that they are ready for your use if war ever again comes to this country.

We have fought our last war on a basis of improvised cooperation between industry and the armed forces. There never again will be time for hit-or-miss development of team-work between the chief buyer in war, the government, and the supplier, American industry.

Let us move, therefore, directly to the problem. I intend to answer, so far as possible, four fundamental questions:

1. What are standards?
2. How are they developed, and what part in their development is played by ASA, the overall coordinating body for 100 trade, technical, governmental and consumer bodies interested in standards on a national scale?

3. Why are these standards necessary to industry in time of peace, and why should the services encourage their use, regardless of war prospects?
4. What part will these standards play in another war, if the country again is attacked?

#### What Are Standards?

The broadest possible definition of standardization is contained in the Encyclopedia Britannica article on this subject, written by Dr. P. G. Agnew, Vice President and Secretary of the American Standards Association.

Dr. Agnew defines standards as "the establishing, by authority, custom, or general consent, of a rule or model to be followed." There is another definition of Dr. Agnew's which I prefer, "A standard is a solution of a recurring difficulty." I will add to this that a standard is also a basis for planning. Sound standardization is not regimentation. Is it not the creation of single models that must be followed. Standards as we employ them are dynamic, not static. They are specifications that must be continuously reviewed and modified as required to take advantage of scientific advancement. ASA reviews its standards at least once every three years.

Language is the most important example of standardization that man has brought about. Words are sounds whose meanings have become standardized and so form our principal means of communication.

But beyond this point, standards are so varied in their approach to our human need of uniformity for the sake of efficiency that it is possible here only to mention a few which are of direct interest to this gathering.

To purchase, we must have the standard of value, money;

To account for our purchases we must have all the varied standards of forms and documents;

To operate a modern technical economy, we must have the strictest kind of standards for size and shape which provide the interchangeability of parts and supplies;

To make these parts and supplies work to their greatest advantage we must have concentration upon the optimum types, sizes and grades of manufactured products, a procedure which is called "simplification";

To order efficiently, we must have specification and grading rules which avoid hours of labor of technicians in specifying the goods needed for an individual product;

To arrive at these specifications and grading rules, we must have accepted methods of testing materials for their performance and suitability to the job in hand;

To keep workers on the job, we must have safety and sanitation standards which protect the industrial employee.

The way in which these standards obviously must fit into any industrial mobilization plans will be clear to you by their mere enumeration. To bring some aspects of them home to you, I have only to call

your attention to the talks recently reported as in progress between our own army authorities and those of Great Britain.

Some of the projects reported by the Associated Press in a Washington dispatch of November 24, as under discussion, included conversion of the British Enfield army rifle to .30 caliber to permit use of American-type cartridges; some indication that they may be seeking to acquire rights to the Garand; and numerous similar mutual problems.

Already we have gone far in this British-American standardization. In such fields as anti-aircraft weapons (where incidentally we both used the Swedish designed 40 mm BoFors); in anti-tank armament where we used the British 57 mm gun; in light machine guns where our Browning, converted to .303 caliber, was a factor in the battle of Britain in Spitfire fighters; and in other ways which it is needless for me to recall to this group.

How Are Standards Developed?

Standards may be developed by an individual organization; by an industry through its trade association, such as the National Electrical Manufacturers Association or the American Iron and Steel Institute; by a technical society, such as the American Society of Mechanical Engineers, American Society for Testing Materials and Society of Automotive Engineers; or by the American Standards Association at the request of one of its member bodies, associate members, or company members, or by one of its own correlating committees. Only when a standard has been approved under ASA procedure does it become an American Standard.

The American Standards Association is the top coordinating body in this country for the development of industrial and consumer standards. It is a federation of about 100 trade, technical, governmental and consumer groups who are interested in standardization as a tool for a more efficient national economy. The American Standards Association consists of a Board of Directors chosen from executives of its member bodies which determine policy matters, and a Standards Council consisting of technical experts representing member bodies. This Council carries out the standardizing procedures through sectional committees.

The American Standards Association provides its members with the necessary machinery to sit down together and develop voluntarily standards which are actually the most practical compromise between their often conflicting interests.

Because these standards are voluntarily arrived at, they are readily accepted. To use only a single, uncomplicated example, if all the makers and users of screw threads arrived at a mutually agreeable schedule for thread pitches, the problem of uniformity would be virtually non-existent.

Several hundred organized groups in the United States contrive standards useful to their own members, and often to others interested in their

products. Much of this work is done under accepted ASA procedure, and probably the bulk of it comes eventually to ASA for its approval.

The function of ASA is to examine these standards. It must make sure that all of the groups who have a legitimate interest in any given project have an opportunity to participate in its development. When any such project has achieved the approval of the ASA Standards Council, it is published and made available nationally. Thereafter, anyone in industry, in government, in the armed service or elsewhere, is free to make use of the standard to guide its manufacture or ordering in the most efficient way.

#### Standards Are Necessary in Peace as Well as In War

In times of peace, an industrial economy which produces the greatest possible volume of goods with the least possible lost motion is, other things being equal, a flourishing economy. It is a profitable economy in peacetime. It is a bulwark of safety if war comes.

The development of an adequate body of standards, which makes it possible, in ordering finished items or parts that are needed, to make each part fit with dozens of other components into a smoothly functioning whole, whether that whole is a machine or an army of ten million men, and to know afterwards that your payment covered guaranteed sizes and qualities, is no less useful in peace than in war.

It is important that the armed services play their indispensable part in the development of an economy which is able to produce goods on this basis.

By the development now, in a time of peace, of standards and specifications for current and future needs, the armed services can go far to assure that such needs will be met by industry quickly and economically. But it is of the greatest importance that the armed forces cooperate with industry to unify standards so far as is possible without interfering with military requirements. Special designs for the Army or Navy, where not essential, slow down production and increase costs. The recent establishment of the Advisory Council to the Federal Specifications Board should be helpful in accomplishing this important goal.

Insofar as representatives of the armed forces participate now in the over-all work of ASA and in the technical work of the hundreds of associations and companies whose standardization efforts head up in ASA, they are laying the groundwork now against a future emergency. Never again will there be time to prepare after the emergency has arisen.

I hesitate to enter into a catalogue of the literally thousands of items which the armed forces use, or may need to use in the future, whose ultimate shape, form, size or performance will be set, or at least influenced, by ASA projects now under way or in prospect.

I pick a few which may be of particular interest to you.

Component parts for radio and radar equipment

Measurement and prevention of radio interference

Determination of the speed of photographic film

Specifications for photographic exposure meters

Electrical measuring instruments

Welding apparatus

Such common place items as pipe, pipe fittings, desks, filing equipment, office machines, laboratory equipment and supplies.

The Aircraft Industry Association through its National Aircraft Standards Committee recently has signified its intention to join the ASA in initiating the first nation-wide projects in aircraft standards.

The American Foundrymen's Association, representing key manufacturers of industry components, has likewise indicated its coming participation in the work of ASA.

The Screw Industry Standards Committee has become a member body of ASA in the past year.

The Society of Motion Picture Engineers has just joined this federation.

Other groups who have shown definite interest during recent conversations with myself and General Donald Armstrong, formerly Commandant of The Industrial College of the Armed Forces, include canners, air transportation companies, rubber manufacturers, food industries, air conditioning and refrigerating machinery, magnesium, zinc, aluminum and lead producers and fabricators, railway equipment concerns, glass, silk and rayon manufacturers, chemical companies, and dozens of others who are now and will continue to be prime suppliers of the armed forces. All of them are as essential in war as in peace.

The greatly widened field for the use of standards in the industrial sector is clearly indicated even by this brief catalogue. There is every indication that industry plans to proceed on a much wider front in the development of standards in the future.

I mention merely in passing that the budget of the ASA, which is supported by industry, will be approximately five times as large in the coming year as in the year of greatest activity before the war.

To maintain our economic leadership American industry must continuously develop standards which increase our production efficiency. The genius and technical know-how of the Army and Navy engineers are as important to our peacetime advancement in the field of standards as they are essential to provide for our national security.

#### Standards for Another War

I have indicated earlier that I abhor the thought of another armed conflict. Since it is your duty, however, to see that the country is protected in every way possible against such an unhappy eventuality, I venture to suggest to you certain areas in which you can use the tool of standardization as a bulwark for the national protection.

The enormous amount of work which was done during the last war to assure that Army and Navy specifications were met by industry, or as often happened, were brought into a realistic relationship to what industry actually could produce, might now well be reviewed.

I can imagine no more fruitful cooperation between industry and the armed services at present than a thorough review of purchase and performance specifications, sizes, and material requirements for goods which the Army now needs or may need in the future.

Such an undertaking on a cooperative basis between industry and the forces might well prove the difference between immunity from foreign aggression or succumbing to it. Before they undertook World War II, the Germans had spent years in developing standards for their guns, ammunition, and transportation and fighting equipment. It was to a considerable degree their foresight in creating standards for mass production that gave them such a head start over the Allies. In fact, German standardization had been carried out to such a degree that it had frozen areas which in this country have remained fluid and flexible. On the other hand the Allies suffered severely in the early stages of the fighting for lack of interchangeability of components and of standard specifications that are requisite for large-scale sub-contracting.

It was not until 1943 that the British and Canadians joined Americans in developing unification of such essential elements as cylindrical fits, acme and buttress threads, glass gages and Whitworth screw threads. As a matter of fact work on screw threads by the three great nations is still going on and the final solution is not yet in sight.

I cannot consider my subject adequately covered without speaking of the importance of international standards. Before World War II there was an international organization in which the Germans took a prominent part. This was put in cold storage and a temporary agency set up among the Allies known as the United Nations Standards Coordinating Committee. That has recently been succeeded by the International Organization for Standardization to be known as I.S.O. Twenty-five nations participated in setting up the I.S.O. The organizing meetings were held in London in November of this year.

It is significant that the Russians now have the largest standardizing body, with 200 engineers and technicians. They have issued 7,000 standards and are turning out new ones at the rate of two a day.

The French are now the second in size, with a total of 100 on their central staff and an additional 120 in their industrial departments. The French are issuing standards at the rate of one a day.

The British are third, with about 155 on their staff.

The American Standards Association is fourth, with a staff of 80. I do not intend to intimate that the size of a staff is the measure of its effectiveness. ASA's staff is outstanding able though small.

In conclusion let me say that the present state of the world suggests that never again should America fall behind other industrial nations in so important and varied a field of technical endeavor.

Thank you.

CAPTAIN WORTHINGTON:

We are now ready for questions.

A STUDENT OFFICER:

Is there any tendency along the standardization line towards the adoption of the metric system of weights and measures?

MR. COOPLEY:

I can't say there is any tendency. It has been under discussion. It would be a very good thing to put over in this country. From my point of view all the arguments are in favor of the metric system. There is under discussion now the importance of finding a standard table of measurements between the two systems. A translation of one system into the other is the first step in that direction, but there is nothing actually going on undertaking to spread the use of the metric system to the rest of the world. I think if we once got used to the idea over a period of years there would be a number of advantages, and it would be the ideal thing to do.

A STUDENT OFFICER:

The Treasury Department has a program for standard commodity classification. Can you tell us how that fits in with the American Standards Association and whether you feel that it has any possibilities that would assist us along in nomenclature.

MR. COONLEY:

That is going to fit in very well. Fortunately the men that head up the Treasury Procurement, Mr. Mack and his assistant, Willis MacLeod, have been very closely identified with activities in the field of standards as have Colonel Neis and Colonel Fitch during this war. They believe in the fundamental importance of standards. The Federal Specifications Board has set up early this year an Advisory Committee to sit down from time to time with the Board to see if they couldn't

synchronize the standards as between the military requirements the other government requirements, and particularly industrial requirements. This last week the same Advisory Committee to the Federal Specifications Board, of which I happen to be Chairman, has also been asked to act as an advisor on this commodity catalog and I think ASA will be brought in very close contact with it. There are some items where we cannot have a single standard for the Government and industry but those are very few, and it is all working in that direction. I hope that answers your question.

A STUDENT OFFICER:

You mentioned the condensers industry. The Army and Navy specifications for condensers seem to be higher than those for the commercial. How would you suggest that they be standardized? In other words, the Army and Navy apparently have a hard time buying condensers because the commercial condensers don't meet their specifications, and they refuse to stop the production line to meet the Army and Navy specifications.

MR. COONLEY:

I think that if the Army and Navy would sit down with, for instance, the A.S.A. Committee covering the particular product that you have in mind that the A.S.A. standard could be brought up to the actual requirements of the Army and Navy. One experience I have had in industry is that when you try to better the quality of your production, when you try to bring your machine practices to closer tolerances you go through a period of tremendous losses, but out of that you find that you are able to produce the better quality and closer tolerance with no more loss and no more cost. My company has found that to be true over and over again. There is one thing about Americans and that is that they are ingenious and they are determined, and if they have something to do they find a way of doing it. During the war we had to bring the Walworth Company's specifications to closer tolerance than we had been used to, but after we had gotten accustomed to that for a month or two we would go along with no more losses with the close tolerance than we did before under the old conditions.

A STUDENT OFFICER:

Will you briefly review some of the action taken by the A.S.A. to secure immunity for industry's action in arriving at the standardization program--immunity from the Justice Department and particularly the Anti-Trust Division.

MR. COONLEY:

I have never known the Anti-Trust Division or the Department of Justice to say you can do that. They often say, "You can't do this", but sometimes they will indicate that they have no objection. We have discussed this from time to time, but the very basis of the A.S.A. procedure

is democratic and not monopolistic. When you have the producer and the consumer and the distributor and the government agency all sitting down together and reaching an agreement on a voluntary basis, it is pretty hard to prove that such action is monopolistic or contrary to the laws of this country. Frankly, my own feeling is that the A.S.A. procedure is a little bit safer from that point of view than the procedure of the Division of Commercial Standards or the Division of Simplified Practice that is developed under the Government. They are not quite so careful in bringing all the people involved into their discussions in the formulation of their standards.

A STUDENT OFFICER:

You spoke of attempts at international standards. I wonder what attempts are being made right now to standardize drawings. What are we doing with standardization of our own drawings of Army property?

MR. COONLEY:

We are working on standards now for drawing and drafting some practice which I think will be tremendously helpful. As yet it has not been taken up from an international aspect. That is because we have now twenty or thirty suggestions for international standards, and you see international work has been largely in cold storage during the war. The Germans were very active in the original International Standards Association. That was succeeded by the United Nations Standards Coordinating Committee which carried on some war projects. Now there is a new association which will undoubtedly begin to work on the standards that can be undertaken without too many complications. One thing I found in China was that all their power equipment was made to the British standard. Where we want to get in, we have to have set up separate power units. There are certain very difficult political aspects to that situation. We can't compete with other countries for replacements and supplies on a basis of equality. We are apt to develop some difficult situations. The railroads are also equipped almost entirely with British standard rails and motive power. On the other hand, most of the trucks in China were American trucks.

A STUDENT OFFICER:

I see that every three years you drop your A.S.A. specifications. Isn't there any danger of strangulation of development by a fixed standard on many things?

MR. COONLEY:

If there is, it is not proper standardization because that is the last thing that should be done. If there is restriction and it is handicapping ingenuity there is something wrong with the standards.

A STUDENT OFFICER:

Has there been any attempt to standardize metal alloys?

MR. COONLEY:

Yes, there has, some. Of course that largely would be done by the American Society for Testing Metals. They are working on a part of that now. When they satisfy their own engineers then they come to the A.S.A for processing. There is quite a lot of work coming up in the metal alloy field now.

A STUDENT OFFICER:

You spoke of the standardization of our munitions of war with those of our potentially friendly nations. Has any consideration been given, or what consideration should be given to the non-standardization of our munitions of war with those of our potentially unfriendly nations?

MR. COONLEY:

Well, no real consideration has been given. When I indicated that we ought to bring our standards, industrial standards and Government standards--particularly military standards--in harmony I also said "as far as we can in the interest of security." I mean there are certain things that won't allow that. I don't know how we would prevent the Germans from picking up our standards and producing guns and munitions that would use our components and our supplies. I don't think that could be done. At the moment we are trying to confine our work to our allies in World War II.

CAPTAIN WORTHINGTON:

Thank you very kindly for your very interesting talk.

(12 Feb. 1947-350)E

\* AAF Modification Centers

Col. B. L. Boatner

11 December 1946

\* Not returned by the speaker.

461

\* Foreign Production Methods and Controls

Mr. Watson O'D. Pierce

12 December 1946

\* Not returned by the speaker.