STANDARDIZATION AND INDUSTRIAL MOBILIZATION
13 June 1946

146.10

CONTENTS

Page

Introduction - Brig. General Donald Armstrong, USA, Commandant, The Industrial College of the Armed Forces 1

Guest Speakers - Mr. Howard Coonley, American Standards Association 1

Mr. MacLeod, United States Treasury Department. 14

General Discussion. 11

General Armstrong

Mr. Coonley

Mr. MacLeod

Students

STANDARDIZATION AND INDUSTRIAL MOBILIZATION
13 JUNE 1946

GENERAL ARMSTRONG:

Ladies and Gentlemen: The interest of The Industrial College of the Armed Forces in standardization is well known to all of you gentlemen who are taking the course. There has been a struggle necessary, as a matter of fact, to keep standardization out of the reports that have been made up to this date, pending the more careful and both intensive and extensive study of standardization that would be made in the last period.

Standardization can help tremendously in not only diminishing the cost of wars but also in making them easier to conduct. My own experience, as Chief of the Tank-Automotive Center, some six months, in Detroit, convinced me that standardization is an essential part of our peace-time planning for the future. If you knew the numbers of hundreds of thousands of automotive parts that had to be taken care of, which could certainly have been decreased by proper thinking and planning, you would realize the importance from the point of view of conduct of war in the field of standardization. It is of equal importance, if not greater, to the economic welfare of the country.

Fortunately, in the United States, an agency which is civilian operated and lead, is responsible and has charged itself with this business of standardization. We are going to hear this morning from the head of that organization, the American Standards Association.

Mr. Coonley graduated from Harvard in 1899 and has been in industry ever since. His chief industrial experience has been running the Walworth Company which all of us know in the Army and which the Navy probably knows even better than the Army; and in that organization where valves and things of that sort were the product, you can realize how Mr. Coonley early in his career must have come in personal contact with the need for standardization. I am not going to tell you all the companies with which Mr. Coonley is connected, but he is participating in many phases of the American economic scene. He was Chief of the First Chemical Warfare Procurement District from 1925 to 1932; Director of the Conservation Division of the War Production Board, from 1942 on.

Ladies and Gentlemen, it is a privilege to present to you Mr. Howard Coonley who will speak on "Standardization and Industrial Mobilization." Mr. Coonley.

MR. COONLEY:

Thank you General Armstrong. It is a particular pleasure for me to be here this morning; first of all, I have had a close association with

the Armed Services over a period of many years which includes two World Wars; secondly, because of that close association, I have overcome my timidity of uniforms; and, lastly, because I am going to speak on a subject that has been very close to my heart for more than 30 years -- Standards -- which I call the keynote of mass production.

My interest in standards was aroused originally in World War I when as Vice President of the Emergency Fleet Corporation, the predecessor of the Maritime Commission, I had among other things, the responsibility for procurement. At that time, our program of production was tremendously handicapped because of an almost entire lack of interchangeability. I remember when we were producing the first fabricated steel ships and those ships had been designed for Babcock and Wilcox boilers. We couldn't get enough Babcock and Wilcox boilers for the ships and had to look elsewhere. In order to use the other makes of boilers, we had to almost entirely redesign the pipelines. And that was only one of many incidents met with that convinced me that something would have to be done if we were ever to have another World War. It also convinced me that I had better look further into standardization.

Then when I went back to the Warworth Company, I set up a Committee to study standardization. At first we had standardization between our two plants but I found that we couldn't get very far without bringing the whole industry into our work. So I was instrumental in setting up a Standardization Society of the Valve and Fitting Industry. One of the difficulties of starting a thing of that kind is that the responsibility is always pinned on you, and I am still chairman of the society which has been a very potential influence in the whole valve and fittings industry.

Then I found that our industry could not do much without bringing into our deliberations those who were concerned with our product, the users and the merchants. I remember at one time when my Chief Engineer came to me and said, "Mr. Coonley, six of the major oil companies have come out with standardization of their own on steel valves and steel fittings. No dimensions in any of these standards are similar. What are we going to do?" "Well," I said, "what does it mean?" and he said, "It means that six sets of special valves, and six sets of special fittings will have to be made, and the patterns, jigs, tools and fixtures for each size of valve will cost us $75,000; the fittings from 25 to 30 thousand. It would mean an investment of 2 million dollars." I replied, "We just haven't the money to do it." That led me to consult the petroleum industry and later to discuss standardization of valves and fittings in other industries. That, in turn, brought me to an association which at that particular moment was called the American Engineering Standards Committee, later reorganized as the American Standards Association.

I immediately became involved and was made a Director of the ASA representing the American Society of Mechanical Engineers; and as a representative of one or another society, I have continued to be a

Director ever since. Through ASA procedures, we have developed standards for valves and fittings for all the great industries with which we deal, and practically every industry in the country was tremendously assisted by this method of arriving at a consensus agreement on standardization.

Now with all my high regard for standards, I never realized what they truly meant until November 1944 when I took off on a plane for China, as Deputy to Don Nelson, in setting up a Chinese War Production Board. I wish I could take you to China just long enough to make you realize that it is a country that is working under conditions that were existing in this country fifty or more years ago, yet working with perfectly amazing results. I think the greatness of China was brought home to me when we took that trip over the Hump. Fortunately, it was a very beautiful day, perfectly clear. The day before, we had flown from New Delhi to Chabua in the Northeast corner of Assam, the jumping off place for the Hump, following the line of the Himalayas for some hundred miles and seeing them so perfectly that we felt as if we could reach out of the plane window and touch them.

We spent the night at a tea plantation in Chabua and took off the next morning for the greatest airplane trip in the world. It was a clear day and we didn't have to fly very high. We went through the great peaks at 16,500 feet, of course, in our oxygen masks, and, of course, having parachutes fastened to us. The plane never wabbled; and after going through the high peaks, the pilot dropped down to 8,500 feet so that we could see the terrain under the Hump. There were no valleys through those mountains. You could see that these precipitous cliffs went down to ovals and circles and in the bad weather chimneys were created that have been so disasterous to the boys who flew three or four round trips in 24 hours. Let me say that I think that Hump flying was perhaps the most dangerous flying in the whole war, because in the month of February, when we were in China, 19 planes were lost going over the Hump and only one of the crews was rescued.

That journey gave me an idea of the magnificence, the greatness, of China; and my four and a half months' experience there gave me an idea of the greatness of its people. At that time, the Chinese had been in their war for seven and a half years. Everything had been going against them. There were times in Chungking when it was a question as to whether or not the Japs would break through their line only 275 miles from the capital, yet the people had not lost their morale, although it was pretty low.

Well, I haven't time to stop and describe any more of the situation within the producing plants of China at that time. Practically every plant in Chungking, which was the largest industrial center in China, and Kunming, the second largest, were refugee plants. They had come from Shanghai, or Tientsin, or Hankow, or Canton, and as the Japs advanced, they picked up all their machinery and equipment that they could and carried it over roads and up rivers, and when they arrived at their destination, they found the Japs bombing those cities daily. In order to

safeguard their situation, they set up temporary buildings for each small department; scattered over a large area in the suburbs of those cities; and put the finishing departments in caves in the mountains. They had the greatest possible difficulty in planning and scheduling their work, and practically no transportation facilities, as well as almost no power.

But even as bad as that situation was, the toughest thing we had to tackle was the absolute lack of standardization. There wasn't a standard bolt or nut or screw in free China. Out of the worst possible scrap -- material that we would consider unfit to put in furnaces in this country-- they were making such things as motor generators, walkie-talkie machines, telephone equipment, yet every screw and nut and bolt that went into this equipment had to be chased on a lathe and hand-fitted. There we had a clear picture of the absolute essentiality of standardization to efficient production.

When I came back from China in a standard C-54 plane, traveling on standard Army priority orders, with a standard oxygen mask on one side and a standard parachute on the other; going through the standard times of these different countries, operating in and out of the Airports on standard rules, I said, "How can these people fight a battle? And how could we possibly have won the war without complete -- almost complete -- standardization?"

After World War I, I thought that my duties with the Government were over, but in the spring of 1942 I was called by Don Nelson to set up a Simplification Branch in the Conservation Division. Sometime, I think, General Armstrong, it would be worthwhile for the College to study what was accomplished through simplification, which made quite astounding savings both in material and in manpower and in the resulting output. I have here a few facts. Our first 75 simplification orders, issued in 1942, saved 600,000 tons of steel, 17,000 tons of copper, 227,000 tons of wood pulp, 35,000 tons of solder, 180 million yards of cotton, wool, and rayon cloth, and 450 million board feet of lumber. Those figures may sound fantastic, but they are some of the results of that type of standardization, within whose realm comes specifications, simplification and certain phases of substitution. In the Conservation Division, over which I have presided, our major savings were made through the facets of standardization.

Now one of the great problems and opportunities we had during this war was to synchronize Government's needs with industry's experience and knowledge and ability to produce. Even though the war is over, I am glad to say that we shall be continuing in this work. More recently I have been very happy to accept the Chairmanship of the Industry Advisory Council to the Federal Specifications Board, of which Mr. MacLeod is the Executive Head, because through that council and through that close cooperation I believe we can bring into much better unity specifications for the Armed Services and for industrial purposes. Frankly, I believe, there is no fundamental reason why they shouldn't be synchronized, except in some cases, where there are secret weapons, or where there are some particular products that the Army and Navy need

and that industry does not want.

After the Civil War, the Army and Navy were buying goods on specifications. In fact, one of the biggest complaints of industry and the Conservation Division, at the beginning of the second World War, was that certain Army-Navy specifications had not been revised since the days of the Civil War. Let me say for the Army and Navy that they got very busy, at that time, and they are progressing very rapidly and in close cooperation with the civilian agencies.

It is a tremendous job to keep these specifications up to date from the point of view of what the Armed Forces need, and also to keep in touch with the new materials and new methods in industry that require changes in specifications. For example, new paints and a new method of spray painting may make more than one coat of paint unnecessary, but it is hard to get the specifications changed from six coats to one. The Armed Forces have certain special requirements, but in general they use all the products of peacetime, and the closer they can keep their requirements to the production experience of their suppliers in industry, the easier will be the job of procurement.

One of the ways in which the Armed Forces have maintained the close contact with industry which their procurement program demanded has been through such industrial standardizing groups as the American Standards Association. This is a federation of nearly 100 national trade associations, technical societies, and governmental agencies. Your own War Department, Navy Department, and U.S. Treasury Department, which is in charge of the work on federal specifications, are members of the Federation.

The Army and Navy have always been fairly active in ASA technical work since even in peacetime the Armed Forces are a big purchaser of industrial products. Before Pearl Harbor when the country embarked upon a program of preparedness, it was natural that the Armed Forces should call upon the American Standards Association for additional help. Once we were in the war, this help from the ASA was more than doubled so that by 1944 the bulk of the ASA work was being done for the government, much of it under contract.

Altogether, more than 150 separate standardizing jobs connected with the war effort were completed by the ASA before V-J Day. This work included a whole series of specifications for the components used in military radio and electronic equipment. It included standards in the field of photography and cinematography, work on screw threads, on welding equipment, on electrical indicating instruments used in the panels of tanks, ships, aircraft, etc. It included standards for safety clothing, safety shoes, and for safe practices in the war industries here at home.

As a tribute to the value of these standards, the American Standards Association was twice decorated for its war work, once by Army Ordnance,

and once by the Navy Department. All of this work was aimed toward conservation of scarce materials, savings in manpower, simplification of types and sizes, interchangeability, or reduction of inventories: for example, in the variety of spare parts that had to be supplied to our scattered battle fronts.

ASA's role in this work proved particularly important to the Armed Forces because it brought the experience and knowledge of industry into these standardization jobs. In work on radio and electronic parts, for example, the Armed Forces sat down around a table with industrial representatives and outlined what they needed. Industry worked out a method of providing it, but made suggestions on the specifications that frequently increased the speed of production and cut down the cost. During the war years the uniform and insignia of the Signal Corps, the Air Force, and various other branches of the Army and Navy were as familiar a sight in ASA technical committees as were the business suits of company executives and technical men. Industry and the Armed Forces worked side by side in all of these ASA war committees.

Since much of this ASA work is continuing on a peacetime basis and is still of value to the Armed Forces, I think you will be interested in a little information on how the ASA operates. The ASA was born out of the production problems of World War I, and in the 25 years of peace between the two wars it built up a backlog of more than 700 industrial standards which are used widely by industry and government today.

(Mr. Coonley then spoke on various slides from a movie projector as follows:)

ASA

Probably many of you recognize the ASA symbol. You have seen it in valves and fittings catalogues, identified with pressure ratings for pipes, in advertising for radio parts, in advertising for safety shoes, etched on the safety glass of your car windshield. This symbol means that the product conforms to an American Standard. For example, the windshield glass has passed tests for distortion of vision, shatterability, etc., that guarantee a certain margin of safety to the motorist.

SLIDE I

I would like to say a word about standards as a tool of management. Most executives today are so used to standardization in our business operations that we hardly think about it. Standardization however, is not only an engineering function. Executives are using standards more than they realize. The advantages which my company has reaped from the extensive use that we have made of standardization could, I believe, be summed up in the phrase "reducing things to simple routine". Standard procedures have cut down the pressure on executives from top to bottom

of our company, releasing them from the necessity of making many minor decisions. In fact, standardization is a major key to administration. When a company has introduced a well-rounded program of sound standards for office, purchasing, and operating routine as well as for engineering and shop practices, that company is well along toward an effective organization and an efficient management.

At one time in my own industry, two of our principal consumer groups - power plants and petroleum refineries - were demanding valves and fittings for both temperatures and pressures very much higher than had ever been used previously. Had it not been for standardization we would probably have been faced with a medley of specifications not only from each of these two industries, but from each of the companies that purchased valves and fittings from us. As it was, all of the groups concerned unified their requirements through standardization into a single coordinated system of standardized dimensions for higher temperatures and pressures. This job alone has saved my company hundreds of thousands of dollars.

SLIDE III

In general trade follows the standards, whether we are speaking of business here at home or business with some other country. It is no mere chance that most of our export trade before the war was across the Atlantic to Europe, and that Germany whose industrial standards were translated into Spanish and Portuguese did a lot of business with Latin America. During the war the American Standards Association has been doing something to counteract this through an active program of cooperation with Latin American standardizing agencies.

The ASA is also taking active part in setting up a new international standardizing agency. A number of our people are going over to Paris this summer in the hope of setting up a permanent international standardizing body.

SLIDE IV

I am frequently asked what a standard is. A standard is a solution to a recurring difficulty. Whole dictionaries of trade terms have been developed to bring about a mutual understanding between buyer and seller. By establishing uniform symbols and measures, millions of dollars have been saved during the war. The battle of North Africa brought out the importance of interchangeability of parts. As you remember, large numbers of tanks had to be abandoned on the field for lack of repair parts; but by the time of the second campaign much of the trouble had been overcome through better standardization, and better distribution of spare parts.

During the first world war, when I was with the Emergency Fleet Corporation, our shipbuilding program, as I told you, was seriously delayed because the lack of standards of equipment prevented interchangeability. In the second world war we have overcome many of the deficiencies of non-standardized production thus saving many millions of

dollars of war costs, and months of production time.

Construction and performance specifications for materials and products provide a smooth running relationship between buyer and seller.

Uniform methods of testing give us a guarantee of continuity and remove the unwieldy process of having to sample each order.

As late as 1926 traffic on Fifth Avenue started on yellow, stopped on green, and red was the caution signal. The traffic in other large cities was controlled by different color systems and in fact, there were 15 different combinations of colors being used throughout the United States. That we now have a uniform system of traffic signals which is being adopted throughout the world, is due largely to the American Standards Association. This is one of more than 100 safety standards developed and approved by ASA.

A simplification of types and sizes has been used to reduce the number of designs for steel poles for electric transmission from 1100 to 16. What simplification of types, sizes, grades, and colors mean to business management or to army procurement, I don't have to tell this group. Industry has reaped great benefits from savings through simplification of design and the elimination of slow-moving products. These savings have to a large extent been passed on to consumers in the form of reduced prices.

SLIDE V

I am dismayed by finding that there is so little understanding of what a standard is. Still many executives of large companies think of the standards as in clothing, a single uniform in a product, as a single pattern. Of course, that is absolutely untrue. I think, perhaps, in my own industry you can illustrate what is meant by standards by saying that a standard is based on a definite face to face dimension; on a definite thread and a minimum material content depending on the pressure. But there has been no effect whatever on the style of the product and today I can go into a factory and I can tell you from the door which is a Crane valve, which a Walworth and so on. There need to be no similarity in appearance. There still can be a quality advantage.

SLIDE VI

When the individual companies, technical societies, and trade associations found that they could get further by working out some of their standards jointly you have the beginning of standardization on a national scale. You then have the ASA committee table with representatives of all groups gathered around it. The ASA does its work with the active participation and by the consent of all groups having a stake in the job. There is full participation of all interests in all decisions.

Now very often the ASA procedure has been criticized for the fact that it is rather slow. I think ways have been found -- are being found now -- to speed it up. But inevitably any decision arrived at by consent of groups of varying interest is slow but very sure. American standards that have been established are absolutely voluntary, yet the method by which they are established give the effect of mandates.

SLIDE VII

To do this job of standardization by consent, the American Standards Association has developed an effective working relationship with the 96 national trade, technical, and governmental groups that actually make up the ASA. The Board of Directors and the Standards Council are chosen from these groups, assuring a voice in policy of every member of the federation. The staff works with these member groups and serivces the many companies that also hold membership in the ASA and the technical committees that take part in the actual development of American Standards.

SLIDE VIII

These technical committees work in a number of different ways, all, however, based on the active participation and consent of all groups with an interest in the standard. The method most commonly used is called the sectional committee method. A group or company requests a standard. The job is authorized by the Standards Council. A technical committee is formed of members appointed by the interested groups. Subcommittees draft the standard. Send it out for trial and criticism. Very likely they have to redraft the standard. The full committee then votes on the standard and following this preliminary approval the standard is brought before the Council for final consideration. It is then published with the ASA symbol of approval.

SLIDE IX

Other methods of approving standards are in general merely short cuts of the one just illustrated. For example, the "Existing Standards Method" is particularly useful when a group requests adoption of its own standard which is already in wide use. In such a case as this, the ASA calls together all groups which might be affected by the use of the standard. These groups are asked for written comments and opinions or they are invited to a meeting. If all of them voice approval, the standard then goes to the ASA Council for review. It is then published, as any other American Standard, with the symbol of approval.

Let me say that a great many of these standards are initiated and largely developed by the technical societies, the American Society of Testing Materials, the National Electric Manufacturers Association, the American Society of Electrical Engineers (my own society of the valve and fitting industry has developed a great many standards) up to the point of satisfying the producer. They are then placed before the ASA

for processing. The ASA brings in all the groups concerned and if the groups want some modification, they almost always get them.

SLIDE X

The American Standards Association examines its standards at least once every three years. It constantly watches manufacturers needs, consumer demands, and technical progress, so that standards approved by it may never become obsolete and thus act as a brake on the improvement of products and processes.

The tremendous job we have before the ASA is that we must review everyone of the 700 standards and we must reconsider all of the emergency standards. Most of the emergency standards were so well conceived that they will probably remain as is, some will be modified and some will be eliminated.

SLIDE XI

To give you an idea of the size of the job, ASA is serving more than 1,000 volunteer committees which represent a cross section of all American industry and business. This is in addition to the trade associations, technical societies, governmental agencies, and companies which hold membership in ASA and which are also receiving service.

SLIDE XII

How broadly the American Standards Association is representative of industry, can be seen from the fact that more than 3,500 individuals have been devoting their time and energy to committee work. There is no way to express the value of these personal contributions which equals many times ASA's total budget. More than 600 organizations are represented on ASA committees which combine the experience of the most important business and industrial groups in the country.

Government participation in committees shows a sharp increase since 1936, owing to wartime demands for the clearing house facilities provided through ASA.

SLIDE XIII - XIV

The output in standards of the American Standards Association has shot up since 1936 from a modest 667 to a total of 1507 at the end of 1945. This total includes new and revised standards. The total is more impressive when you realize that some of these standards contain hundreds of pages of text. This reflects the tremendous increase of interest in standards on the part of both government and industry in the past few years - and in the flexibility of the ASA's staff in being able to handle the growing demands through economical and efficient operation.

KS:rm
6-10-46

Now in closing these rather scattering comments on standards and the ASA procedures, I should like to call your attention to the fact that if it had not been for standard specifications, our record of war production and of assisting our allies and our own Armed Forces in winning this war would have been impossible. Some companies gave out as many as 2200 subcontracts. Not one of those subcontracts would have been possible without detailed specification. That made it possible for the subcontractor to produce an article, a component, that would fit perfectly into the assembled product. Standards were really the very heart of our production record.

And so, as you will see, I am perhaps the nuttiest nut of all on standardization. I believe it is something that you gentlemen in your studies here should take intimately into your picture because I think it is basic to our American enterprise system; it is basic to mass production; it is basic to the decrease in the cost of production. In these days, when wages are increasing and hours are decreasing and yet when there is going to be a demand for economic production of merchandise, at a price that the public is able and willing to pay, this method of reducing cost through standardization is one of the most effective implements we have had.

Thank you very much.

GENERAL ARMSTRONG:

Are there any questions? Mr. Coonley, may I -- and incidentally, ladies and gentlemen, I forgot to mention -- and I apologize to Mr. MacLeod -- the fact that Mr. MacLeod is here from the Treasury Department and has brought over a group with him from there. We are very happy to have you with us. Thank you very much for coming.

I would like to inquire whether the Nazi regime during the time they were in power, carried out a greater degree of standardization than has been characteristic of Germany previously. In other words, what is the effect of a totalitarian regime, if you know the answer, on standardizations?

MR. COONLEY:

Well, of course, I am so strongly against totalitarian regimes I can't see any good in them. I would say, however, that in certain ways they are effective. Germany began an intensive standardization a number of years before war was declared in 1939. Perhaps that could have been another one of the signs that evidenced their determination to go into war. They had an amazing activity in standardization at the beginning of the war. I believe they had several years' lead on us before we got into rapid action on standardization.

GENERAL ARMSTRONG:

Was there any criticism about that, such as freezing design and

QUESTION:

Do you charge for improving a standard?

MR. COONLEY:

No.

QUESTION:

No charge?

MR. COONLEY:

Company memberships pay in various lumps.

QUESTION:

Is it non-profit?

MR. COONLEY:

Non-profit. It is always struggling to obtain enough money to keep going. But recently there has been a marvelous reaction to our appeals to increase the ASA budget.

GENERAL FRASTROM:

Are the Army and Navy non-paying members of this organization?

MR. COONLEY:

General, the Army has contributed -- as a matter of fact, in 1945 we got $135,000 income from the Government agencies including the Army and Navy. We now have a contract with them.

My own feeling is that industry should provide these funds. Once in a while we will get a special job from the Army or the Navy which they should finance on full basis.

QUESTION:

Do you encounter any difficulty in getting cooperative work from competing firms through the fear that they might encounter some anti-trust law violations?

MR. COONLEY:

No serious ones. There are certain companies and certain associations that say, " e must check up with our lawyer." But I do not think, frankly that it has interfered with our work.

QUESTION:

Does organized labor make any contribution or have any actual association with it? Does organized labor make any contribution to the work of the association?

MR. COONLEY:

I hope very much that organized labor will make a financial contribution. I don't care how large it is. Organized labor is deeply interested and organized labor participates in some of our committees. We had one of the meetings of the Wilson Committee with the consumer groups. There were represented several of the labor organizations, the AFL, CIO and the Railroad Brotherhoods. The AFL and the Railroad Brotherhoods were very favorable towards the method of developing standards through ASA procedure.

GENERAL ARMSTRONG:

Mr. Coonley, I think that we ought to profit by the presence here of Mr. MacLeod and I think that you will be as glad as I would be to have Mr. MacLeod say a few words.

MR. MACLEOD:

Thank you General Armstrong.

I dare say, ladies and gentlemen, that all of us here do not have to be sold on the principle that Mr. Coonley has so excellently enunciated, that Government, industry, and the users should cooperate in industrial standardization.

From the viewpoint of the Federal Specifications Board, we intend to bring about to a maximum degree very active cooperation between the technical societies interested in standardization and, where it is most effective, through the American Standards Association procedure. It worked very nicely during the war.

There were several projects which Mr. Coonley mentioned that I was fortunate enough to participate in directly, and I can say to you that many fellows today walk because they had safety shoes that were developed under the American Standards Association procedure, and that job would not have been done had it not been for the availability of that facility. Again labor was very active in sponsoring and working with that project. And I find that more and more so the facilities of standards are of great interest and concern to the worker, so that I think the question was a very good one, that we must have the working man's viewpoint reflected in our standards work.

Mr. Coonley mentioned -- if I may take just another moment -- our plans for attaining the bias of industry in connection with the Federal

specifications program that makes it possible to achieve good quality commercial equipment wherever it suits our needs, so that we don't have to have a specialized requirement every time we require a common item supply. It is not our intention to adhere to stereotyped standardization as did our enemies in the last war. It has got to move along with every new development. We have got to be prepared to put our shoulders behind the wheel with the kind of technical people that are necessary to keep our standards and our specifications up to date. We haven't done that job and it is a job that has to be done. Certainly the Federal Specifications have not been attained up to date. Certainly there aren't enough of them.

COLONEL WESTLING:

Thank you very much, Mr. Macleod.

Mr. Coonley, I want to thank you very much, sir, for your very interesting contribution to our knowledge of standardization and of the American Standards Association and its work. I am glad that you discovered as a result of the wars that the formidability of the Army and Navy officers was greatly exaggerated; and you reminded me of something I read once in the life of Field Marshal Hay. He very unwillingly was detailed at the War Office in Great Britain but he said that he didn't consider his time wasted there; as a result of having spent a year there, he found out that it wasn't necessary to pay any attention to any official communication. Thank you, both of you.

(22 Oct 1946 - 200)-N.