

PACKAGING
30 April 1946.

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COLONEL BROWN:

Gentlemen, we are still pursuing this elusive subject that we were pursuing the other morning. We have been talking about packaging and crating. I notice you still have packaging on the schedule, and an expert on that subject is with us this morning. He is Mr. Frederick L. Bowser. Mr. Bowser comes from out west. He is from Nebraska. He is a veteran of World War II, and during that period attained the rank of Major.

His experience during the present war included organization of packaging in the Army Air Forces in 1942, and other experiences throughout the war dealing with packaging. His present duties include Chairman of the Army Packaging Board, Chairman of the Technical Committee on Packaging for the Federal Specifications Board, Member of the Joint Army and Navy Packaging Board, Member of the Packaging Council for the American Manufacturers Association.

Gentlemen, Mr. Bowser.

MR. BOWSER:

That does sound like a lot of titles. All of those titles, incidentally, are quite recent. As a matter of fact, they do not, of themselves, solve any of the problems regarding packaging. The organizations from which those titles stem are also quite recent; but those organizations at least will, we feel, help to solve the problems.

In its scope, packaging is a pretty big subject. You can almost say "where it starts and where it stops, no one knows," because it involves all end-products. That takes in everything from your delicate instruments and your acids to your bulldozers and parts of the atomic bomb.

It would be easy for me to approach the subject in a rather prosaic way and give you a definition for packaging, which I am sure you would all agree is very simple. I could give you the shortest history lesson you ever had in so far as the history of packaging prior to World War II was concerned: "there ain't any!"

For the sake of the record, let me now read a pretty fair definition we worked out with General Staff for packaging, as distinguished from packing.

"Packaging. For military purposes, packaging is considered to include any necessary cleaning, preservation, determination of unit quantities per package, protective wrapping, cushioning, and identification marking, up to but not including the shipping container."

That is the definition for packaging.

"Packing. The operation by which individual items or packages are made ready for transportation. For military purposes, packing is considered to include the selection or construction of the shipping container and assembly of items or packages therein, together with any necessary blocking, bracing or cushioning, weatherproofing, exterior strapping, and marking of shipping container for identification of content."

That is very simple. There are no problems there. I think everybody who thinks about it, understands it. But it is surprising to know that the attitude towards packaging and the viewpoint of personnel towards packaging, varies considerably. We find that it varies almost in direct ratio with their understanding of what is involved in packaging. So today I would like to try to give you a little better understanding of packing and packaging.

That variance I spoke about only a minute ago has varied all the way from "let George do it" to "ship according to certain freight classifications"; "put it in a box"; "put it in a good box"; or, "better check with your packaging people". Then, as a result of these attitudes, and especially those attitudes that we were all more familiar with at the beginning of the war--I have seen mass procurement made on a domestic basis or the commercial practice, or acceptable by common carrier--to the point where our depots were full of "one-trip" stuff. The materiel barely reached the depots.

I have seen "E" Awards given to contractors for their brilliant engineering; for the miracles of their production; whereas I think if they had gone around to the shipping room and seen how "George" was doing it, they would have blanched a bit.

I have seen AFP's (Authorities for purchase), purchase requisitions or invitations to bid, as used in the various Services, changed so that intelligent packaging requirements were crossed out because the clerk or negotiating officer said it cost too much. I have seen and heard contractors scream (when we tried to specify intelligent packaging) that it would slow down production. As a result I have seen our depots methodically, and some of them, consistently repackage all the shipments they received, throwing the manufacturer's package away.

I have seen other depots sweat and curse because they were required to ship on a requisition deadline basis, regardless of the condition of the materiel, whether it was fit for transportation or not. Time deadlines did not permit them to put that material in proper condition to move.

I have seen a thousand men put on reclamation and salvage where a few men, who had learned packaging in the first place, could have obviated that. I have seen 2500 men put on repackaging simply because the procurement was not properly specified by a few packaging men. As an extreme-- I have seen and the figures show, that there were 62,090 people on procurement in the month of May 1945, as against less than 75 in packaging.

I have also seen acres of material, acres of it, going to waste as scrap because it had deteriorated beyond the point of reclamation. I have seen horrible examples, individually and in the mass. I have seen films, pictures (colored and otherwise) to the point where, gentlemen, the losses involved burn in your memory. They are simply staggering in their total. No honest supply-man can conscientiously sleep at night knowing his job is not done.

Let us go back to that definition again. What is packaging? We are speaking now from the Service standpoint, both Army and Navy, of fundamental packaging, not the dress-up type. During that time we did have honest, intelligent cooperation from some in industry helping us do a functional job. Incidentally, from here on out we must depend more upon ourselves because industry has now dissolved into the merchandising aspect, the eye-appeal, and prettiness. I trust they will learn some lessons from their war experience. They will have the advantage of a lot of our specifications. But from here on, for our part, we will have to play it alone.

Packaging in its scope includes unitization, or unit-packaging. Where logistics has failed to so specify, somebody has to; so it has resolved itself down upon the packaging man. Your packaging, or course, will vary with the number of units that are involved. It includes cleaning critical items--critical surfaces of any item--both chemical and physical. It also involves preservation. Gentlemen, there are about 20 ways in which we have standardized for preservation, depending upon the hazards to which it is to be exposed, type and kind of article and the material in it, and so on; also the materials available to do the job.

We are interested in two or three more. We have not, as yet, standardized on dynamic dehumidification, solar radiation, or the various types of web-spraying. We are still working on them. We are interested in cushioning. We are still searching for that nonhygroscopic cushioning material that will give us the proper "G's" or gravitation factors to resist physical shock.

In connection with containers, we have standardized a number of them. We have a lot of specifications. As a matter of fact, my favorite simile is that we are like a drugstore: we have a lot of bottles of medicine on the shelf, but that does not solve packaging. Somebody has to pick the right bottle at the right time, or the right combination of bottles.

To achieve all this, it has been necessary for us to dip into chemistry, both organic and inorganic; into engineering; into entomology and psychrometry and physics, and at the same time, have a good, sound working-knowledge of

supply, procurement, and distribution; otherwise, you cannot fit it all in. You cannot possibly make the right choice; and any choice, incidentally, is somewhat of a compromise. You can only apply the percentage. You never run the maximum. That explains our policy which is to give the minimum adequate protection, consistent percentagewise with the hazards to which we expect it to be exposed. Some of those hazards might be examined for a minute.

Corrosion: Everybody talks about corrosion, and yet I am not so sure that many know all about it--if anything. Oxidation of metals is the common word you hear. You also hear if you keep it below 30 percent R. H. (relative humidity) you stop corrosion. You do not stop corrosion at any time, or under any condition in certain metals (at least in the ferrous ones) because of the oxides that are put into the metal to make it, but we do minimize that corrosion and keep it down to a negligible factor.

Corrosion may be accelerated chemically, electrically, or in combination--electrochemically. Chemically, with acids or merely oxygen and moisture. Electrically, where you have electrically dissimilar metals; or even where you have dust or some foreign particle picked up from the air, enough electric charge to complete a circuit, producing galvanic electrolysis.

Mold and fungus: Fortunately for us this is one headache we do not have to cure by ourselves. We feel that it is our job to preclude deterioration from those sources while the end item is in the package but not before it goes in, and not after the package is opened. So, therefore, we are concerned with how those elements, more or less, attack our barriers, because we know, under certain conditions, deterioration is stopped when your moisture and climate conditions are so controlled by barriers.

Another hazard is physical shock. Gentlemen, it is a shame to think that out of all our laboratories in the Services and all the laboratories in industry we have not yet obtained the answer we should have on how to control shock. We use blocking, bracing, cushioning; true. But we must always resolve those things into how many "G" factors will that particular instrument, glass, or what not, take in its rough handling?

We think we are on the right track in some combination of plastics for cushioning. That is probably styrene, when stretched nine to ten times its basic structural composition. The use of springs is another factor; where it can be used.

Gentlemen, if we can accomplish proper packaging--intelligent packaging at any rate--we will achieve a factor flow from the production lines; a standardized flow from the production lines. I have seen in the past where any one given manufacturer out of several I can name offhand has had to run from three to ten different packaging lines to satisfy the packaging requirements of the different Government services. If we can standardize, it is as easy to package right as it is to package wrong.

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If we achieve packaging in procurement on a reasonable basis we can obviate a lot of repackaging and rehandling in the supply lines and thus expedite that movement.

Fundamentally, for both our peacetime economy and for any emergency economy we can, if we do it right once, conserve resources--resources in manpower, resources in materials.

Mobilization is a mobilization of resources. The conservation of those resources is just as important, from a packaging standpoint, as it is from other standpoints. I can remember, you can also remember, when paper was as free and easy as the air we breathe. But it will be years before we ever get back to that point again in a domestic economy. So we must plan on making the utmost use of it and avoid any waste through repackaging. That is the point I wanted to make. It means, in order to accomplish that, that the allocation of manpower must be made proportionately for those engaged in packaging, or who have been assigned packaging responsibility. Then it can be achieved. That means manpower for building up specifications, in the negotiation and procurement problems, contract administration, in your storage depots, warehouses, in transportation, and even in your logistics; in your research and development and particularly in the theaters. I am going to digress for a minute when I speak of the theaters. Many of you know the problems you had moving material from one point to another under the exigencies of time. I found, in the theaters I visited in the past, that a great deal of loss could have been avoided had the theater commanders and their staffs, given proper evaluation to packaging. If they had had more personnel assigned to packaging most of the trouble could have been avoided. Certainly, I saw one or two here and there, but they were practically alone. Some knew what should be done, but could not get the time in which to do it, for basically, the job was to win the war. There was no planning on any of this packaging business. That was my reaction as I went around and visited the theaters.

We faced the same problem again when we came to redeployment. We had figured, in the Service I was in, that in the beginning we were only losing about 35 percent of our stuff; not bad. It is a lot, though. When it came to redeployment, moving that material from one theater to another, I figured we would lose approximately 55 or 60 percent. But I was wrong. We lost about 99 percent of it, simply because there had not been adequate planning.

We should train and allocate the people so as to get the material and do the job in time. This means the allocation of time both in the theater, and in the United States. It means a little more time in circulating your papers prior to the actual invitation to bid, in order to give your packaging people an opportunity to check.

Let's get back to the history, of which I gave you a "short-quickly" of the time prior to World War II. We might cover the progress since then, during World War II, and up to now. As I said in the beginning, there was no history up to that point. As a matter of fact, we had no specifications worthy of the name other than a half-dozen peacetime deals.

By the time we were called into the project, we had our depots full of material packed for domestic use, but with overseas shipping instructions. What should we do about it? We tried to write specifications on one hand and do packaging, as we knew it then, on the other.

There have been many developments since then. In that development each individual service and bureau, when they saw their responsibility, began writing in certain packaging requirements; certain temporary interim specifications; started setting up little groups because the reports of losses coming back demanded that something must be done.

So we began to develop service packaging specifications, one service leaning upon another, through informal coordination, originally utilizing the Old Containers' Coordinating Committee, which was in W.P.B. Ordnance was one of the services that took an early lead, and an aggressive lead, in attempting to solve the problem. The manufacturer received different packaging requirements for the same item from the different services. So he had to split his lines. He started screaming again. The kind of packaging specified in one service order did not agree with the other service orders. As someone has said, "Why should you package a blue jeep differently from a khaki jeep?"

So studies were begun, culminating in the Draper-Strauss Report, in which joint coordination or standardization was recommended, and the packaging boards were created. In the Army, the Packaging Board is composed of a representative from each of the Technical Services. Likewise, a board was created within the Navy with a representative from each individual bureau.

To insure correlation and integration of that work, and to settle any possible differences of policy, an overall joint board was created consisting of three members from the Army and three from the Navy, set up directly by the Under Secretary of War and the Assistant Secretary of the Navy. The creation of these boards gave us a big impetus toward laying the framework for the whole thing. We began to develop standardized specifications, which were published mostly in the JAN-P-100 Series, and certain Joint Packaging Instructions which covered groups or types of commodities.

Incidentally, I might say since the reestablishment of the Army-Navy Munitions Board, the Joint Board was moved from the individual Secretaries' Offices over to the Army-Navy Munitions Board.

Now I have seen (I think I said in the beginning) that no one man can control packaging so as to make sure it functions all around the lot. It is dependent upon too many people in different localities, such as the individual action of a specific C.O. at a depot, at an area, at a district, at a manufacturing facility. I have seen where supply people themselves could, if they had a good understanding of packaging, make sure it is effected and tied in. So, in future planning, we hope that mobilization plans will make reasonable allocation in the supply channels for packaging.

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I am going to answer your original question now and say I am firmly convinced, because packaging involves so many other things--not only production, supply, but theaters, policy, and manpower--that packaging ought to stem from General Staff commandwise and from the Packaging Boards policywise, so that there should be packaging men in each of those operations, in your procurement, in your supply, in your logistics, in your G-1.

We, with everyone else right now, are fighting curtailed budgets. We find it is just as hard to get one man now as it was an army--even harder. But I am in hopes that as your understanding of packaging increases that your cooperation will be easier to obtain for our plan or program.

We think in planning there should be a central training plan and program. I mean that we should give a better understanding to our future command and staff officers in such academies and schools as are presently existent. I think the subject should be treated there for a few hours to obtain a better insight. I think the nucleus of a training program should be arranged and held in abeyance, or readiness, so that when in an emergency you suddenly need a lot of packaging men, this program will give them to you.

We should have a control on packaging tests and developments, a program we are working on with Research and Development. We should have better liaison with the theaters. We should plan to have standard unit packaging and lend our assistance to that program although we feel that probably Supply and Maintenance are even more interested in it than we are. And, by all means, we must continue to cooperate with the Navy in all our projects.

In all this discussion I haven't mentioned identification or marking. I will not discuss marking, but a word about identification. These requirements usually vary so much with the end-item that the specific end-item spec tells what the identification should be. I think Colonel Goddard will tell you more about marking, as a whole, later on.

I want to go back now to this theater liaison, I mentioned, you will recall, closer liaison with the theaters. I have with me several copies of Colonel Segrist's report of his last trip to the Pacific Theater in which an attempt was made to work out a pack-up for the supply bases. It is a frank and brutal statement of what happens when packaging has not been planned or allowed for. It is an indictment not only of the theaters but also an indictment of Headquarters here. I think it is worthwhile reading. We will be glad to give copies to anyone who wishes them.

(To Colonel Brown)

I think, Colonel, that about covers all I have to say unless there are questions anyone would care to put.

A STUDENT:

You brought out in the discussion the importance of packaging and packing during the war, and how it changed its character considerably. I personally know that in certain services it came to be the policy that everything that was produced, everything that went into the depots, had to be compartmentalized, packaged, packed, and marked so as to make it suitable for shipment to any place and for use any place in the world.

Now the question I would like to ask is this: Was any directive actually issued requiring that, or was it simply a Service policy adopted on the initiative of the individual Service? Is there to be any such directive issued for our peacetime procurement?

MR. BOWSER:

That is a nice question. But you are covering several phases: One, was there a directive during wartime? Is there any now? Should there be one now?

During the time of war it was not needed. There were directives in each individual service. You see, their losses continued to bounce back on them. That was not our problem. Our problem, first of all, was to get some specifications which would show how to do it. The problem now comes up, however, what is the packaging policy during peacetime? Should it be peacetime packaging, or should it be a "hedge"?

We often feel we are in the position of the tail trying to wag the dog if we say, policywise, that all procurement ought to be made so that the individual unit cleaned, preserved and properly wrapped up will withstand indefinite storage, or without the repackaging of that individual unit, can move overseas, by merely changing the exterior container as exigencies permit.

A STUDENT:

You mentioned, I think, long-time storage. I am not so sure we have any, judging from what I have seen. What program do you envision as taking care of the material covering hundreds of millions of square feet which is now standing on the outside, having absolutely no protection? Do you have any means for going through that material to preserve it?

MR. BOWSER:

No. We can tell you how it should be done, but it is a Service responsibility to do that. We will tell them how it should be done. As a matter of fact, it is a Service responsibility to say how much is surplus and how much of it is not; how much of it is scrap. We are working with the R.F.C., rather W.A.A. now, and it may be they will assume that responsibility. We feel, and we have put out a War Department Circular-- that such material, while in our hands, should be protected from detrimental deterioration.

A STUDENT:

For our information, would you tell us if you intend to exercise any broad powers in your directives to see that inspection is made of material in storage?

MR. BOWSER:

We hope to. That depends somewhat on what manpower is allocated to us.

A STUDENT:

In arriving at your specifications for packaging, is there any requirement included for unpackaging?

MR. BOWSER:

The requirement exists in JAN-P-116, that only those items should be preserved that can be de-preserved. They shall be preserved only in such a way they can be de-preserved. We have not felt that specific or detailed instructions on de-preservation were necessary.

Does that answer your question?

A STUDENT:

I think it answers the question all right, but it certainly is a problem for the man who has nothing to work with, to unpack some of the items he receives.

MR. BOWSER:

For example?

A STUDENT:

The incendiary bomb for one thing.

MR. BOWSER:

Are you speaking now from the physical or mental standpoint? For example, cutting the straps--

A STUDENT (interposing):

Physical standpoint.

MR. BOWSER (continuing):

Takes tools.

A STUDENT:

You've never actually tried it, or else you would find out it took more than that.

MR. BOWSER:

Along with your know-how.

A STUDENT:

Were the packaging specifications worked out in coordination with the ability to produce the materials specified?

MR. BOWSER:

No, sir; definitely not. The application of those specifications is however to be consistent with availability of materials specified. We try to specify the best protection consistent with the hazards. When material shortages of one kind or another have been indicated, we have directed a change over to alternate specifications or alternate materials that are available.

A STUDENT:

Are you considering the distribution of maintenance units in your unit packaging setup and your intermediate packaging setup?

MR. BOWSER:

I will have to answer that one in two ways: The Packaging Board, as such, is not. Incidentally I might tell you the Packaging Board is not an operating board. It is more of a policy board. But I understand and can say this that the packaging people, in determining unit quantities, where they are required and where they have not been previously stated by your logistic people, consider many things, such as echelons of maintenance, over-haul, replacement factors, etc. There are about 15 factors to be considered. They have to draw a line somewhere.

A STUDENT:

I would like to ask one more question, if I may. Speaking of redeployment, the War Department required units in the field to compartmentalize, package and mark equipment. That policy in the European Theater was attempted. Now I would like to know what the reaction of the War Department was to that, and whether they finally accepted the idea that it was ridiculous to ask units scattered all over the Continent of Europe, without anything to do, to try to do a job of that kind.

MR. BOWSER:

I think I was there when this directive arrived. It was my own understanding that it did not specify the units in the field. It specified that

the theaters would see that it was done, which was almost as tough, or just about as tough, because the materials were not there.

A STUDENT:

I beg to differ with you. It said the units.

MR. BOWSER:

Oh, is that correct? That certainly was not my understanding at the time. But it was one of those physical impossibilities. You were not able to do it.

A STUDENT:

May I add something to the discussion of fungus-proofing?

MR. BOWSER:

Gladly.

A STUDENT:

In ETO there were fungus-proofing teams sent over to train other units. One of them was in Paris. There were some other teams sent out. The one at Mannheim was in a dark corner in the Signal Corps depot. The units were trying to fungus-proof and at the same time trying to find the material they could not find. There was a great deal of confusion in the theaters as to what the fungus-proofing was.

MR. BOWSER:

The Segrist Report brings out what happened in the Pacific Theater and also in MTO.

A STUDENT:

I would like to point out one thing: When they were getting the packaging teams together in the Pacific, after they did get them together the War Department would reduce the critical score and all the men would go. They never did get the men unless the War Department put them in an Essential category.

MR. BOWSER:

We finally got some MOS numbers assigned.

A STUDENT:

If that thing happened once, it happened 10 times, I know.

MR. BOWSER:

There were some other reasons, too. The points finally came into the picture. We would lose our trained men in that way.

COLONEL BROWN:

Are there any more questions? If not, then I wish to take this opportunity to thank Mr. Bowser for his splendid talk this morning. Thank you very much.

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