

THE COMPUTATION OF REQUIREMENTS AT BUREAU LEVEL

22 November 1954

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Rear Admiral Ralph J. Arnold, SC, USN, Chief of the Bureau of Supplies and Accounts, Department of the Navy, was born in Garden Grove, Iowa, 6 July 1902. He was graduated from the U. S. Naval Academy in June 1923. Following graduation, he served in various assignments at sea until June 1925 when he was ordered to Naval Air Station, Pensacola, for flight training. He then had duty in the U.S.S. BRAZOS and U.S.S. LEXINGTON until 1930, when he returned to NAS, Pensacola for further flight instruction and duty. From 1932-35 he had command of the seaplane tender U.S.S. LAPWING. In 1935 he transferred to the Supply Corps, USN, following which he attended the Navy Finance and Supply School, Philadelphia. From May 1936 to July 1942 he served in various supply officer assignments afloat and ashore, including the carrier U.S.S. YORKTOWN. From July 1942 to November 1944 he served as staff supply officer in several commands in the Pacific. In 1945 he was assigned to the Office of the Secretary of the Navy, and in January 1946 became the Navy member of the Munitions Board; from December 1946 to January 1948 served as officer in charge of the Stock Office, Naval Gun Factory, in October 1948 became assistant chief of the Bureau of Supplies and Accounts for Material and Supply. In April 1951 he reported for duty as aviation supply officer and commanding officer, Naval Aviation Supply Depot, Philadelphia. In March 1954 he assumed duty as vice chief of Naval Material and in May 1954 was designated as deputy assistant chief of the Bureau of Supplies and Accounts. On 4 October 1954 he assumed his present position.

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CAPTAIN BOUNDY: Admiral Hague, General Niblo, faculty, students, and our many guests today: Welcome aboard the Industrial College of the Armed Forces. We are glad to have you with us.

Right now we are well into our study of the materiel requirements for the military services. We know that you are already cognizant of the important place that is filled in this field by the Air Materiel Command of the Air Force, by the technical services of the Army, and by the Navy Bureaus.

We are most fortunate today to have with us a speaker who will talk on the subject, "The Computation of Requirements at Bureau Level." It gives me a great deal of pleasure to introduce our speaker, who is the Paymaster General of the Navy and the Chief of the Bureau of Supplies and Accounts, Rear Admiral Ralph J. Arnold. Admiral, welcome aboard. The platform is yours, sir.

ADMIRAL ARNOLD: Admiral Hague, gentlemen: Speaking to you on this subject of the determination of requirements I consider a very grave responsibility, for the primary reason that the determination or the estimate of future requirements is the very backbone of material logistic support. If we could estimate accurately what we were going to need and when we were going to need it, nine-tenths of our problems in the whole field of material logistic would, in my opinion, be solved.

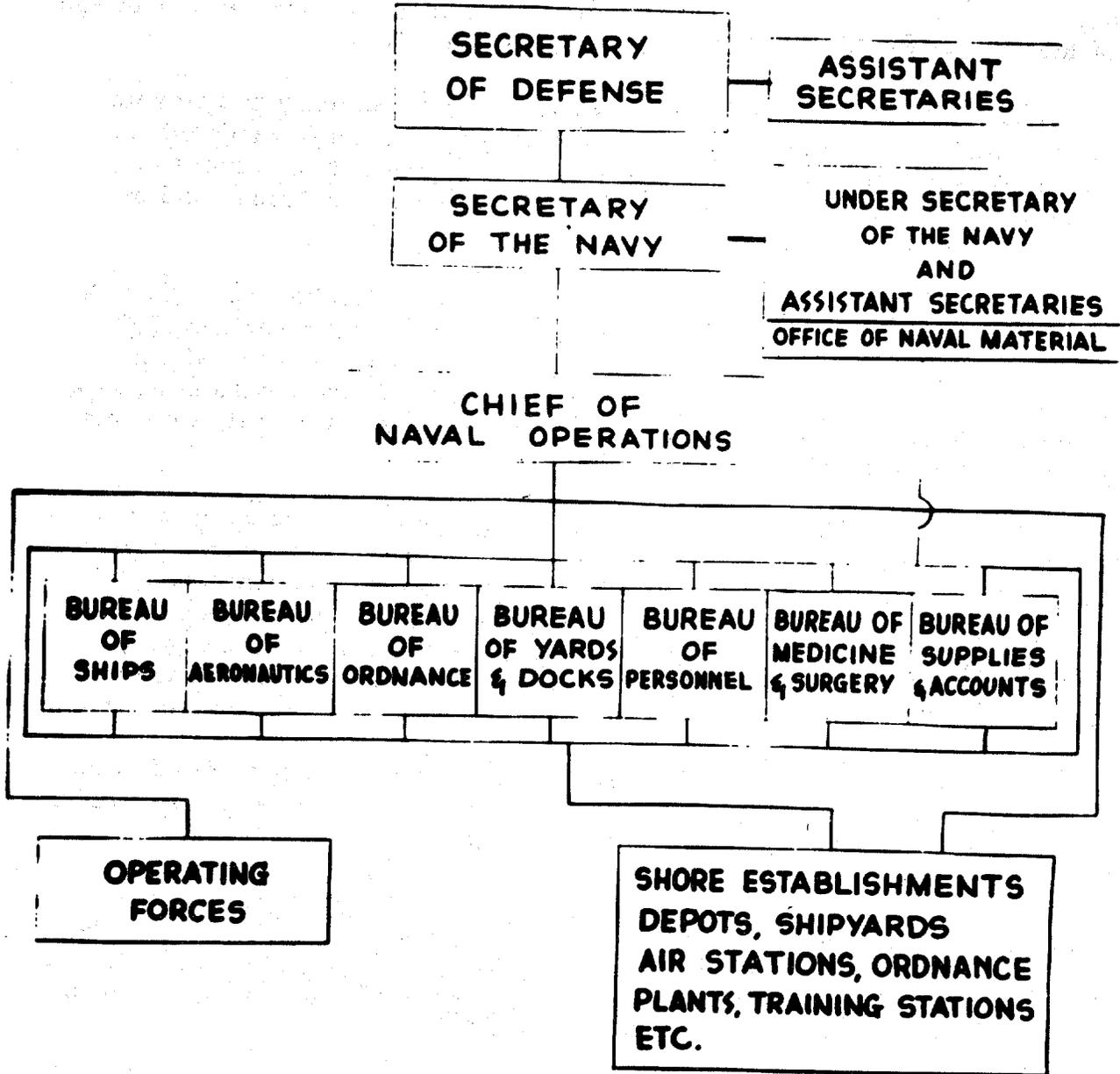
I think an element to start with that is sometimes lost sight of in the determination of requirements is the decision of exactly what is required--the design, the specifications, and the engineering, lie behind it.

But closely tied in with that and the thing that we, in our supply business at any rate, pay more attention to is the "how much," and this is based on an estimate of future consumption as related to time. Where something is going to be required is also important and is also required to be stated in terms of how much and where.

Chart 1, page 2.--I would like to start out with the Navy organization for requirements determination. This is a rather simplified chart, but for this purpose, I think it is satisfactory.

CHART 1

NAVY SUPPLY ORGANIZATION



You will notice that the Chief of Naval Operations (CNO) has authority over the Bureaus of the Navy Department, over the operations force, and the whole establishment.

Those of you in the Army and the Air Force would be interested to know--if you don't already and it isn't shown on this chart--the essential difference between our Navy organization and yours; that is, the CNO does not have a direct line of authority over most of the staff organizations in the Navy Establishment.

The initial or governing decisions in the determination of Navy requirements--as they are, I think, in all services--are made by the operators or those who are responsible for operations. They are the ones who set the pace; they are the ones who tell us what the view of the Navy is, what it is going to do. In our case, it is the CNO.

It might be said broadly the things that he lays down to us and gives guidelines on are consideration of the size of the naval forces and the Navy Establishment in terms of how many ships will be operating by title; how many aircraft will we operate, also by title; how many military personnel will we have; how many bases will we have; what are the functions, the capabilities, and the locations of those bases.

Next comes what you might call the tempo of naval operations. What will be done? What is the extent and character of the operations of the forces which he has laid down? How many hours will our ships steam? How many hours will our aircraft fly? Those are examples of the kind of things that the operator--in this case the CNO--must specify to us before we can begin to determine what our forces are going to be, where they are going to operate.

I want to point out now that it is not only important to make these decisions but it is important to pass the information down, not only on a formal basis but on an informal basis. You can write all the directives you want from the CNO or any other operating staff, but in the end there are no substitutes for sitting down and talking it over.

We come now to the Navy Bureaus. It is the purpose of the Navy Bureaus to translate those broad requirements as laid down by the CNO into specific items and quantities of end equipments. It is also the business of these material Bureaus to design, to procure, and to support these equipments in use.

Now between the Bureaus and the CNO there is not an absolutely clear line over which one or the other never steps. Obviously, there must always be compromises because Bureaus may not be able to provide what the CNO needs for budgetary or other reasons. Moreover, the CNO is responsible for the overall readiness of the naval establishment and therefore is widely interested in the design capability of the things being produced. These are discussed by the CNO representative and Bureau of representative at all stages of design and procurement.

The Navy Bureaus are also, for some material, actually the detailed inventory managers. Let me give you examples of what we mean. In case of ships, for example, the Bureau of Ships is the direct inventory manager and actually determines the detailed requirements for such items as boilers, main propulsion equipment, and complete electronic shipboard equipment. The Bureau of Aeronautics makes decisions as to how many aircraft and aircraft engines they will require and where. Ordnance makes determinations for such items as guns, torpedoes, and other such items of equipment.

These items which are directly controlled by the material Bureaus and for which the material Bureaus therefore make direct determinations as to what will be bought and how many total about 70,000 items.

So much for the end equipments for the time being.

Now these end equipments of 70,000 items in use throughout the Navy require hundreds of thousands of spare parts; also stocks of basic common items. Our requirements for this very large number of items, which total over 1.3 million, is obviously too large a task and too detailed a task for the Bureaus themselves. How is the Navy set up to handle this?

I would like to begin by going back into history for a few years. About 20 years ago when I served on a small mine sweeper in the Gulf of Panama, a Navy man came up to me with something in his fist and said, "The transmitter is out of commission." Upon inquiry as to what the matter was, he showed me a jumble of wire and said, "This coil has been burned out and we have no spare." I said, "What are you going to do?" He said, "Leave me alone for a while and I will see what I can do."

In about an hour he came back with something resembling the original coil in his hand. I said, "How did you do that? You told me you had no spare on board." He said, "I went down to the yeoman and got some sealing wax and to the assistant engineer and got some wire and made a new coil."

About six months ago I was going through one of the larger electronic plants which produces complicated equipment. The head of the plant showed me a small thing about the size of a package of cigarettes and it was sealed in. He said, "This item is so complicated that it probably could not be repaired in any military establishment." In other words, to get it repaired you would have to send it back to the manufacturer. That is the difference between those two things. The old radio coil could be made up from almost anything on board, but the complicated apparatus we have today can't be repaired anywhere in the military establishment. This indicates the difference between the job of requirements determination we have to do today as compared with 20 years ago.

The Navy through the thirties had only one really basic supply system which was confined to common items of material--that is food and clothing, what we call general stores--such items as are standard throughout the Naval Establishment. Technical spare parts supply was on a haphazard basis. The requirements were largely determined by the people who designed the equipment and built it at its outset. Those people are qualified no doubt to participate in the determination of initial requirements, but I don't believe they are qualified to make the final determination. I will get into that a little later.

Just before World War II naval aviation began to grow very fast, as did the rest of the Navy. With this growth had come some growing pains. One of those growing pains was spare parts supply because--in my opinion the reason was--there was not a definitely laid-out, well-patterned determination-of-requirements system.

So the Navy established just before the war at Philadelphia an office, one of whose purposes was the determination of requirements for aviation spare parts and the speeding up of basic materials. This Philadelphia office had responsibility for inventory control, not only local but Navy-wide. It was known as the Supply Demand Control Point (SDCP) because it essentially had the job of balancing supply with demand. That name has been used ever since for that kind of office.

As the war went along, we established more of those offices. The SDCP for ships parts was set up at Mechanicsburg. That pattern was continued throughout the war and today almost our entire range of technical spare parts and standard materials is covered by one of those inventory control offices.

I think it is particularly important to outline at this time what the organizational relationship of its activities is.

Chart 2, page 7. --I would like to take the one on the right first, which is the Aviation Supply Office (ASO) the one I described to you a moment ago as having been set up at Philadelphia just about at the beginning of the war.

You will note that it has responsibility to two of the Navy's Bureaus. The one on the left is the Bureau of Aeronautics. It is responsible to the Bureau of Aeronautics for such items as design decisions as to what parts may be used and where, including the interchangeability of parts, and very important, it provides the dollars for the procurement of those spare parts and materials.

On the right, it is responsible to the Bureau of Supplies and Accounts (BUSANDA) for what you might call purely procedure or policy matters with regard to the determination of requirements and other aspects of inventory control, such as stock policy, transportation policy, storage policy, inventory controls policy. The Bureau provides the dollars and personnel for the operation of the office itself.

Now, going below the activity itself, you will notice that it has complete authority and responsibility detailed by the Bureaus over the material that it controls. My reason for bringing it out at this time is to make it clear that the Bureaus have detailed to that office their responsibility for requirements determination.

Shifting now to the left-hand side of the chart to a similar office, called Electronics Supply Office (ESO) with its responsibilities exactly the same, except in this case it is responsible to the Bureau of Ships.

Before we leave this chart, I want to be sure that it is clear that in those functions just below the Bureaus there is included not only the flow of authority but also a flow of responsibility. A very important factor of the left-hand side of this chart is flow of planning information down to the control point as well as the flow of information to the Bureau in order that they can do the job they have to do.

In order to clarify the job of those SDCP's, the one that is of most interest today is the determination of requirements because, as I said at the outset, that is to my mind the most important phase of their job. But linked with the responsibility for the determination of requirements are also those other functions which are essentially included in any activity or any organization that has responsibility for the computation of detailed requirements.

CHART 2

**ELECTRONICS SUPPLY OFFICE
(A SUPPLY DEMAND CONTROL POINT)
FUNCTIONAL CONTROL**

BUREAU OF SHIPS AERONAUTICS ORDNANCE & DOCKS PERSONNEL SURGERY & ACCOUNTS
BUREAU OF SHIPS AERONAUTICS ORDNANCE & DOCKS PERSONNEL SURGERY & ACCOUNTS
BUREAU OF YARDS OF MEDICINE & SUPPLIES
BUREAU OF YARDS OF MEDICINE & SUPPLIES
BUREAU OF BUREAU OF BUREAU OF

DESIGN
WHAT PARTS MAY BE USED WHERE
INTERCHANGEABILITY OF PARTS
PROCUREMENT \$ FOR SPARE PARTS

STOCK LEVEL POLICY
TRANSPORTATION POLICY
STORAGE POLICY
INVENTORY CONTROL POLICY
PERSONNEL FOR
INTERNAL OPERATIONS

**ELECTRONICS SUPPLY OFFICE
SUPPLY DEMAND CONTROL POINT**

**COMPLETE AUTHORITY AND
RESPONSIBILITY, DELEGATED
BY BUREAUS, OVER ESO CONTROLLED
MATERIAL**

**DEPOTS, SHIPYARDS, AIR STATIONS
& OTHER HOLDING ACTIVITIES**

**AVIATION SUPPLY OFFICE
(A SUPPLY DEMAND CONTROL POINT)
FUNCTIONAL CONTROL**

BUREAU OF SHIPS AERONAUTICS ORDNANCE & DOCKS PERSONNEL & SURGERY ACCOUNTS
BUREAU OF YARDS OF MEDICINE SUPPLIES &
BUREAU OF BUREAU OF BUREAU OF

DESIGN
WHAT PARTS MAY BE USED WHERE
INTERCHANGEABILITY OF PARTS
PROCUREMENT \$ FOR SPARE PARTS

STOCK LEVEL POLICY
TRANSPORTATION POLICY
STORAGE POLICY
INVENTORY CONTROL POLICY
PERSONNEL FOR
INTERNAL OPERATIONS

**AVIATION SUPPLY OFFICE
SUPPLY DEMAND CONTROL POINT**

**COMPLETE AUTHORITY AND
RESPONSIBILITY, DELEGATED
BY BUREAUS, OVER
ASO CONTROLLED MATERIAL**

**DEPOTS, AIR STATIONS
& OTHER HOLDING ACTIVITIES**

Chart 3, page 9, -- This is a list of the SDCP's and the categories of materials they cover. I have shown this to indicate to you that we have included almost the entire range of spare parts and basic materials which are required for the support of the Naval Establishment. I think that in a later lecture, which you will have here, the functions of these offices will be described in more detail.

Thus far we have been talking about organization and theory. I think you might like to know in practice how one determination of requirements works, and for describing that to you I have selected a particular item, which will be the Grumman aircraft, for two reasons: First, it is the most familiar; second, in the category of airplanes, we have been able to carry it to a more refined degree than for almost any other system we have.

To begin with, I should say that the ASO already knows in the case of about 470,000 items of aviation material how much it has Navy-wide, where it is located, how fast it is being issued, and how much is due in already from contractors. I bring that out because the inventory of material that we have on hand becomes a very important factor in deciding how much we ultimately buy.

Beginning with the design and the contract for the Grumman aircraft, planning will begin for spare parts support. I should say at the outset that there is a unique feature of the support of aircraft which I think the Air Force also does to a considerable extent and that is the buying of spares on what we call the "program life basis." In plain language, at the time we buy the airplane we also buy enough spare parts peculiar to that airplane to last through its life.

Why do we do that? There are many reasons. From the mobilization readiness viewpoint, we can be reasonably sure that Douglas or Grumman Aircraft would not have the capacity--either manpower, component, or plant capacity--to produce spare parts to support aircraft already in use. Grumman, if he has to produce spare wings for the aircraft, can put them through his production line or the subcontractor's production line at the same time he is producing wings for the aircraft themselves and therefore can do it much cheaper. Admittedly--I will get to this later--they must estimate this demand for a considerable period of time in advance.

Since we must estimate this demand for several years in advance, it certainly is incumbent on us to use every device and piece of information we can to do the best job. How do we do it?

CHART 3

NAVY SUPPLY DEMAND CONTROL POINTS

GENERAL STORES SUPPLY OFFICE MATERIALS HAVING COMMON NAVY WIDE USE - HAND TOOLS, HARDWARE, BAR & SHEET METAL, PAPER, HOSE, PACKING	PHILA, PA.
AVIATION SUPPLY OFFICE PECULIAR TO NAVAL & MARINE CORPS AVIATION	PHILA, PA.
SHIPS PARTS SUPPLY OFFICE SHIPS HULL & MACHINERY SPARES	MECHANICSBURG, PA
SUBMARINE SUPPLY OFFICE PARTS PECULIAR TO SUBMARINES	PHILA, PA.
ELECTRONICS SUPPLY OFFICE ELECTRONICS SPARE PARTS	GREAT LAKES, ILL.
ORDNANCE SUPPLY OFFICE ORDNANCE & TORPEDO SPARES	MECHANICSBURG, PA
YARDS & DOCKS SUPPLY OFFICE VEHICLE & CONSTRUCTION EQUIP. PARTS	PORT HUENEME, CAL
MEDICAL SUPPLY OFFICE MED. & SURGICAL SUPPLIES AND EQUIP.	BROOKLYN, N.Y.
FUEL SUPPLY OFFICE	WASHINGTON
PROVISIONS SUPPLY OFFICE	WASHINGTON
CLOTHING SUPPLY OFFICE	BROOKLYN
NAVY SHIPS STORE OFFICE	BROOKLYN

About eight months after the contract is made, a group of people known as the "provisioning team" gather at the contractor's plant. Don't let the word "provisioning" fool you. It has nothing to do with food. It should be called a "providing" conference. The team is comprised of the following kinds of people:

First, from the Bureau of Aeronautics a man who can tell us in the case of each one of those parts whether they can be satisfactorily made by an afloat activity, an aircraft squadron, or an aircraft overhaul activity.

Why? If those parts we estimated are going to be used at a relatively slow rate and can be easily made by our afloat activities, why buy them from the contractors and spend the money, overburdening the supply system that we need to carry it?

Another consideration that may go into this is the decision as to whether we will put a small part which we expect to use at a slow rate or is it better to buy a larger assembly which we expect to use at a faster rate. If it is to be used at a slow rate, there is no use overburdening the system with it.

Next we come to the decision on those parts we are going to buy as to what is going to be the estimated usage rate. The people we have there to do that job are essentially three in number:

First, the man from the fleet aviation activity which is going to operate and which will have to carry it.

Next, is the man who is engaged in the maintenance of that aircraft. He is there because we think nobody is as well qualified as he is to make the decision at that time as to what is likely to be used in the maintenance of that aircraft on the line. We also have there a representative from the overhaul establishment which is going to put that plane through the major overhaul process. Why? For the same reason, because the man who knows the capability for his plant and his people is the best man to make that decision.

Also there to help in both decisions are the aircraft design people--representatives of the manufacturer himself. Detailed blueprints on that airplane are presented and each part is examined separately in detail. That decision is made at that time.

So far we have been talking only about estimated consumption rates. There are some other decisions that have to be made. Now we get into the flow of information from the operators. Before the provisioning team meets in the contractor's plant, a directive is obtained from the CNO giving the most accurate estimate he can get as to how many hours that plane will fly in use for the entire program life of the aircraft. We can assume that generally parts usage will depend on the flying hours of the aircraft. The periods of overhaul are also related to flying hours. So we want to know that.

We will also find out from the CNO how he intends to fly these aircraft in deployment. Will they be in groups of 3 or in groups of 24? Why do we want to know that? Because if we are going to fly in groups of 3 each, operating unit will have to be supplied with a fair supply of spares. If, on the other hand, they are to be deployed in groups of 24, we don't have to have a large range of spares in each operating unit.

Perhaps I haven't made that clear. If you are going to operate one aircraft, you must have enough spares to keep it going. But if you are operating 24 aircraft, you don't have to have 24 times that many spares. Also we can get from the CNO at that time information as to the area in which he expects to deploy these aircraft. That is primarily a distribution decision.

Now we take this information we have on the estimated consumption rates for these parts and the information that we have as to what the initial allowances of parts will have to be, combine them and get the total requirement.

I neglected one very important decision, the decision as to whether a spare part is going to be overhauled as an exchange item or thrown away as consumed. Obviously, if you intend to put this part through a repair process and overhaul it after it is used, you will not have to buy as many as if you were not going to overhaul.

You may say, "Why don't you overhaul all the parts?" If it is a comparatively cheap item and is not used at too high a rate, it would cost more to put it through overhaul than it will just to throw it away after you use it.

Once the total requirements, that is the estimated requirements have been computed, then comes the job of balancing those estimated requirements against actual assets. As I said at the outset, the ASO has information on how many of these parts it already has, if any, in the system and where they are. Before we go out and buy a lot more from Grumman,

we want to make sure we don't already have enough in the supply system. At that point it becomes an addition and subtraction process.

I hope that what I have said to you indicates that in this business of requirements determination, it is absolutely essential that at all levels which have any responsibility for requirements determination there must be a continuing close relationship between those responsible for what amounts to three areas: First, planning and operations; second, engineering--concerning that, included design, manufacture, maintenance, repair, and modification; and, last of all, the people who are going to have to do the supply support operation.

Now at this point you might be interested in knowing what are some of our problem areas in requirements determination. I think one of the principal ones is obsolescence. I am not talking so much about equipment itself as I am about the obsolescence of the system we have for determining requirements.

We are using today, in the Navy at any rate, essentially the same system for determining requirements as we used 10 years ago. We will have to do better. Today we have available to us in the form of electronic equipment such as UNIVAC and IBM exact means of computing requirements. Believe me when I say it is not enough to buy that equipment. The toughest darn thing is to learn how to use it. What you get out of it is no more accurate than what you put in. Nevertheless, we should be able to use this equipment and should be able to develop it. We should be able to take a brand new program and, by using this equipment be able very quickly to develop end requirements.

Another problem we have is in the area of the so-called stock coordination. You will remember in that list of SDCP, electronics was covered by one SDCP and aviation material by another. Now since the ASO Office also controls aviation electronics, obviously there may be an area of duplication between those two. How are we going to avoid a situation where two SDCP's are controlling the same spare part?

Another example is in diesel engines. They are used not only in boats and ships, but also in construction equipment. There is quite a wide interchangeability of parts. That has to be done at the Department level, and we do that by an agency which we have in the BUSANDA, called the Stock Coordination Division.

It is its job not only to detect and ferret out these areas of general overlap and duplication but to provide ready means for eliminating them so far as possible.

There is another problem in this which is not apparent on the surface and that is the question of the flow of information that is absolutely essential to a good job of requirements determination. Going back to chart 3, you will remember on the left-hand side each one of those SDCP's was responsible for certain pieces of equipment. If we have a piece of aviation equipment used in aircraft and if we are going to support that piece of equipment from the Electronics Supply Office, there might be a duplication of that piece of equipment. So we must have that flow of information from the Bureau responsible for the initial equipment down to the fellow who makes the determination of requirements.

Chart 4, page 14. --The subject for today has been the "Computation of Requirements at Bureau Level" and I have dwelled primarily on that subject. However, the SDCP has several other functions and this chart is presented for your information. In conclusion, gentlemen, I would like to say that if any clincher is needed on the need for a thorough system and effective system of determining future requirements, it is the well-known truth that in the next war we may be extremely short of time. The job that we do today in the determination of requirements may have a very decided bearing on the initial readiness of our forces for mobilization. In the next war I don't think there is any question but what initial readiness will be a very important factor.

A future consideration is that with today's budget and the increasing cost of all the hardware, we believe it is extremely important that we get the most out of every dollar and every nickel that Uncle Sam provides. It is not only essential that we have on hand the things we need in case of mobilization, but it is also essential that we not waste money in buying things we don't need. In the next war we are not going to have an abundance of anything but trouble.

Thank you.

CAPTAIN BROWN: Admiral Arnold is ready for your questions.

QUESTION: Admiral, what part, if any, does the Office of Naval Material play in the determination of requirements?

Major Functions OF A

SUPPLY DEMAND CONTROL POINT

FOR MATERIAL ASSIGNED TO IT FOR INVENTORY CONTROL

- 1 DETERMINATION OF REQUIREMENTS
- 2 PROCUREMENT OF REQUIREMENTS
- 3 DETERMINATION OF EXCESS
- 4 DISTRIBUTION
- 5 BUDGETING FOR FUTURE REQUIREMENTS
- 6 CATALOGING
- 7 CONTROL FUNCTIONS SUCH AS:
 - A. DESIGNATE STOCKING POINTS
 - B. ESTABLISH SUPPLY CHANNELS
 - C. PREPARATION OUTFITTING ALLOWANCES
 - D. DETERMINE STORAGE REQUIREMENTS

ADMIRAL ARNOLD: I would like to say this, that insofar as his actual mission is concerned, he does not have, I believe, any responsibility. However, I can assure you that the Chief of Naval Material is very vitally interested in the determination of requirements. As, at least one of the officers here, Captain Burns, can tell you, he takes a very close look at the determination of requirements, particularly in the major end items--those which have to be covered, I think, by special reports to the Department of Defense (DOD) and the comptrollers all along the line. That is straddling the question, but technically he does not have that responsibility.

There is another field however in which he is exercising a good deal of authority, that is the general field of inventory control. He takes a very close interest in that and he is always casting his eye on the inventory figures of the Bureaus and how they are handling the inventory that they have.

QUESTION: Admiral, I am interested in this matter of coordination and I am interested in the remark which you made that there is a coordinating agency at Department level. I know very little about the Navy. I was interested in finding out what interservice coordination there might be in attempting to have global coordination where aircraft engines could be used throughout the services, and that sort of thing. Do you have any information in that area? Are the forces attempting to coordinate at Secretary of Defense level; for instance?

ADMIRAL ARNOLD: Are you thinking now of standardization items we buy or are you thinking of the determination of requirements jointly for the Air Force and Navy so that the buying would be made at the same time? I am not sure I understand exactly what you mean.

QUESTION: Here is what I have in mind: The services use a common type of engine in various types of aircraft, but the basic engine could be used across the board, provided it is controlled sufficiently, to guarantee standardization to the extent it could be installed in various types of aircraft. At this point, so far as I can determine, engines cannot be altered in the various aircrafts.

ADMIRAL ARNOLD: I think your statements are true. There are minor differences in those engines. The Air Force and Navy use basically the same model engines, the 1830 basic engine design. The Air Force did put a dash number on that which did incorporate minor changes and which would be peculiar to the Air Force plane. The interchangeability of parts is very wide. I would like to say that the determination of requirements

is based so much on the operations of the service concerned that I do not believe it would be possible for one service to, say, determine the requirements of the other. They might have different operating schedules, different times to be overhauled, and that varies to a considerable extent the amount of engines that have to be bought. But there is a very wide degree of standardization between the two. In the field of weapons, there is a very wide degree of interchange of common weapons between the services. Have I answered your question?

QUESTION: In trying to write this report I am probably living in an academic dream. It is possible, I am sure, to further this cause and I am going to go ahead and write the paper.

ADMIRAL ARNOLD: Perhaps you are talking not so much about standardization as you are about interservice support from one service to the other for engines and parts.

QUESTION: That is it exactly.

ADMIRAL ARNOLD: That is something they need to do more of, on the basis of always knowing what the other fellow has in the field of components and spares,

When it gets down to the determination of requirements--and I say this again, I hope only because it is so important to me--in the determination of requirements, that basically has to be the decision of the fellow who is going to use it. One of the things we always run into is the exchange of information necessary to a determination of requirements. If we place on one service the responsibility for the determination of requirements for ourselves, then we lose control to a large extent of the support of our forces.

Procurement is a little bit simpler. In procurement you have the requirements already determined. As you know, the Air Force buys a good many Navy engines and the Navy buys a good many Air Force engines, but that is a different matter from the determination of requirements.

QUESTION: You were talking about cross communication between a nonresponsible Bureau and the SDCP. I wonder if you would say a little more about that. I have never seen it working and I would like to know if it is working.

ADMIRAL ARNOLD: We have endeavored to do it in this way. We think the most logical way to do it is to have the information flow from the parent Bureau responsible for the equipment itself down through to all SDCP's and make the crossflow determination by the SDCP's.

If we want to take a typical example, let us say we were suddenly to make the decision that the Electronic Supply Office at the Great Lakes were to assume all supply responsibility for airborne electronics, which is currently the responsibility of the ASO--switch that over to the ESO.

If we do that, the ESO in assuming this support, must get this flow of planning information, including the planning information flowing to the Bureau of Aeronautics and to the ASO. Admittedly, we have much to do.

QUESTION: Do you have a staff agency in the Navy above the Bureaus that corresponds to our Assistant Chief of Staff G-4 in the Army who is responsible for all materiel programs? I realize you have an office up in the Office of the Secretary of the Navy, but I was wondering if there was someone directly under the CNO?

ADMIRAL ARNOLD: In the Office of the CNO is an office which does have that responsibility. On the aviation side of the Navy it is what is called OPO 5. For all other requirements, it is what is called OPO 4. There was also established recently in the Office of the Secretary an Office of Analysis and Review. It is currently rather small but I expect its interesting functions will expand more as time goes on. That agency is directly responsible to the Secretary.

QUESTION: Admiral, I think one of the more practical and perhaps acceptable solutions to the problem of repair of electronic equipment and the scarcity of technically competent repair people aboard ship is package replacement of units. That obviously cuts down the number of spare items required. I would like to ask two questions: (1) How is that program coming along? (2) Is there any possibility that it complicates the determination of the number of units required to be kept in stores?

ADMIRAL ARNOLD: I am not too familiar with the details of that program, but I would say that as these packages get more complex and it gets to the point where, instead of taking the thing to pieces and repairing it, they will take out the unit and plug in another. In electronic aviation that tendency is increasing. It has to.

How does that effect the spare parts supply? Obviously it is going to result in our buying the most expensive components as spares rather than buying bits and pieces, increasing the cost of electronics. But to the extent we can repair those, we can take one off that won't work and put it through a repair facility, we can put it back on the shelf as soon as overhauled.

QUESTION: The complication then is only in stretching dollars to buy enough units?

ADMIRAL ARNOLD: It is just good common sense to do it. Let us say on one of those package components it is of such a nature that a ship can't do it but a tender could. It is more logical therefore to have an overhaul program, it seems to me, on the tender which can take the old one and get it repaired and reduce the size of the things you have to buy. If we can get along with that program and expand it, it will mean we will not be so dependent in case of emergency on production. We will be able to do more of this in our military activities to the extent that we are able to do so. There again we get back to the basic decision that has to be made at the time the spares are bought: Is this an item we will repair or are not going to repair? That decision has to be made and it has a vital influence on what you buy?

QUESTION: Admiral would you discuss the electronic computer program and where you are going with it in your supply area?

ADMIRAL ARNOLD: If I knew, I could save the Navy untold numbers of millions in the next few years.

I envision in each of these SDCP's an exact data processing machine, very similar to the computer in construction but not the same. Instead of being designed for the computation of equations, it is simply designed to handle a large amount of data and store it. There would be some means or other, such as magnetic drums, to store a vast amount of material which you can call out on very short notice. We could have reported from each one of our storing activities every day everything taken out in that day and could put into the SDCP a running inventory Navy-wide on exactly how many we had.

The difference between that and what we are doing today is this: The information we get may be as long anywhere from 2 to 14 weeks late. I say that is too slow for this day and age.

QUESTION: Do you have computers now of any type?

ADMIRAL ARNOLD: Only one model in our ASO. That happens to be an IBM 701. They propose to get within the next few months a 702. That is again only a stopgap, a one-way effort.

With the 705, one of the things we would be able to do would be to take an aircraft program, an operating program of any kind, and translate it very quickly into net requirements. Then we could subtract the assets from that and decide how much the net requirement is. We could then run that against how much we have and decide whether the program is feasible. That is another thing we should be able to do.

QUESTION: Admiral, I understood you to say that your planning guidance stems primarily from the CNO.

ADMIRAL ARNOLD: That's right.

QUESTION: Are you referring to the unilateral Navy position or has this guidance had the approval of the Secretary of Defense prior to the receipt of guidance from the CNO?

ADMIRAL ARNOLD: It has the blessing of the JCS and the Secretary of Defense. I neglected to mention that, but it is an essential.

QUESTION: I presume the Navy has a great many items which are procured locally and which do not have a central inventory control point. How do you assemble your requirements data at the national level in order to arrive at budgets for those items?

ADMIRAL ARNOLD: At the present time we don't have any items that are used in considerable quantity which are on that local procurement requirements determination basis. The Air Force, I know, is going into that on a pretty wide basis. We have not as yet. There are some common items in which we do intend to expand considerably in the next few years.

In the Navy we are going into it rather cautiously. We feel in time of emergency these local sources might very quickly dry up. Another thing is that, if you go to local sources, there is no information back as to what the rate of usage is unless we go to some special means to get it.

QUESTION: I still don't understand the elimination of duplication. I have been told that it is being done at the Department level, but the Material office doesn't do it. I still can't see where a possible duplication, say, of airborne radar would be eliminated from the requirements of ship-board radar. Just where in the Department is that duplication eliminated? What office does it?

ADMIRAL ARNOLD: In the first place let me say that we don't expect at the present time to have an airtight system to eliminate every possible item of duplication. We have an office in the Bureau which knows the kinds of material that all these SDCP's carry and they know where those same areas of duplication are. They will go to these SDCP's and demand a list of these categories and see how much duplication we have. If it is not too much, they let it ride; if it is too much, the Department makes the decision for the SDCP to take over the Navy's requirements control responsibility for that category.

Quite frankly, the Federal catalog program, when the work is all completed, will to a considerable extent eliminate that duplication. We will have then only to match up numbers. We have a Navy catalog system which is of great help but it is not of as much assistance as the comprehensive Federal catalog is. Once the numbers are in, once we have gone through all this work which Federal cataloging requires, then we will be able to match up number by number to see how great the duplication is.

I don't think it is a desirable objective to try to eliminate all duplication. It would not be worth what it costs, particularly in small items and small usage rate items.

QUESTION: Admiral, I understand a study has been made regarding the feasibility of setting up a separate service office of supply. Has such a study been made and would you care to discuss the results of it?

I don't believe any study was made about a fourth service as a supply service for all the other services. We in the Navy have always been opposed to that. I hope I make it clear when I say the reason for it is that we feel that the determination of requirements is a job which has to be close to the operating people.

If we establish a fourth service of supply, completely separated from the people who are operating at the working level, I feel it would be a serious mistake and would weaken our strength a great deal. In all the supply operations I have ever been engaged in--some 20 years now--I have found that the closer I worked with the operating people, the better job I got done.

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We find today, wherever we find a serious problem in the determination of requirements, buying too much or too little, we can usually trace it some way to some lack of exchange information. A fourth service of supply would not have the means of arranging for that complete flow of information up and down. Again, I don't think we would get much out of it.

At the present time, the DOD directive is that each service maintain and operate its own supply service. That is down in black and white.

QUESTION: Would you go a little bit further into how the usage information exposed by the maintenance forces is fed into the Navy Establishment's requirements system?

ADMIRAL ARNOLD: There are two basic processes by which it is done. The first is the relatively simple one, when a spare part is issued from a supply activity--and I mean not only depots but the supply department of a station or a shipyard--when that material leaves the supply department, it can be charged as an issue, and that will serve as past usage and so as a method for predicting what future usage will be. That is one system.

The trouble with that is that if the user has hedged a little and doesn't use more than he requires, that cranks in a false factor of usage and leads to the computation of excessive demand. There is also a lag there. Let us say a year ago the fellow charged out something and charged it as used.

The better system, particularly on technical supplies, is that you get it from the fellow who actually puts it into a piece of equipment. If we are talking about resistors, we would get it from the radioman who actually puts resistors in there and charges it off at the time and sends you that actual usage.

A very important factor about usage is that you can't have just usage. It has to be related to something or other. In the case of electronics, I understand it is sometimes charged off to operating hours of equipment. You can't charge just so many; you have to relate it to time, hours, or something of that sort. In aircraft, it is done by flying hours.

We found that one of our greatest difficulties was in getting this information fast enough. We found it was better, rather than going out and trying to get every piece installed, to go to a selected unit in which you have confidence and ask it to send information data on a specific piece of equipment for a period of time. If you confine it to one or two operating units and one or two repair activities, it is more accurate; also the labor would be much less. That is a use to which we could put the electronic computer. We would attempt to get usage data quickly and translate it into something we could use.

QUESTION: Are the maintenance forces more nearly a part of the supply system or the operating system?

ADMIRAL ARNOLD: I would like to answer the question by saying that we consider the supply people with the operating forces a part of the operating forces. One of the reasons I don't think a fourth service of supply would be as effective as the supply system that the services use today is that we consider supply an inherent part of the operating forces, existing for one purpose, to take care of the people who operate. That is why we think they have to be part of the operating forces.

QUESTION: Where in the organization and when are your requirements costed and put into a budget for defense in Congress? Second, if your budget as sent to the Congress is cut, who in the organization decides where the cuts will go? By that I mean, apparently Bureaus cost their individual budgets and someone above that ties them together. If there is a cut, who settles the fight about where our dollars go?

ADMIRAL ARNOLD: The answer to the first part is: Where we budget these spare parts categories. The Navy has been for some years getting financial information on how much it has on hand, how much has been issued, how much is due in, and so forth. That is accumulated, not at the SDCP; it is accumulated from the people actually stocking the material. That is fed in on a quarterly basis. That becomes available at the SDCP every quarter for every material handled in dollar figures--how much on hand, how much comes in from purchase, how much is expended for end use, how much has gone out for support.

When he comes up to prepare the budget, he will take each category of material he handles and he will see how much he has issued during the past year, and that will be a sort of guide as to what we can expect to do.

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There again the planning factor has to be applied. For example, if we were to take an item very closely related to personnel and there were going to be half again as many people in the Navy as when he planned his support, he has to figure the planning factor in terms of how much of that budget he is going to use.

The budget is a business of give and take. If the SDCP representative comes in with a budget of 50 million dollars and he is told that he can have only 35 million, then the first thing he does is to begin to cut down the stock level on hand--what he carries. That is about the only thing he can do--reduce the on-hand stock level. This does in a way reduce his readiness position.

At the present time, the Navy is not allowed to buy any considerable amount of mobilization reserve; also in the Navy we are not allowed to draw down the mobilization reserve in terms of general readiness. We are allowed to balance the full mobilization reserve. Where we are long on one item and have none of another, we can draw down the mobilization reserve on the long item and get the money back in respect to the stock account and put that into the new investment.

QUESTION: On this throw-away type of maintenance that you discussed, have you had any success in having Congress accept this kind of concept? I heard it was very reluctant to throw away anything of that type.

ADMIRAL ARNOLD: I think you understand we are not talking about exchange buying. We are talking about a piece that wears out. The mechanic takes it off and fits in a new piece and throws the old one away. Congress is very critical of the reparable material carried on hand which amounts to very large figures. One of the reasons is that, as we accumulate reparable material, we don't establish a usage rate, particularly when we are buying for a long time; that results in an accumulation of dollar value, particularly of that reparable material.

CAPTAIN BROWN: Admiral Arnold, on behalf of the Commandant, the student body, the staff, and faculty of the Industrial College, I would like to express appreciation for an excellent speech and a most outstanding performance in the question and answer period. Thank you very much.

(28 Jan 1955--350)S/mmg