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JOINT ARMY-NAVY STANDARDIZATION

26 February 1948

L48-94

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THE INDUSTRIAL COLLEGE OF THE ARMED FORCES
WASHINGTON, D. C.

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26 February 1948

COLONEL CRANE: Gentlemen, our speaker this morning needs no introduction to this audience. However, I would like to review briefly his qualifications to discuss the subject of standardization.

We have all encountered numerous instances of our specifications being unrealistic, too idealistic, and denominated largely by design-engineering concepts rather than practical realities. Our speaker this morning has had a wide industrial experience, not only in the design but in the production of ordnance materiel. During the war he had responsibility for spare parts; so he knows that side of the problem. I consider him one of the most admirably qualified men to talk to us on the subject of standardization.

At the present time he is Chief of the Procurement Group of SS&P Division, Army General Staff and is also serving as Chief of the Joint Army-Navy Specifications Council.

I take great pleasure in presenting General John K. Christmas.

GENERAL CHRISTMAS: Captain Worthington, Colonel Crane, fellow workers in logistics, and other gentlemen: When your distinguished Commandant, General McKinley, invited me to make this talk, I was both pleased and worried because it is a very important subject, it is a very difficult subject, and it is a very troublesome and misunderstood subject. As you all know, rank has its privileges. I exercised one of them and had prepared by experts a very comprehensive paper on this subject. It is a fine paper and I have it right here, but I am not going to read it. I have suggested to Colonel Crane--and he has accepted the suggestion--that the school duplicate this paper and furnish it to the committee and to the rest of you for reference. I want to say that it is an excellent paper, but I do not believe that I can get my ideas across so well from a paper prepared by other persons. Besides, I do not know everything that is in it. With that kind of a start, let us do what General Patton probably would have said--let's attack right away.

The first thing to do is to find out what we are talking about. Standardization is the subject I was told to talk about. Even within the War Department I find there are many different concepts. I think we are talking about two things. How can we have in the Armed Services less different types of equipment--less different shoes, less different rifles, less different types of trucks, food, uniforms, and what have you? That is one thing we are talking about. Secondly, how can we get

firing mechanisms, engines, pistons, and things like that, that wear out and that have to be replaced because of old age, bad usage, accident, or enemy action. What can we do about it? Is there anything we can do?

In order to be able to eat this elephant, let us break him down into little pieces. We can break this subject into two main pieces. There is one category of logistics where we reign supreme. It mainly concerns weapons. In the Air Force it would concern combat aircraft. In the Navy it concerns combatant vessels and their armament. In the Army it has to do with tanks, machine guns, artillery, and ammunition. There the Armed Forces design the thing themselves or they control the design. They lay down the general rules; and when the drawings are completed, they are the property of the Armed Forces. The specifications are our property. We can build the article in a Navy yard or in an arsenal, or we can have a firm build it, saying, "Make it just as it says here. Every one must be just like that, no different." When you get it, it will be the way you want it; and if it is not interchangeable or if it is not right, the fault lies with this group here and with our colleagues.

I imagine most of you have come from combat into this business. Perhaps you think a poor job has been done in that field. It is all a matter of which end of the telescope you look into. At least, let me give you the jump-off line. I cannot give you statistics from the Air Force and the Navy; I shall have to give you Army statistics. I do not believe there would be much difference, for mechanical goods, made of iron and steel and of high-quality workmanship, have a way of acting in the same manner whether in the air, on the water, or on the ground.

Let us consider small arms. We had the Tommy gun, the Garand, caliber .30 and caliber .50, the Bofors, the pistol, and so on. I am not a small-arms man; I cannot tell you how many there were, but I thought there were a great many of them. And we had their fire control accessories and their tripods. It took only 20,000 different parts to keep them running. I think small arms were one of the parts of the Army program best handled and best serviced, and naturally so; that was an old project, and such weapons are used by practically everybody. There you can see where you are; there is your line of departure. And the Lord bless you and your committee when you get into a job such as I am in now and help to cut the 20,000 spare parts down perhaps to 18,000 or 15,000 or 14,000, and so on.

Just tossing out the figure 20,000 does not indicate very much. It is similar to my once telling one of my youngsters how much money the Army was spending. She said, "Is that a lot of money?" I do not know how I can tell you whether 20,000 different parts to service all the small-arms weapons of the Armed Services is a great deal or not, but I can give you an example from a successful private firm. One of our leading manufacturers of track-type tractors, the type of tractor that most of

would shoot tanks, that would shoot airplanes, that would shoot everything; but when it was gotten out, nobody liked it. The antiaircraft fellows said it wasn't any good for antiaircraft, the artillery chaps said it wasn't any good for their work, the antitankers said it wasn't any good for their work--and we were right back where we started. I mention that in passing. It demonstrates the first category of our thinking: Get less types; do not have a whole array of artillery; have just a few of them, or one.

Our next category is still in this first major group where we control the design and where it is our own fault if it is not right, the tanks and other combat vehicles. We had a great many of them in the late war, but without the benefit of the years of experience working with them that we had in the case of small arms and artillery. They were really new, and the important thing was to get any at all. There was practically no emphasis laid on trying to make them interchangeable or to standardize them. There was no time. We were caught short. They were used in the late war by the Marine Corps, in limited amounts by the Air Force for airfield protection, and very widely by the Army and our allies. There were some 40 different and distinct types of armored combat vehicles. There, again, the fellow who wanted an amphibious tank did not want to have a heavy tank, and the fellow who wanted a fast, self-propelled antitank gun was not looking for an armored car. You had to have the different and special types on your shelf or your customers (the fighting man) would yell.

This category of some 40 relatively new and diverse types of armored fighting vehicles included tanks, self-propelled artillery, armored cars, and things of that sort; and about 75,000 different parts serviced those vehicles. I am excluding from that 75,000 the armament parts which come in the category of artillery previously mentioned. If there were machine guns on the vehicles, they would come in the machine-gun category. So the 75,000 parts I am talking about have reference only, in effect, to the chassis, the non-shooting parts. The gun mount would be included, however.

It seems as though we have now struck some pay dirt. Here is an area where, considering the limited manpower the Services can put on these things, we ought to and can make some improvement. Work is being done. For example, there is under development a standard line of tank engines where the cylinder, piston, and all the accessories are the same for a number of different engines. They vary only in the number of cylinders; and, of course, the crankshaft and crankcase vary therewith. There is much room for improvement; it is a good place to work. Automotive combat vehicles are a class of equipment that is gaining in importance. You can hardly distinguish the new infantry divisions from the armored divisions, I think, because of the number of armored vehicles in both of them.

I would like to talk a little more about this matter of reduction in number of types of weapons. That is in our own hands. It all depends on which side you are. The War Department at the end of the war appointed a special board headed by General Stillwell, now deceased. A very experienced group of general officers was on that committee. Each of the technical services and the ground forces appeared before that committee with prepared briefs to answer their questions. They were interviewed and again came back with answers. One of the subjects was concerned with trying to reduce the number of types of equipment.

It is just like sin: we are all against it, but what do we do about it? It certainly would be nice for the Quartermaster if he did not have to keep in stock all the 16 or more types of shoes he had in the late war and still has: tennis shoes, marching shoes, paratroopers' boots, nurses' shoes, officers' shoes, hip boots for Alaska, and all that. But if you do something about it, you also get in trouble. There is no doubt that the barefoot man would be glad to have any pair of shoes; but as soon as he gets through being barefooted, he would rather play golf in golf shoes, dance in dancing shoes, and have some kind of rubber shoes to walk on the slippery decks of a submarine or a destroyer.

What you have to do is make a command decision. It is the kind of job for which you are being trained. In industry one calls it a "managerial decision." Can we get by with three different types of shoes, 9, or 19, or can we run wild and have 200? Somewhere between the high number and the low one is the right answer. That is true whether you look at shoes, rifles, artillery, ammunition, tanks, or airplanes. If you get too few types, you will have a compromise; and it will not be as good for the job as the special article. If you get too many, you are going to have an awful time logistically and industrially.

You men, in a very short time, will be graduated from here. I hope some of you whom we have asked for will come up and help us work the problem out. You are going to be faced with that kind of thing and you are going to have some influence in working it out. It is not an individual matter. Should we reduce the number of radio sets so that they will be easy to service; should we have one set, or two, or should we have 40? There isn't any slide rule that will figure it out. You must figure it out.

We are now getting toward the end of this talk; we are also getting to the hardest and nastiest part, and that is the increasingly large group of commercial and quasi-commercial equipment that forms the housekeeping and logistic backbone of our efforts. In the Army it is principally trucks. Of course, the Air Force has to have those also. It comes in tractors to move dirt and make airfields. It comes in engines that the Navy uses in landing craft and in its small boats. It comes in all kinds of things that industry makes better because it has

were Ford-Belgium parts which they captured; here were Chevrolet parts from the Danish assembly plant; here were German trucks--they had every make of truck you could think of. I do not remember how many there were. They had the parts and the numbers pertaining to the parts as made by the manufacturers. He had the law but somehow he did not make it work. We can only think about that. What I am telling you I saw with my own eyes, and it is something worth thinking about.

On the north of Paris in the industrial suburbs, General Motors had a plant, not a manufacturing plant exactly, but a sort of monster dealer for the European area. The Germans had taken that over. At the time we were there it was an overhaul base shop. They were busy mostly putting coal-burning gadgets on the vehicles because they had no gasoline. That is incidental. The point I want to bring out is that their standardization program had arrived at the stage that in that General Motors plant there must have been about 600 vehicles of scores of different types. I cannot tell you how many there were, but I never have seen so many different types, ages, and designs of vehicles in one place as I saw there, not even in a motor-vehicle show. There were even some of those FWD's that I mentioned a minute ago which had been American artillery units in World War I. The Americans had sold them to the French, and the Germans had captured them from the French and were running them.

That is the jump-off line for the German standardization; and they had, I am sure, a very good law and means of enforcement.

What is the point of my saying all that? My point is that any armed force, in an industrial economy particularly, is an offshoot of the country; it must be like the country; it is built to protect the country; and it depends on the business and industry of the country. We cannot think that we can control industry. I know that is what you are thinking about. I know some of you, maybe three of you right in that row, are probably thinking, "We ought to get some tough general up here, or admiral, who will tell those fellows in Detroit and Pittsburgh how to do it." We just won a war to avoid that. That is my understanding. We had better get along with an industrial program. That industrial program makes more sense than you think.

I understand that you had a talk by one of the members of the American Standards Association. There is much excellent work going on in industry, in the American Standards Association, the Society of Automotive Engineers, the ASME. Thirty or forty societies are working, each in its specialized field. On most of those committees our military and other government people are represented. They are represented by professional engineers of the departments, by officers, and so on.

There is much progress. It is slow. It is evolution, not revolution. It is this way (indicating horizontal plane) not this way (indicating vertical plane); and I do not think we can make it any other way. That is our way of living over here, and I think we ought to pattern our Armed Forces on it.

it is going to be a tough one. But the engineers have it in tractors; the Navy has it in small-boat engines; and the Air Force has it--I do not know their equipment very well--no doubt in some of the accessories, and so on. At least say something about it in your report. We have the authority to go ahead. What we must do is go ahead in the right way and get this thing on the beam. It is a completely new deal for us. Under the old statute, 3709, we could not standardize anything. If you have not been in procurement, you will have to take my word for it. Standardization was just something we talked about, like going to heaven; but we never got any.

There are two other things to think about on standardization. This is not my idea. I have asked many men in industry why they do not standardize more. They say that standardization is the enemy of progress. Of course, some of it is progress; some of it is a desire, perhaps, to tempt the purchaser with something that looks new. After all, they must sell this stuff.

If you get into commercial articles, you will find that it takes about a year to write a specification. I do not know whether you have gotten to that part of the book yet. It is the most cumbersome thing you can be mixed up in. By the time you finally get your specification approved and go out to try to buy the article, you find that it is no longer being made. Industry is making something different, and it is probably better and cheaper. So you must get yourself in the frame of mind that a specification is just a piece of paper. We have gotten so much protocol into this specification thing that it is like amending the laws of the country. That is not what we are supposed to do at all. If you are in procurement, your job is to get something a fellow needs badly at the front, the right thing, and to get it there quickly.

Both in peace and in war you must tell a man what you want. In peacetime you must tell him more carefully on account of the laws governing procurement and the handling of public money. But really what you are doing is saying to Johnnie, "Go down to the corner grocery and get me a loaf of bread. I don't want any of that sliced stuff. Remember that." You say that to Johnnie; you give him a description of what you want. You say, "I don't want any of that dark bread, I don't want any whole wheat or rye, I want white bread." You hope Johnnie remembers that. You say, "Johnnie, I don't like the stuff that's been handled; I want it wrapped." That is your packaging specification. You say, "Johnnie, the last time you were down to the grocer's he gave you a stale loaf. This time you squeeze the loaf of bread; if it is kind of hard, don't take it." That is your inspection. That is all there is to this thing, except that our weapons are more complicated.

There is no mystery about it, in my opinion. You can write one specification today; and if you get a better idea tomorrow, you can write another.

That is the size of this subject. It is an important one. Progress is being made. A lot more has to be done. I hope many of you fellows will land up there where you can help us do it.

Thank you very much.

QUESTION: General Christmas, what if Johnnie comes home with a chocolate cake? What are you going to do then?

GENERAL CHRISTMAS: You had better get another son. Fooling aside, however, in time of war the fighting forces get first choice. We should not run the "specs" down to the class of some of the fellows we get for inspectors who are liable to bring home a chocolate cake or a pickled herring. That is one of the headaches on the industrial front when there is a war on. You cannot write common sense or brains into a book; but I think in your inspection for war, you must give a fellow a little leeway and trust to luck.

It is an excellent question and a major problem, Colonel.

QUESTION: Sir, along the line of interchangeability, one of the problems is recognizing interchangeability where we already have it. What is the present status of the Army-Navy Cataloging Agency or effort?

GENERAL CHRISTMAS: I am not very well posted on that because I am not directly a member of that agency. In our shop in the Department of the Army, the Supply Group is a member of that body. I am on the Procurement Policy Council; and according to its last report, I know it is getting along quite well, except for the fact I mentioned early in the talk, and that is that it is short of men and money. You have heard that one before. Their problem is to get enough money and people in their own agency, which is in the Board as a supervisory agency, and then in the Navy bureaus, at Wright Field in the Air Force, and in the "tech" services of the Army to carry the work out. But it is going ahead.

Does that answer your question?

QUESTIONER: Well, at the rate it is going, I am afraid, to judge from what we saw at the end of the late war, we won't be ready for the next war with any real degree of item identification.

GENERAL CHRISTMAS: You may be right about that, but what would happen if you did not have it? I mean, what is the reverse of the coin now?

QUESTIONER: What you have achieved in the trucks, for instance, by having 85 percent of three types, could be done in many other fields.

There is this point, of course: If you change your name from John Jones to Phil Smith, some of your mail is going to be delayed, and some of your classmates are going to wonder what happened to you, whether you are dead or not. It is the same way when you are looking for a part around a depot. If a part has been known as Dodge carburetor, part number so-and-so, and then it becomes known as NME gasoline evaporator, with a part number of 19 digits, when someone looks for the carburetor, he is liable to become a little confused. I am not arguing against that, because it would constitute a dictionary. When you get out into war, people do not pay much attention to the book. They are faced with the facts of life. When a man wants a part, he will come up and say, "I've got to have a Dodge carburetor." He'll pull out a Dodge catalog and say, "Here's the number. That's what I want." But many of those fellows cannot read numbers that long, and they cannot read words that long. You did not hire them for that. You hired them to fight.

We have the intelligence to work out any system. But you must consider that some of these other chaps, although they are nice fellows, are going to have a difficult time if our system is too complex.

QUESTION: Sir, if we are required to stay in competitive bidding during peacetime, how can we simplify our specifications without the risk of getting a fly-by-night contractor?

GENERAL CHRISTMAS: There are several ways. In some fields, if you really know your business, you can write a specification so that at least some of the worst of the chaps cannot qualify. That is first screening.

Second screening is a process known as an "accepted list" or "qualified products list." The Navy pioneered that. The Army did some work on it before the war. I do not know whether the Air Force did or not. You do it this way: You want some hacksaw blades. You know some of them are made out of such soft steel that they will not cut even butter. You cannot describe that very well in your specification. So you say, "Every manufacturer who wants to sell the Armed Forces shall send 50 hacksaw blades down to the Naval Experiment Station at Annapolis." The blades are there tested on hard steel bars. If the blade will not saw a bar in 30 minutes, say, and if 10 out of 14 blades break, why, the manufacturer of that blade is not in the club, he is blackballed. In that way you then get a list of reliable manufacturers, all of whose products are good, although they are not all the best. At least you have had another filtration, and instead of 30 people who make hacksaw blades, half of which is stuff they sort of fool the public with, you now have in the club only the fellows who are really in the business. You have not necessarily gotten the very best, but you have put a second protection in.

The third thing you can do, which is being discussed for potential use under this exception 13, is to have a competition. The Air Forces had a

he says the pepper ought to be a little bigger, or, "We are just about to develop some new pepper that doesn't catch fire in the Arctic." I am not being funny. It is a serious thing. Here is another one; I think it has been going on for years, although I may be wrong: They have been trying to standardize a small piece of radio equipment as among the three National Defense Departments. They were getting along fine until six months ago, they ran into the fact that the Navy did not want an OD--and I don't blame them--and the Air Force wanted their identification on theirs. It doesn't make any difference what color the set is. They can have them gold, for all I care. It won't hurt the manufacture, it won't hurt the interchangeability; but you have these experts that you are talking about who have their backs up. That is on my desk, and I must try to do something about it.

There are all kinds of commercial standards that we could accept and thereby achieve much progress, but we run into the fact that we have to get coordination. Whatever it is, there are many opinions on it. Have you ever been a mess officer? Have you tried to please 18 or 20 fellows in a mess? Some want a big breakfast, some want a small breakfast, some want no breakfast at all. It is the same thing here.

We are working in the Procurement Policy Council on a new specifications charter which is pending in the Munitions Board, where a fellow is given 60 days, at the end of which time the axe falls and before which he must have won his case or objection--or else. It is just like a pocket veto. We see no other way to speed this thing up. You are perfectly right in your analysis. There has been much effort in the last year to try to break that. But we are working with an old Spanish custom, we are working with people--and they are one of the hardest things in the world to work with.

QUESTION: General, can we expect the economies of resources due to standardization to be such as to force a speed-up of this evolution of standardization?

GENERAL CHRISTMAS: I do not think you can. Have you any figures that indicate to you that that might be useful?

QUESTIONER: No, sir. But we speak of a slow evolution. In another mobilization, from a resources point of view alone, are we not going to have to get together and have more standardization?

GENERAL CHRISTMAS: The general tenor of my talk was that we are not doing so badly as you thought. You apparently do not agree with that. You apparently think we are in bad shape. I do not say you are not right. You may have a more open mind than others. You are probably right. Do you mean, if we could prove to industry or the Government or Congress that this would save much money, they would be more interested?

QUESTIONER: I am not concerned with money, but resources. I am thinking about using limited resources in case of mobilization.

ITEM IDENTIFICATION

One of the prime requisites of standardization is a common terminology or "language." When items are differently described, it is difficult to lay even the basic ground work of standardization.

To create a system of uniform item identification for the National Military Establishment, the Munitions Board Cataloging Agency was created. The system will embrace numerous operations by both line and staff agencies throughout the National Military Establishment, and will involve the development of uniform item names, the preparation of adequate item desriptions, the assignment of common identification numbers, and compilation of all catalog data necessary for every phase of supply operations. These operations must be given primary consideration, since all other related operations rest upon them.

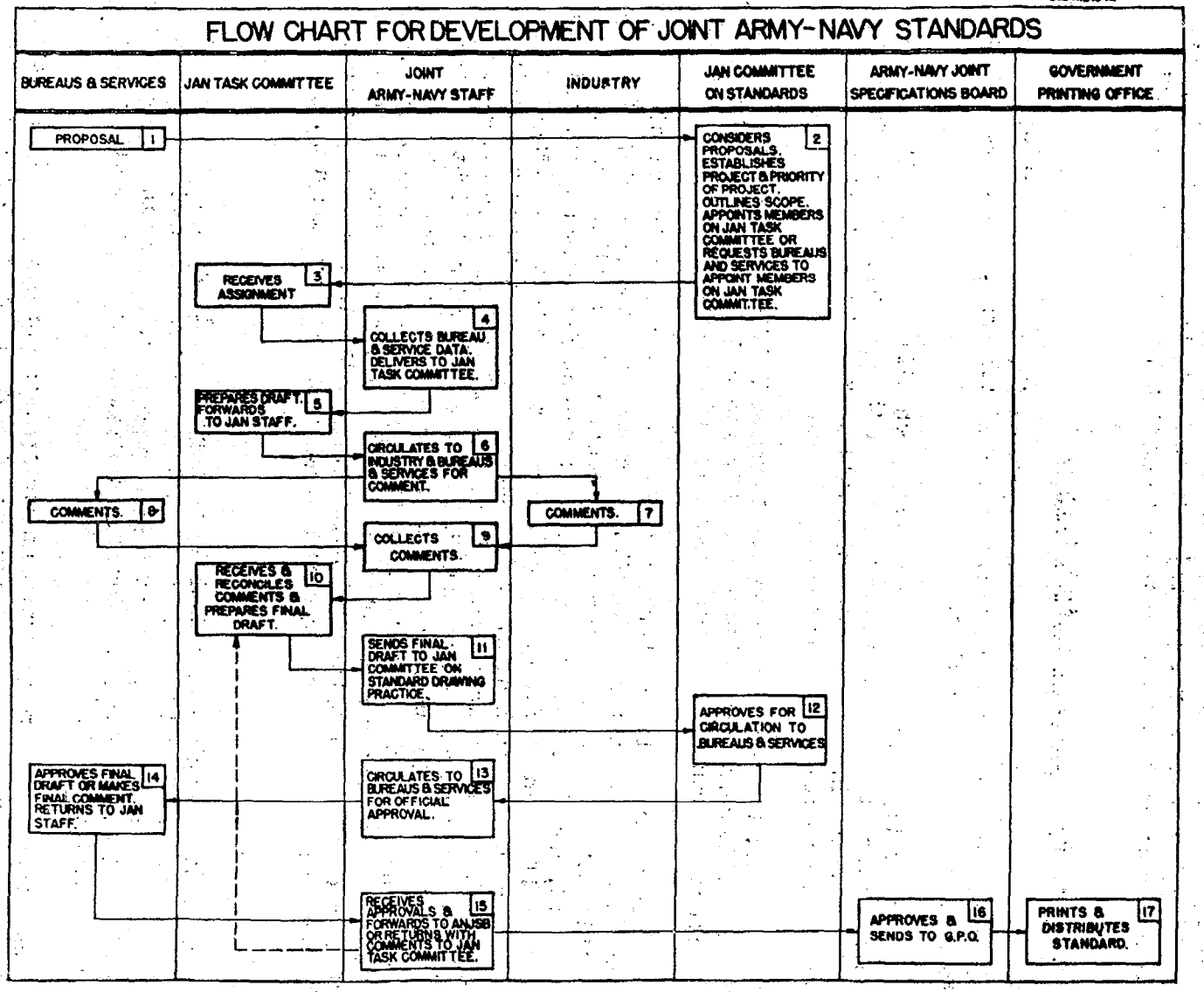
The problems existing today in the supply services will be greatly lessened by the establishment and operation of an effective cataloging system. However, the need for and use of complete catalog data extend far beyond the National Military Establishment. Such data are vital to the allocation of strategic, critical, and basic materials to industry to be used in the production of commodities of all kinds for the civilian and military economies. During past emergencies, a tremendous amount of time and money could have been saved if such information had been available, a fact well-known to those who played a part in procurement and production. Agencies like the former War Production Board, Civilian Production Administration, and Office of Price Administration would have gained much if complete and accurate cataloging data had been available as a basis of reference at the beginning of the emergency to enable them to trace basic materials to their ultimate use in the end products listed in catalogs. Also, in peacetime, and especially during periods of transition, disposal agencies require that complete and accurate supply data be furnished them for their activities when time is at a premium and decisive action cannot be postponed.

TECHNICAL PROCEDURES

The Armed Services program to coordinate existing drafting standards into a single set of comprehensive service standards for Drawing Practice, dates from a Joint directive issued 30 November 1944 by the Secretary of War and the Secretary of the Navy to the Chairman, Joint Army-Navy Committee on Specifications (now the Army-Navy Joint Specifications Board).

To carry out this directive, the Army Air Forces, Technical Services of the Army, and the Bureaus of the Navy (including the Marine Corps and Coast Guard) were asked to submit their views and recommendations in respect to the proposed standardization project. Based on these recommendations there was formed a Subcommittee on Drafting Room Standards

CHART 1



NOTE: AT ANY POINT THE TASK COMMITTEE MAY RETRACE ITS STEPS PROVIDED IT NOTIFIES THE CO-CHAIRMEN

Here we should consider the accomplishments of the National Bureau of Standards in simplification by means of Recommended Simplified Practices. These practices are prepared upon written requests from trade associations or responsible producers, distributors, or users. Tentative proposals are then circulated to all interested parties for comment followed by general conferences and finally promulgated when written acceptances represent at least 65 percent of volume of business in absence of valid opposition. These recommendations are then announced to those concerned and distributed for use.

As an example of what has been accomplished in the field of simplification within the Armed Services, reference may be made to the work done in the electrical and electronics field under the guidance of the Army-Navy electrical and Electronics Standards Agency (sometimes called ANEESA). We are told, for example, that there are now 3 crystal holder types and 6 electrical specifications where once there were 22 types and 125 specifications; one molded mica capacitor replaces 14; less than 900 of the 2,500 know electron tube types are used and procurement is being funnelled towards only 200 preferred types. Through simplification, (that is, selection of preferred items for incorporation in new designs), production is increased because of the fewer types and sizes, field replacements are facilitated, supply inventories reduced, interchangeability is assured and savings are effected in strategic and critical materials.

In the aircraft field, the work of the Aeronautical Board, particularly in cooperation with the Aircraft Industries Association, National Aircraft Standards Committee, and SAE, has been outstanding in accomplishing simplification.

With the number of items required to be supplied to a modern Armed Force numbering in the hundreds of thousands, there is a tremendous cost involved in their procurement, distribution, redistribution, stock control, storage, and other phases of supply. Any reduction in the number of items required to be handled renders less complex and confusing this vast "merchandising" function of logistics.

STANDARDIZED BODIES

The job of standardization does not lack for organization. A study made by the Department of Commerce in 1941 showed that there were at that time approximately 3,000 national and interstate organizations representing various industries in this country. Of these, 450 are national technical societies and trade associations which carry on standardization and simplification activities in one form or another.

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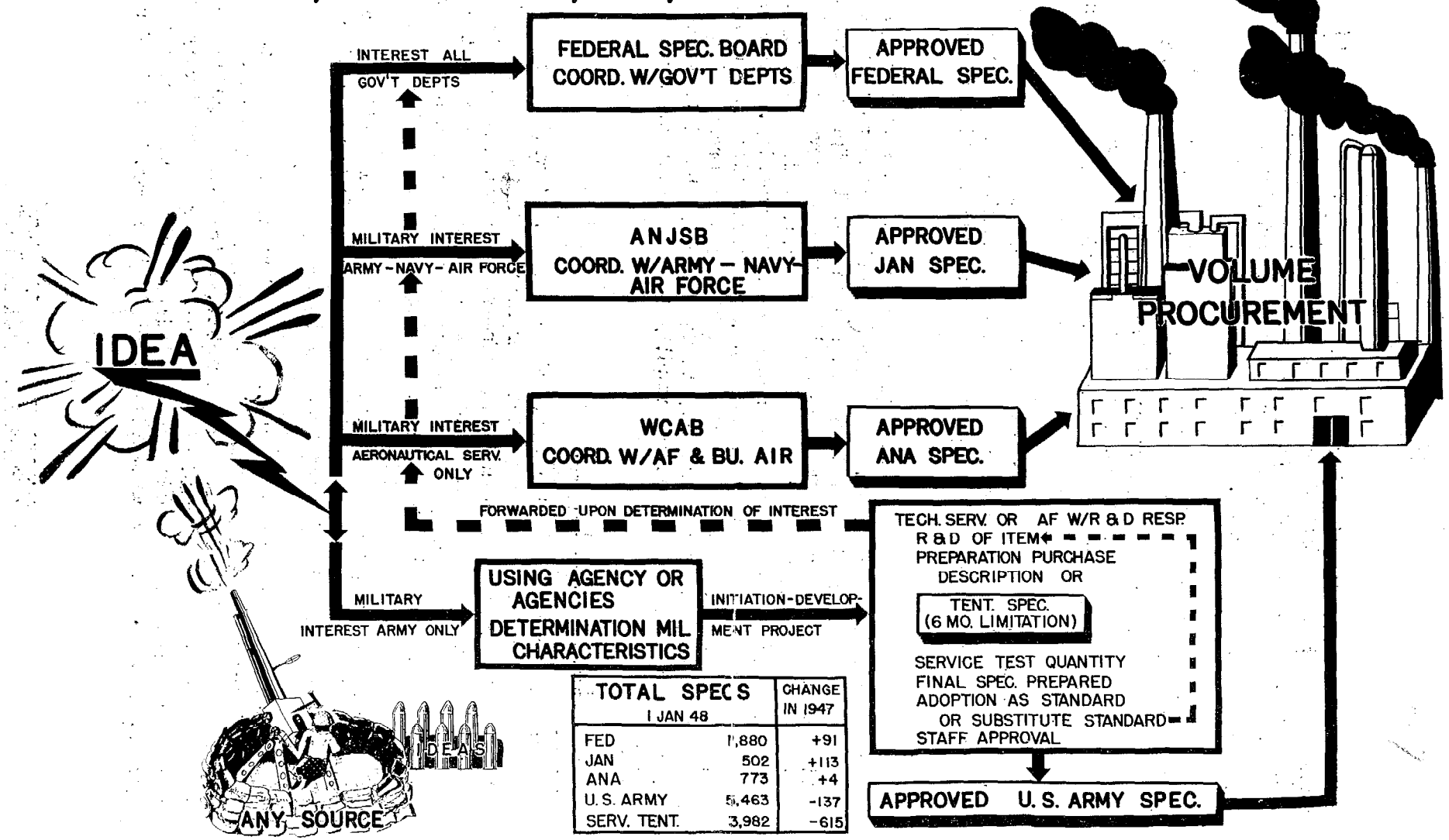
CHART 2

RELATION OF SPECIFICATIONS TO RESEARCH, DEVELOPMENT, TEST, & LIMITED & VOLUME PROCUREMENT



TOTAL SPECS 1 JAN 48		CHANGE IN 1947
FED	1,880	+91
JAN	502	+113
ANA	773	+4
U. S. ARMY	5,463	-137
SERV. TENT.	3,982	-615

STANDARDS BR., PROCUREMENT GROUP, SS&P DIV., GSUSA, 28 JAN 1948

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CHART 3

REPRESENTATION ON TECHNICAL SOCIETY COMMITTEES
BY THE DEPARTMENTS OF THE ARMY AND AIR FORCE

	ASA	ASTM	ASME	SAE	MISC	TOTAL	JANUARY 1948 NUMBER OF PERSONNEL
TOTAL NUMBER OF COMMITTEES	93	42	9	9	12	165	
AIR FORCE REPRESENTATIONS	25	10	-	3	1	39	28
CHEMICAL CORPS REPRESENTATIONS	4	31	-	-	-	35	23
CORPS OF ENGINEERS REPRESENTATIONS	51	13	5	3	2	74	39
MEDICAL DEPARTMENT REPRESENTATIONS	8	-	-	-	-	8	5
ORDNANCE DEPARTMENT REPRESENTATIONS	49	66	6	9	14	144	70
QUARTERMASTER CORPS REPRESENTATIONS	16	19	2	2	-	39	28
SIGNAL CORPS REPRESENTATIONS	23	12	-	-	-	35	31
TRANSPORTATION CORPS REPRESENTATIONS	7	-	-	2	1	10	7
GENERAL STAFF REPRESENTATIONS	10	1	-	1	-	12	7
TOTAL	193	152	13	20	18	396	238

ASA - AMERICAN STANDARDS ASSOCIATION
ASTM - AMERICAN SOCIETY OF TESTING MATERIALS
ASME - AMERICAN SOCIETY OF MECHANICAL ENGINEERS
SAE - SOCIETY OF AUTOMOTIVE ENGINEERS
MISC - AMERICAN WELDING SOCIETY
AWS-ASTM
ASTM-MELLON INSTITUTE
COMPRESSED GAS MANUFACTURERS ASSOCIATION

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compliance seal by the U. K. and Canada has been considered to be in a sense a guaranty to the export trade as to the quality of the product bearing the seal.

In our country we have not adopted government compliance seals, perhaps because we have felt it would be an unnecessary interference with business, perhaps for other reasons. While we have established under government inspection standard government grades for meat and certain foods in accordance with the Food and Drug Act, we have not extended the practice to manufactured goods generally.

ABUSES OF STANDARDIZATION

Abuse of standardization will arise when attempt is made to force standardization down to the minutest detail or component. It is believed that no useful purpose is served by requiring standardization of such minutiae and there is a tendency thereby to approach regimentation of industry.

Effective Standardization ceases when regimentation begins.

In so far as the military services are concerned, it is believed that standardization should extend primarily to assurance of interchangeability and especially to assurance of simplified maintenance in the field echelons. For example, if a unit is always replaced completely when it fails in the field, it is sufficient to extend standardization only to assure interchangeability of such unit. It would be inefficient to expend man hours to accomplish standardization of some component of that unit if the component is not separately replaced in the field echelons of the service.

To approach the problem of overstandardization from another angle, if we plot the number of spare parts in a piece of equipment against the frequency of "mortality" of the parts, we produce a curve of parabolic nature. This curve indicates a high turnover on a relatively few parts and then flattens out in approach to zero mortality as an asymptote--Chart 4. Standardization efforts should be concentrated on the "high mortality" items where the greatest yield in savings can be obtained.

Abuse of standardization can also be evidenced in inflexible adherence to standards until they have become obsolescent.

Questions have been asked as to how long a standard should remain in force before change is considered. It is obvious that rigid adherence to a standard over a long period will throttle initiative to accomplish a better article and will result in continued use of an item which has long since become obsolete in view of advances in technical knowledge and procedures. Standardization must not become synonymous with stagnation in research and development. Standards must be maintained sufficiently flexible to permit advantages to be taken of all beneficial developments. Engineers must

continually weigh the benefits to be gained from standardization against the needs for technological progress--and higher performance of equipment as weighed against mere numbers of pieces of equipment.

PROCUREMENT OF STANDARDS

Considering for the moment that we have our standardization completed in some particular field, what can we do about procuring the desired standards?

Under Section 3709 Revised Statutes, as interpreted by Comptroller General's decisions over a period of years, government purchases in general were required to be made on the basis of the lowest responsible bidder and specifications were required to be more or less nonrestricted. Under the procedures established by these decisions, it was necessary to draft specifications to permit at least several bidders and, consequently, specifications usually reflected performance requirements rather than detailed construction. Exceptions to the above could be made, of course, in the case of items purchased by the military during the past war under the War Powers Acts. Experience attained during the war years demonstrated the advantages of procuring by negotiation without advertisement in a number of situations. These situations were outlined to the Congress and a bill, H.R. 1366, was prepared. This bill passed the House in the last session, but was not reached for final action in the last minute rush of business prior to adjournment. However, the bill cited as the "Armed Services Procurement Act of 1947" was passed in the current session, was signed in the past week, and is now law.

Among the situations in which negotiation without advertising is authorized is that in which an agency head determines that technical equipment requires procurement without advertising "in order to assure standardization of equipment and interchangeability of parts and that such standardization and interchangeability is necessary in the public interest." This bill places great trust in the procurement activities of the military services. Procurement in accordance with its provisions should be carefully reviewed to ascertain that necessity really exists. Should the latitude permitted by the act be abused, there will be a storm of criticism and a clamor to have the privileges withdrawn or limited. In anticipation of passage of this act War Department Circular 165, dated 24 June 1947, was issued. This circular in section 1 provides for a procedure for selecting categories which it is desired to standardize and for the establishment of a board to review recommendations for negotiations in accordance with H.R. 1366 when presented by the technical services. The "ground rules" for procurement under the Armed Forces Procurement Act of 1947 will be prepared and issued as a part of the Joint Procurement Regulations currently being drafted. A task committee has already been established to handle this particular phase of the regulations.