INFLUENCE OF ITEM CHARACTERISTICS ON REQUIREMENTS DETERMINATION (ARMY)

15 November 1948

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GENERAL HOLMAN: This morning we have our second lecture on the subject, "Influence of Item Characteristics on the Determination of Requirements." You will recall that Dr. Steiner gave the first lecture on this subject, discussing the question from the standpoint of the NSRB. This morning the discussion will be from the viewpoint of the General Staff planners.

Our speaker today brings to us a wealth of practical experience in the field of both planning and supply.

I take pleasure in introducing to you Brigadier General Edward Montgomery, who is Chief of the Supply Group, Logistics Division of the General Staff of the Army.

General Montgomery.

GENERAL MONTGOMERY: "Influence of Item Characteristics in Requirements Determination": When I first read the subject of this lecture, I felt as though I had been dealt a mighty low blow. It immediately reminded me of such subjects as "The Phenomena of Color Spectra in the Corona of the Aurora Borealis," or perhaps "The Dynamic Symmetry of Modern Art." I was certain that the subject had been conjured up with diabolical intent, either to terrorize the speaker or to administer to the entire student body the sedative effects of a slight overdose of phenobarbital.

But after thinking over the subject for a little while, I suddenly discovered that behind that lofty and high-sounding title, there was a wealth of meaning which could cover much material and information. So far as I know, this field has never been fully explored or analyzed before, except for the work that you have been doing here at the Industrial College.

Let's rip this subject into its component parts and get down to fundamentals and realities.

What are item characteristics? Without hauling out Webster and quoting verbatim two columns of five-point type, I'll give you a working definition. Item characteristics are those properties or qualities which, for all practical purposes, fully describe an item, its manufacture, and its use. In other words, item characteristics provide the complete data which are essential to a full picture or understanding of an item, how it is made, and what it will do.

Obviously, an item like a thumb tack has relatively few characteristics; but a truck, an airplane, or a battleship has countless characteristics which would require volumes to enumerate.

If I were to attempt to take every possible item characteristic for each of the six hundred thousand items the Army supplies and then attempt to discuss how each of these characteristics influence each requirement determination, you and I would set an unparalleled endurance record for human misery.

For the purpose of this discussion, let's reduce the myriads of characteristics to something which we can handle.

To my way of thinking, there are three broad types of characteristics, which I have listed on this chart (page 18). Into any one of these three broad types we can place all of the characteristics which we must know about any item in order to classify it adequately.

The first broad type we will call "physical characteristics." These are the characteristics which fully describe the item from the physical standpoint. What does it look like? How long and how wide is it? How much does it weigh? What is its taste? How many parts does it have? How do these parts fit together? What color? What finish? What materials? What shape?

The next broad type we will call "usage characteristics." These are the characteristics which tell what the item is used for, what it will do, what it requires to accomplish its task, how it operates, what are its optimum limitattions. These characteristics define the capabilities and the functions of the item.

The third and last broad type of item characteristics is made up of "productibility characteristics." These characteristics are those which directly concern the production of the item. How much and what kind of materials are required to make the item? What manpower and facilities are necessary? How does it adapt itself to production in quantity? What is its cost? What production know-how is required? How close are the tolerances of its parts? What special tooling is necessary? Does it require special inspection guages?

Having roughly defined our broad types of item characteristics, let's "test for gas" and see if there are any characteristics of any imaginable item which do not fit into the three broad types. I have tried, ever since I was asked to speak here, to find a single item characteristic which I could not place in one of the three broad types that I have just outlined. Possibly someone in the class may confront me with one. Perhaps one characteristic belongs in more than one place. I think we are reasonably safe in assuming that our three main types are all-inclusive, at least for the purposes of this discussion.

At this point, since our talk has to do with the relation between characteristics and requirements, let's leave item characteristics for the moment and take up the various kinds of requirements determinations which the Army makes. After we have discussed these requirements determinations, we can then show how the various item characteristics influence our computations.

In the Army we have roughly seven different types of requirements, each of which I will explain to you briefly, in the order shown on this chart. (Removes mask 2 of the chart)

Our first type of requirement is that for initial issue. This requirement is for the equipment to fill allowances of newly activated units and to equip the soldier completely for the first time. It also covers issues of new types of equipment which are to be furnished to existing units based on a new, or revised, equipment allowance. In general, our initial issue requirement, for a particular piece of equipment, is the requirement for the item to be furnished to a unit or individual for the first time.

Our second type of requirement is that for replacement. Obviously, our equipment cannot be used indefinitely. Sooner or later some kind of a replacement must be furnished to take the place of equipment lost, destroyed, or worn out. By means of established replacement factors, we can project our needs for replacement of equipment, as well as for spare parts, and determine our replacement requirement.

A third type of requirement is that for substitutes. This type of requirement is best explained by an example. Suppose that through limited production facilities we are unable to fill our complete requirement for M-1 rifles. However, our stock of carbines is more than sufficient to meet our requirements for carbines. Rather than do without the M-1 rifles, we substitute the carbine and meet our requirements for rifles with a weapon which is almost as good for certain purposes as the M-1. This substitution, of course, increases our apparent requirement for the carbine and this extra requirement for carbines we call our requirement as a substitute.

Still another type of requirements is that for "levels." Stock levels are local reservoirs which we place in our supply distribution system for safety purposes to insure that supplies are available when they are needed. We can compare our levels to the water tanks in a city water system. Levels, like water tanks, insure that our flow of supplies is not interrupted due to breakdown of the supply pipe line, unprecedented local demands, or other unexpected contingencies.

Reserves constitute another type of requirement. Reserves are somewhat like levels, on a much larger scale, and their object is to insure the uninterrupted flow of supplies in serious emergencies. We can compare

reserves to the backup or main reservoirs of a water system. In the Army we have various types of reserves, the most important of which is that for war reserves.

We have two other types of requirements which are so similar that, for our purposes here, we can treat them as one requirement. These two requirement are for "projects and for Class IV equipment." Project requirements are the demands for considerable quantities of equipment and materials for a particularly important undertaking, such as bridges for the crossing of the Rhine River in Europe, for the rehabilitation of the Port of Le Havre, or for building bases in the Pacific. Our Class IV requirements are demands for special types of equipment or materials which are not normally included in the equipment authorizations for our units. Examples of Class IV requirements are those for barbed wire, barbed wire pickets, and bridging equipment to supplement that required by a division.

Our last type of requirement, that for "other agencies," really is a composite requirement of all outside demands placed on the Army. These requirements include those for the Navy, other governmental agencies, foreig military assistance or lend-lease. They may include requirements for the Air Force when the Army-Air Force agreement on the division of stocks has been fully implemented, although I believe this requirement will be consider separately. The requirements of other agencies are generally determined by the agency concerned and merely passed to the Army for inclusion in the over-all requirements of the Army. Of course, the item characteristics are then given the consideration necessary by the other agencies.

Having typed our broad characteristics and having explained the various kinds of requirements determination which the Army must make, we now should tie the two together again. How do these characteristics influence requirements determination?

Here is a suggested work sheet (removes mask 3 of the chart) with the broad types of characteristics shown at the top: "Physical characteristics, "usage characteristics," and "producibility characteristics."

Down the side of our work sheet we have the various types of requirement determinations.

We will take the first type of characteristics first, and see how physica characteristics influence our various types of requirement determinations. Physical characteristics, as you probably remember, fully define the item regarding weight, dimensions, appearance, texture, and so forth.

During our discussion, I will confine myself to examples of items which are past the research and development stage and which are actual adopted typ items.

At this point I would like to caution you not to get these three types of characteristics mixed up with what we call "Military Characteristics." The term "Military Characteristics" is defined as those essential qualities of performance which a single item or an assemblage must possess in order to be suitable for its intended military use. "Military characteristics" can include any or all of the three broad types of characteristics which we have already covered and need not be further discussed here.

Physical characteristics influence all of our requirements determinations to the same degree in at least two different ways. The first way physical characteristics exercise their influence can easily be illustrated by an example. Let us take a white parka. Obviously, requirements for a white parka are limited because of its color, which provides adequate camouflage in snow. If we made the parka reversible, with a green outside and a white lining, we could use it in both temperate and Arctic zones in winter combat with a consequent increase in our requirements. You can think of many similar examples which apply not only to color but to other physical characteristics, such as weight and dimensions as well.

Now let us look at the second way these physical characteristics influence requirement. If the physical characteristics of an item are such that it can accurately be described in a variety of ways but the description is not handled in a uniform way, we can duplicate or multiply our requirements determination for the item and can even increase unnecessarily our requirements. Practically any kind of a washer, a nut, or a simple bearing can be given as an example of this duplication. If we aren't careful, we can be determining separately our requirements for identical items, called by different names, and actually be buying and maintaining duplicate sets of levels and reserves of these items. Actually, I was told that during the war the Navy discovered that it was buying one item under 1,100 different stock numbers. It had the same item characteristics but it had a different stock number.

We have seen two general ways in which physical characteristics influence requirements determination, so we'll check it off (checks off Chart) our work sheet and take up the next type, "usage characteristics."

Usage characteristics tell what the item is used for, what it will do, how long it will last, what is required to accomplish its task, how it operates. In what way do such characteristics influence requirements?

Let us take a very broad case that illustrates the influence of usage characteristics on all of our various kinds of requirements. From a mobility standpoint, and certainly from the viewpoint of John Soldier, it might be highly advisable to equip each of our combat infantrymen with a jeep. What prevents such an idea?

Among other reasons, each jeep has usage characteristics which necessitate gas, oil, tires, and spare parts. Even if it were possible to

furnish the original jeep for each soldier, the fuel and spare parts which would permit use of the jeep would be beyond our possible transportation and supply capabilities. Consequently, in framing our Tables of equipment we keep our jeep authorizations down to a figure that is practical. Our "initial issue" requirement is determined from these tables.

Usage characteristics similarly influence requirements for projects and others, such as the Navy, Air Force, and foreign countries. Navy requirements for landing craft are also greatly influenced by usage characteristics. Due to the fact that the "initial issue" requirement is influenced, the requirements for replacement, levels, and reserves are indirectly influenced.

There are hundreds of examples of how usage characteristics influence requirements determination, not only from the angle of what the item requires to accomplish its task, as in our jeep example, but from the point of view of what the item will do, how it accomplishes its task, how it operates, as in our landing craft example. So we're safe in checking our work sheet. Usage characteristics do influence requirements determinations. (Checks off usage characteristics on the chart).

But there is one requirement which is influenced to such an extent by usage characteristics that we should give it a little more attention. Of all our Army requirements, none is influenced by item characteristics to a greater degree than replacement requirements.

Our replacement requirements are determined by means of replacement factors. These replacement factors are directly and thoroughly affected by how long the item and its component parts will last--which, of course, is a usage characteristic. One entire lecture could well be devoted to the problem of the influence of item characteristics on replacement-factor determination.

For our purposes we will merely point out that the longer an item lasts, the fewer must be replaced each year; consequently, the lower the replacement factor. But how the replacement factor is determined and which type is used--actuarial or straight-line replacement--is enough to throw the experts into endless arguments.

Usage characteristics similarly greatly influence a corollary of replacement requirements for the complete item--the requirements for spare parts. Our spare parts problem in the Army today is greater than at any time since the war, principally due to the usage characteristics of the end item and its components.

So we can double-check our influence on replacement (double-checks replacement-usage on the chart) and take up the influence of producibility characteristics.

Producibility characteristics are those which keep our equipment on a relatively practical plane. Funds, materials, facilities, manpower, all of which are producibility characteristics when related to an item, are factors in our national economy. Regardless of whether we are determining our requirements for peacetime, for mobilization, or for war, producibility characteristics exert a very strong influence.

While tracing this influence, we will group Army requirements--initial issue and projects--with those of the Navy, Air, and foreign. Obviously, our over-all requirements must be within the industrial capability of the country. Consequently, we all must try to keep our requirements within the realm of possibility.

I will give you an example. Our new Infantry Divisions call for more tanks than the old-type Armored Divisions were authorized. The total Army tank requirements are such that if we were forced to mobilize today, we would have to reduce drastically the authorization for tanks or do without.

Yet here is an opposite example. During World War II there was an urgent need for light automatic weapons with high fire-power for our parachutists and our infantry assault troops. The Thompson sub-machine gun was an excellent weapon but was fairly difficult to produce. Consequently, we limited their use because of producibility considerations. But soon we developed the sub-machine gun, M-3A1, commonly called the "Grease Gun." This weapon was fairly simple to produce, was cheap in materials and manpower, and required no complicated manufacturing processes. Because of its producibility we were able to increase our authorizations and consequently our requirements and fill an urgent need for our combat forces.

Obviously, producibility characteristics have a strong influence on initial requirements determinations. Since such requirements, in turn, influence requirements for replacement and levels, producibility characteristics exert their influence in these fields also. So now we can check off all our requirements with the exception of our reserves. (Checks off all except reserves.)

The producibility influence which we have just discussed applies equally as well to the requirements for reserves. But there is one producibility characteristic which has even a stronger influence on determination of requirements for reserve equipment. That producibility characteristic is production lead time.

From an Army viewpoint, the equipment reserves which we must maintain are those quantities of equipment which must be stocked and stored to support our scheduled mobilization until such time as production meets requirements. These quantities which must be held in reserve depend on our mobilization schedules and on the production lead time of the items concerned.

Now we can add our last check to our card. (Checks off reserves.) As you can see, all of our types of item characteristics influence all of our kinds of requirements determinations, some extensively, some indirectly and to a limited degree.

What effect do these influences which we have just discussed have on Army policies and procedures? Their importance and their effect are considerable, even though people who are dealing constantly with requirements policy and procedure often take these influences for granted.

Let's take physical characteristics and see what policies and procedures can be traced directly to the influence of these characteristics in requirements determination. You will remember our example of the white parka, that the color affected its requirements. We can also think of a tank the weight being such that no bridge could support it, or a truck too large to get into a ship's hold. To prevent such inconsistencies, the Army has an effective research and development program. The policies and procedures which govern this program are partially the result of the physical characteristics of the equipment we need or could use in the Army today. And, of course, that is where our military characteristics become paramount.

Another way physical characteristics and their influence on requirements affect Army policy is in cataloging our equipment. Previously we discussed how similar physical characteristics improperly organized could cause us to duplicate our requirement determinations and even our requirements. To prevent such a situation, and to avoid planning for and buying similar items under different names, the Army has joined with the Navy and Air Force in the program of the Munitions Board Cataloging Agency. This agency establishes uniform cataloging and item identification policies, procedures, and item descriptions in the National Military Establishment in conjunction with the Bureau of Federal Supply.

But how about usage characteristics? We have shown how usage characteristics influence requirements. Let's see how these influences affect Army policy and procedures.

We can go back at once to one of the basic fundamentals of present Army organization for one example--that of the Army technical services. In attempting to arrive at some organization which would permit an efficient supply system and yet furnish a maximum of decentralization and control, the Army assigned supply responsibility by commodity field. It still does. In other words, usage characteristics of Army equipment were some of the factors which dictated present Army organization.

Another example which also shows the interrelation of physical characteristics and usage characteristics is this. Our cataloging program, which we touched on briefly a moment ago, uncovered the fact that Ordnance was buying

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a "machine, strapping and boxing, hand operated"; Transportation Corps was purchasing a "bander, hand, crimping and fastening for metal strapping"; and Quartermaster Corps was in the market for a "sealer, box, strapping." All of these items, when properly described by physical characteristics, proved to be identical box banders. But who should be assigned supply responsibility? That was a problem for the Army's Procurement Assignment Board and the answer was based on policies and procedures relating to assignment of supply responsibility and the usage characteristics of the box bander. The Quartermaster now buys it.

A different example of usage characteristics which shape Army policy and procedure is that of military and civilian type items. Some of you will probably remember that shortly after the war, a governmental policy directed that all possible equipment of use in the civilian economy be released by the Services in order to offset shortages of essential consumer goods. In implementing this over-all policy, the Army classified all items as military or civilian type, based on their usage characteristics. This subdivision further assisted us in defining our disposal levels and equipment reserves policies and procedures.

What other Army policies and procedures are the direct result of usage chacteristics of items? Our replacement factor policies and procedures are another example. Our spare-part policies are another. Incidentally, some of our spare-part policies are now undergoing rather drastic revision in order to bring our spare-part stocks more in line with our capabilities in the field. Usage characteristics of spare parts will play an extremely important part in the revision of policies.

Producibility characteristics of the various Army items also form the basis for other policies and procedures. Perhaps the best example is that of war reserves. Production lead time, which is an important producibility characteristic of all major items, is a very essential factor in determining requirements for war reserves. Consequently, our war reserve policies and procedures are shaped to a considerable degree by producibility characteristics. In a similar manner, our budget policies are affected by these characteristics.

A related problem to war reserves, which is also strongly governed by producibility characteristics, is the program of stockpiling certain machine tools and critical materials. By such stockpiling we can reduce our production lead time and also our war reserves. We can improve our mobilization potential.

Sometimes usage characteristics and producibility characteristics act together and form the basis of still other policies and procedures.

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Principal and secondary items, as classified in the Army's Supply Control System, are a typical example. In the Supply Control System, we use the principle of economy of force. We concentrate our attention on about thirteen hundred principal items, which represent only a very small portion of our six hundred thousand items. But their value represents more than half of the total value of Army stocks. All other items we consider secondary items and their value is less than half of our stocks. While we certainly do not ignore secondary items, most of our effort is placed on controlling the principal items. Usage and producibility characteristics determine which items are principal and which items are secondary. This example illustrates how requirements policy and procedures are based on item characteristics.

I think I have given you enough examples of how our policies and procedures are affected by the influence of item characteristics on requirements.

Let's return again to the over-all picture.

We have discussed how the various types of item characteristics influence our requirements determinations and we have covered some of the policies and procedures which can be traced directly to item characteristics.

Although our discussion has been confined to the influence of item characteristics on requirements determinations, I certainly do not want to leave you with the impression that item characteristics are the most important or the only factors which influence our requirements determinations. Many other factors influence our computations. Political factors often affect our requirements determinations, especially during an election year. Strategic factors constantly influence our computations. Economic considerations must be borne in mind when determining our requirements, particularly in mobilization planning and in wartime supply. They affect producibility requirements. Financial and budgetary factors similarly exert a very strong influence in time of peace.

There is still another erroneous impression regarding the dtermination of requirements which I hope none of you holds. Too often, students and practitioners of the science of logistics are inclined to assume that requirements computations are pure arithmetical calculations which are as simple as two times two equals four. While it is definitely true that our computations are primarily based on multiplication or addition, a tremendous amount of judgment and common sense must be applied to our basic figures before we reach the arithmetical stage.

We have seen in this discussion how such a fundamental factor as a single item characteristic has a far-reaching influence on the determination of requirements. We know, too, that many other factors, such as

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strategic, political, economic, and financial considerations, exert an even stronger influence on our computations. Consequently, judgment, rather than mathematical or arithmetical precision, is the basis of the determination of requirements.

GENERAL MONTGOMERY: It has been suggested that I will expose myself to some questions.

COLONEL ROBERT G. BUTLER, JR., Ord.: Could you give us some specific examples of the fluctuation that took place in considering requirements as they went through some of these various steps in your determinations at the higher levels, where you are considering whether or not you can get all of an item or half of it, and so on?

GENERAL MONTGOMERY: I think one of the most typical kinds of, let us say, categories of requirements is that for foreign aid. We find ourselves in quandaries at all times due to the fact that we are, through various and sundry policies, required to furnish foreign aid--foreign aid to Greece, Turkey, and the rest of them.

We get those requirements from them, that is from the Missions that are there, on the basis of what they need for their particular problems. Now, as you can see, those requirements cross over every one of our own requirements. When we start figuring whether we can satisfy a requirement, we have to give consideration not only to our own needs for requirements in any one of those places, but also the foreign-aid programs. One example in that category is the spare-parts requirement. As you well know, when we issue or buy a truck, we buy a year's supply of spare parts with it. We are now giving foreign aid to some of these foreign countries and by furnishing a good deal of their transportation are finding ourselves up against a tremendous problem in supplying the necessary spare parts.

Does that give you some picture of what we are talking about, Colonel?

COLONEL BUTLER: I meant more the change in figures that resulted from item characteristic considerations at, say, levels where the Army had put in its requirements to the Munitions Board and they go on up to NSRB and then back down. I didn't know but what perhaps in your position you knew some specific cases where the figures had to be changed--perhaps even changes in the Joint Chief's plan.

GENERAL MONTGOMERY: I believe that we are talking about something we haven't run up against yet. I am not too familiar with the future of organizations like the Munitions Board, the National Security Resources Board, and so on. I do not know what their effect will have on the Army, specifically. They are not sure themselves, I believe.

Taking the question of requirements determination, there is no policy yet established by which we know the influence that those Boards are going to have on our requirements. The question arises immediately, should the

Munitions Board have within itself an organization which will take some control of Army requirements, or Navy requirements, or Air Force requirements? I think there are two sides to that question that arise immediately. Is it right for an organization which is in the position of the Munitions Board to attempt in any way, shape, or form to delve into requirements which, we will say, the Army, or the Navy, or the Air Force might have?

Don't misunderstand me! I am not saying they are not qualified. I simply ask the question, are they qualified to get into the requirements for the innumerable items which the Navy, for example, has? It is questionable in my mind. Policies, yes; but when it comes to the computation of requirements and establishing the basis for setting up those requirements, I feel that only those people who are practically familiar with all phases of what goes into requirements can work that out.

So I think my answer is I don't believe, as yet, they have gotten into that.

QUESTION: You have covered, General, mostly end items. A part of our program deals with raw materials and semifinihsed products. Could you discuss that? To a certain extent, I know these characteristics you discussed will probably fit them, but I wondered if you could give us a remark on that other phase also.

GENERAL MONTGOMERY: Perhaps, if you would make it more specific and give me one of your categories, I might be able to discuss it a little better.

QUESTIONER: It would be in the case of steel, or copper, or one of the ores needed to make those.

GENERAL MONTGOMERY: Let's take a question that is very vital—the question of the day of supply for artillery ammunition. Since the war, we have had that question up before us several times, hoping to be able to use World War II experience in ammunition firing, use, and supply to revise the day of supply.

The day of supply, of course, is a basic factor in the determination of requirements. The Chief of Ordnance has taken a definite stand that computations which resulted from our experience during World War II, if applied to a future war, would far exceed the producibility requirements.

In steel alone, as a result, we have had to carry that particular discussion to the Munition Board, which may seem to deny what I said awhile ago. But we are speaking there only of our requirements for steel which, of course, we all understand is not within the province of the Army alone.

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Is that an example that fits?

QUESTIONER: Yes, sir.

GENERAL MONTGOMERY: We are in a very embarassing situation right now, in determining what our requirements for ammunition are on the basis of a new mobilization plan. It may go so far as to affect the type of troop-basis we come up with.

QUESTION: General, has there been any consideration given to working in the reverse cycle, that is, anticipating the industrial capability of the country and then establishing requirements within those capabilities rather than have requirements come out that the Munitions Board says are not feasible because they are too great or beyond our capacity?

GENERAL MONTGOMERY: So far as I know, the answer is no. But I wouldn't say that as a fact because I, as Chief of the Supply Group, don't get mixed up in that kind of calculation or that kind of movement. I doubt it very much.

QUESTION: General Montgomery, at the beginning of your speech you mentioned that a state of confusion existed in your own mind when you read this highfalutin language we are using here, "influence of item characteristics." We have had this assignment for about three weeks. We started off confused. I imagine we were a great deal more confused than you were. What I am interested in is, why were you confused?

My thought is, for a long time this Army has been operating. It has had requirements. The Army had to establish its requirements along this same line of thinking. Now what are we doing? Changing horses in the middle of the stream and using a lot of new language.

How did we determine item requirements before the word "characteristics" jumped on there and caused all of this confusion?

GENERAL MONTGOMERY: I was confused because I fell into the pit that most people do when they talk about requirements, computing requirements, or requirements determinations. It is my business to do that. We are doing it every day, all the time. It is a very complicated process. We, in the Supply Group, you see, do not get down into the characteristics to make our requirements. Somebody else does that in the beginning--the development people; the people who set it up originally. They go back to our old expression "military characteristics." It may be a usage, a descriptive, or a producibility characteristic, all of which are involved in military characteristics.

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Perhaps I was narrow in my first look at this question because of the fact that I looked at it from the position of the Supply Group and thought to myself, "Why does General Vanaman want a Supply Group man to talk about the effect of these item characteristics? We don't get into it." They do enter, as you can see and as you all know from the interest you are taking in this subject. But when it comes to the final computation, which is our job, we just don't pay any attention to them. The other fellow has done it all up to that time. (We always hope he has done it properly.)

But, of course, to analyze it a little further, and to use my example of foreign military aid, if we think about it, we don't calculate their requirements. They are made on the basis of usage characteristics by the Mission. The Mission to Greece, for example, uses characteristics extensively. If they get, say, fifty million dollars for Greek aid, their first thought is, what best can we get for this? We know we can't get enough. They scrutinize the type of work, the terrain, and everything, and then come back with a statement of their requirement, which is based completely upon not producibility but usage and physical characteristics.

QUESTIONER: General, really what I had in mind was, we speak, normally, of performance data, specifications, and all that. But lately we have been utilizing some new language along this line. In the final analysis, however, you always end up with "determination of requirements." That was what I had, basically, in mind. We have had other terminology used.

GENERAL MONTGOMERY: I think what has happened here is that it has always been considered, but separately. One group gives consideration to one side of it, another one to another side, like the Munitions Board to the question of steel; the Research and Development Board to the research and development aspects of this thing. Until I was handed this subject, I had never seen them brought together before. As I tried to say, when we started looking at this thing, we appreciated what was really behind this subject. Now, I think it is simple; but it didn't look so simple to me at first.

QUESTION: General, I believe you stated that the item characteristics didn't affect your office. I would picture your office as having two main types of people working in it: One, a group of people who, primarily, take tables and compute from them, run adding machines and all kinds of calculators, and come up with a number; the other type of person in your office is one I would picture as looking over that man's shoulder. He looks at a figure and perhaps says, "My God! That's an impossible figure. We've got to do something about that." Or else he takes the sheet as a whole, when it comes out, looks at it and says, "This is too much. We can't get all of this. We've got to make some sort of compromise."

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This sheet that came out of the machine and out of the calculators had a lot of items and a lot of quantities, but by the time you hand it over--say it is an Ordnance item or a Signal Corps item--to the procuring services, it isn't that same nice clear, clean sheet. It has had all sorts of compromises along the line.

GENERAL MONTGOMERY: You are absolutely right.

I might say that just last week when I had to tell Mr. Gray, the Assistant Secretary of the Army, something about these various subjects, the first question he asked was wuether we studied these things from the point of view of the second aspect of which you spoke. I told him we did.

I think the Supply Group is the office of last resort in order to protect ourselves. But we, as a Supply Group, have no authority in those matters.

QUESTIONER: But then in that case don't you bring in, in the back of your mind, either consciously or subconsciously, item characteristics?

GENERAL MONTGOMERY: We do it in the back of our mind. I think in the future we will probably do it more in the front, after this study has been made.

QUESTIONER: What I was trying to get at is, in your office, I believe, you do consider item characteristics.

GENERAL MONTGOMERY: Oh, absolutely. There's no question about it; especially the question of cost.

QUESTION: Sir, could you give us just a general idea of the amount of actual labor involved in computing requirements--the Indians who actually do the arithmetical part of the subject? For instance, if somebody should decide every soldier should always have two wool shirts, could you tell us how much work is involved in arriving at a figure as to how many wool shirts the Army would need under different circumstances?

GENERAL MONTGOMERY: Well, that is getting it down to pretty fine details--wool shirts. But let us just look at it from the point of view of a program, which is our usual way of approaching this thing.

We have thirteen officers in the Requirements Branch. We have six more in our Control Group. Each technical service has anywhere from two to probably fifteen, depending upon its size. I would say Ordnance probably has spread out a good deal more than that.

When we get a program, every one of those people has to work to determine the actual final requirement. They may have to work up to three or four weeks. Now I can't break those figures down for you because, as you know, we don't do the work in the Staff. We don't compute these requirements. We supervise their computation. We set up the policies. We supervise the work of the technical services and collect from seven technical services their many items and computations.

The Commanding Officer at Ft. Myer says he wants to have silk socks for his guard. In that case, we will come in with some of those extra-curricular objections on account of cost and availability. It may take us only a day to find out whether or not there are any silk socks and how many should be given. If we give it to Ft. Myer, will we have to give it to Bolling Field, and so forth and so on?

It is a job that depends entirely upon its complication, the number of items, and the type of items.

QUESTION: It appears that your military characteristics are going to influence your item characteristics considerably. For instance, take your example of the parka. If military characteristics determine that it will be used both in arctic and in temperate climates, then your item characteristics have more or less been determined as to color and probably weight. The same thing is true of armament—if it is to operate from minus 65 to 150.

Who, besides the using agency, runs a check on military characteristics requirements?

GENERAL MONTGOMERY: "Military characteristics" determination and approval are a function of the Technical Committees of the Services.

First of all, I want to come back at your remark. I think it is just the opposite. I think the item characteristics influence the military characteristics. In other words, you search through this thing and determine what item characteristics are possible, then decide what they are, which of them are needed to make this thing satisfactory as a military item.

But I think I can explain these military characteristics in this way. The need for an item usually arises from the field. Since the war, a great many of our military requirements have originated in the Army field forces, under General Devers and his staff. They get them from the field. When that is done, they are then brought in line with the thinking of the field and put together as a preliminary statement of the military characteristics.

That, then, comes to the Staff, perhaps before it goes to the Technical Committee, and is studied in the research and development section. It finally gets back to the Service, it works out its possibilities, present

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and future. Or it turns it over to the technical service where those characteristics (modified by the technical service) receive consideration and final approval of that Technical Committee. Action as to those characteristics is final. They never once get into the supply end of this game at all during that entire period.

GENERAL HOLMAN: General Montgomery, we are deeply indebted to you for simplifying this complex problem for us this morning. You have given us a great deal of valuable information upon which we will build all the year through.

Thank you.

(20 December 1948--650) S/mmg.

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THE INFLUENCE OF ITEM CHARACTERISTICS IN REQUIREMENTS DETERMINATION

Kinds of Requirements Determinations	Characteristics		
	Physical	Usage	Productibility
1. Initial Issue			
2. Replacement			
3. Substitute			
4. Levels			
5. Reserves			
6. Projects and Class IV			
7. Other Agencies (Navy, Air, Foreign, Etc.)			

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