CURRENT MOBILIZATION PLANNING FOR ORDNANCE PRODUCTION

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Major General Elbert Louis Ford, USA, was born in Milford, Connecticut, 2 December 1892. He was graduated from the United States Military Academy and commissioned a first lieutenant of Coast Artillery, 20 April 1917. On 1 July 1920, he was transferred to the Ordnance Department. He received temporary promotion to the grade of brigadier general on 2 June 1943 and permanent promotion to that grade 24 January 1948. General Ford is a graduate of the Ordnance School, the Army Industrial College, and the Command and General Staff School. He has been an instructor at Yale University and the Ordnance School. Soon after our entry into World War II, General Ford was sent to London as chief of the Maintenance Division for Ordnance in the European Theater. In 1942, he was made chief Ordnance Officer, Allied Force Headquarters. He served as Chief of Staff, NATOUSA, from February 1943 to April 1944, and was then assigned to the Office, Chief of Ordnance as chief of the Maintenance Division, Field Services. In 1946, General Ford was assigned to the European Theater as Theater Ordnance Officer. In 1948, he assumed command of Aberdeen Proving Ground. On 1 November 1949, General Ford was sworn in as Chief of Ordnance, which position he currently occupies. Among the medals awarded to General Ford are the Legion of Merit with Oak Leaf Cluster, the Distinguished Service Medal, and the Belgian Order of Leopold II.

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GENERAL HOLMAN: Gentlemen, Ordnance expenditures for weapons and ammunition increased from 50 million dollars in 1939 to over 30 billion dollars in 1942. That is big business by any standard of comparison.

Such an expansion requires the maximum in careful planning and expert management. It requires close coordination and a sound organization.

Needless to say, many valuable lessons were learned by the Ordnance Department through its wartime experiences. These lessons are being applied daily by Ordnance in carrying out its current and mobilization planning responsibilities.

We are honored this morning in having as our guest speaker Major General E. L. Ford, the Army's Chief of Ordnance. You first met him last October when we went to Aberdeen Proving Ground, at which time he was the Commanding General of the proving ground. General Ford's war service included important assignments in North Africa, in Europe, and here in Washington. He was appointed Chief of Ordnance 1 November 1949. He is a graduate of the Army Industrial College, Class of 1932.

General Ford, it is a great pleasure to have you with us this morning and to have the opportunity of hearing you discuss "Current Mobilization Planning for Ordnance Production."

GENERAL FORD: Admiral Sabin, General Holman, and members of the Industrial College. I welcome the opportunity to come here to talk about industrial mobilization and what we are doing about it. I don't know of any subject that is more important to us right now than industrial mobilization and the things that we must do in time of peace if we are going to get ordnance materiel as well as other materiel in the event we get into another war.

Out of World War I there came an appreciation of the need for industrial mobilization and procurement planning, so that in the event of any future war, industry could get into the production of ordnance items in a much shorter time than ever before. World War II demonstrated the benefits of preparedness planning and emphasized the value of close teamwork between industry and the Ordnance Department. It is our continuing aim today, in industrial mobilization planning, to increase and strengthen the mutual understanding of industry and Ordnance concerning the huge production job which may confront us again some day. To achieve this aim, we endeavor to (a) maintain a strong, well-informed

organization and (b) conduct a planned program of industry preparedness with maximum participation by industry.

Chart 1, page 15.--The Ordnance Department, as you probably may know, is responsible for providing and servicing ordnance materiel required for the Army and, as assigned, for the Navy and the Air Force. Broadly speaking, ordnance materiel consists of small arms and automatic weapons; artillery, including mortars; fire control equipment, ammunition, and explosives; bombs and mines; transport and combat vehicles; rockets and guided missiles; mobile repair shops; army light aircraft and related parts, accessories, materials, and equipment.

The Washington office of our organization includes (a) three staff offices, namely, Legal, Inspection, Comptroller, and (b) four staff divisions, namely, Research and Development, Industrial, Field Service, and Personnel and Training.

The keynote of Ordnance organization is greatest possible decentralization. We believe in delegating responsibility and authority to commanding officers in field establishments. As a result, most of the real work of the Ordnance Department today is done in field establishments. To illustrate this: Only 1.6 percent of the total ZI Ordnance, military and civilian personnel, are in Washington; 98.4 percent are located in various ZI Ordnance field establishments. These include:

1. Two fully active proving grounds--White Sands and Aberdeen--engaged primarily in research and development testing.

2. Office of the Field Director of Ammunition Plants and 31 stand-by plants.--The majority of these plants have the mission of producing chemicals and explosives and of loading all components of ammunition and bombs. Also included are two stand-by proving grounds, Jefferson and Erie. (Jefferson is partly active.) Two plants are equipped to produce small arms ammunition and one plant can produce centrifugally cast gun tubes (up to 105 mm.) and finish-machined heavy cannon. These plants were World War II producers which have been retained under military control. They have little or no civilian counterpart. For administrative purposes during peacetime, three plants are under the jurisdication of district offices. The other plants are under the jurisdiction of the Office of the Field Director of Ammunition Plants as Joliet Arsenal.

3. Eight manufacturing arsenals--Springfield Armory, Frankford, Rock Island, Picatinny, Detroit, Watertown, Watervliet, and Redstone.--These arsenals have technical responsibility for assigned groups of items. They can produce small quantities of certain critical items not readily obtainable from private industry. They also serve as model or pilot production plants. The production facilities of the majority of these establishments are anywhere from 50 percent to 90 percent in stand-by condition at the present time.

4. Fourteen district offices.--Each office is assigned a geographical area of the Nation. Each office is responsible for procurement planning of ordnance materiel and for maintaining contacts with private industry within its assigned area. In wartime, these offices procure the major portion of ordnance materiel obtained from private industry.

5. Thirty-two depots.--These establishments are responsible for receipt, storage, issue, maintenance and surveillance of all ordnance supplies. In the ZI as of 1 January 1950, there were on hand 3.8 million tons of general supplies and 7.3 million tons of ammunition supplies, with a total valuation of 12.6 billion dollars.

In addition to the services of officers and civilian personnel of the Ordnance Department, we are obtaining valuable information and assistance from manufacturers and industrialists through the organization now known as the American Ordnance Association. The great work being carried on by the association is well demonstrated by the contribution made by the technical committees of the technical division. These committees consist of groups of specialists in certain fields of industrial activity. They provide a vehicle by means of which our Ordnance engineers and Ordnance designers are kept informed of improved and up-to-date manufacturing processes, manufacturing techniques, and developments in industry applicable to ordnance materiel.

It has been said many times before and I shall continue to reiterate--private industry again must be relied upon to produce the bulk of munitions in another emergency. It is one of the more important premises upon which the industrial mobilization planning program of the Ordnance Department is based. Our arsenals and stand-by plants are equipped to produce only a minor portion of the total ordnance materiel needed in an emergency.

As you know, there is no privately owned munitions industry in our country, except possibly for certain sporting types of weapons and ammunition. The utilization of privately owned plants for the production of ordnance items usually requires conversion and retooling.

In some cases considerable delays would result in getting production of ordnance items started. Therefore, the primary objective of industrial mobilization planning is to find ways and means for getting volume production of munitions from private industry with the least delay. To attain this objective, we are conducting a planned program of industry preparedness in which industry is being encouraged to participate to the maximum extent. This program includes, first, mobilization procurement planning, and, second, industry preparedness measures.

In mobilization procurement planning we tell a manufacturer, through our district office system, what items we want him to produce, how many

we need of each, and when they are needed. If the manufacturer agrees that he can and will produce the items for us, we proceed to obtain a firm allocation of capacity from the Munitions Board. Our mobilization procurement planning is being done under procedures prescribed in Munitions Board Annex 47. (The new title for this is Munitions Board Production Allocation Manual, No. 90-1.)

Chart 2, page 16.--Mobilization procurement planning is being done for those items which it is expected will give us production troubles in an emergency. We have segregated these items into three groups in order that planning for them may be done on a priority basis. These groups are:

1. Items of primary importance.

2. Items of secondary importance.

3. Other items.

"Items of primary importance" include 231 major items and major combinations which are essential to combat, difficult to manufacture, and require a long production lead time. The 231 end items in this group, when broken down for planning, actually number about 700 procurement items. Capacity in about 1,000 plants of prime contractors will be needed to produce these items. Planning for this group began in fiscal year 1948 and will be completed during the fiscal year 1951--that is, completed but subject to continued revision as requirements, items, and over-all plans change.

"Items of secondary importance" include major items, not in the first group, as well as items such as accessories, tools, and equipment. The total number of procurement items in this group is about 350. Capacity in about 500 plants of prime contractors will be needed. Planning was initiated for this group in fiscal year 1950 and will be well along by the end of fiscal year 1951.

We expect to do some planning for "other items," such as replenishment components, which will be needed in sizable quantities and which may give us some trouble in production. This group may number more than 1,000 procurement items. We expect to get under way on planning for this group in fiscal year 1951.

The "Combat Vehicle Area Plan" is an example of the planning being done for a particular family of items.

Chart 3, page 17.--For the purpose of conducting industrial mobilization planning for production of tanks and allied combat vehicles, Detroit Arsenal has divided the Nation into five general areas corresponding to the dispersion of heavy industry. These areas are:

1. Eastern Seaboard, comprising New England and the Middle Atlantic States.

2. The Rochester, New York; Huntington, West Virginia; Detroit triangle.

3. The Chicago, St. Louis, Cincinnati triangle.

4. The deep South, extending generally from Atlanta to Houston, and north to include Nashville and Memphis.

5. The Pacific Coast, from Los Angeles to Seattle.

Each area is to be self-sufficient, insofar as possible, in the production of combat vehicles. For example, an area will have at least one primary manufacturer; sources for components will be developed locally within the area, so far as pssible. Seventeen primary manufacturers have been selected tentatively. The planning is being conducted through the district offices and in compliance with Munitions Board Annex 47 procedures.

One of the Nation's leading industrialists, who had considerable experience in World War I, continually stressed the importance of developing, designing and production engineering ordnance equipment so that it could be produced in quantity in time of war. This man was Colonel Frank A. Scott, once head of the General Munitions Board, and, for a time, the War Industries Board of World War I. He particularly pointed out a matter, which is just as important today as it was then; namely, that we must never base our plans for the procurement of ordnance on items which have been manufactured only in the laboratories. He advised most strongly that we have a program of educational orders. The idea behind these educational orders was twofold: First, the actual production of certain specific items was a real education to industry; and, second, all the machine tools and manufacturing aids acquired under the contracts were to remain government property, ready to be put to use on M-day. This idea is essentially in effect today.

The present policy of industrial planning of the Ordnance Department is to contract with industry for detailed data, plans and preparedness measures for the mass production of end items considered essential to mobilization. This program consists of three parts, namely, Phase I--exploratory studies; Phase II--production preparation measures; and Phase III--limited production orders (educational).

In Phase I, exploratory study contracts are placed with selected manufacturers to obtain their recommendations concerning specific preparedness measures which will contribute most effectively and rapidly to an acceleration of production.

Phase II measures are contract placed with qualified manufacturers for the purpose of implementing selected preparedness measures, including those recommended by industry under exploratory study contracts. These contracts cover planning and preparation short of quantity manufacture of the product such as:

1. Engineering for high production.

2. Production planning.

3. Resources planning (facilities, equipment, materials, and manpower).

4. Tooling and tool design and manufacture.

5. Management planning.

6. Planning for subcontracting.

In Phase III of our planning, namely, limited production orders (educational), contracts involving actual production of the product may be placed with selected manufacturers. This type of industry preparedness measure resembles very much the pre-World War II educational order.

During the period beginning in June 1947 and ending in June 1950, we expect to have placed 99 Phase I contracts, amounting to $1,123,000 and 56 Phase II contracts totaling $24,350,000. The first Phase III (educational order type) contracts are planned for the fiscal year 1951.

An example of one of the Phase I studies completed to date is the one for the reactivation of Lake City Arsenal for production of small arms ammunition. Remington Arms Company--operated Lake City during the war--made the study. Remington offered three plans for consideration.

The first plan was based on the assumption that no preparedness measures or preliminary action would be taken prior to M-day. Under this plan, Remington found it would take 36 weeks to get into full-scale production.

Under the second plan, it was assumed that the following preparedness steps would be taken, (1) partially rehabilitate the plant prior to M-day, (2) provide a stock of raw materials and supplies sufficient to maintain the plant in production until a sustaining delivery of these items is established after M-day, and (3) putting into shape, ready for operation, a pilot line in each of four manufacturing buildings capable of producing 50,000 cartridges per day. This plan would cost $300,000, exclusive of cost of raw materials, supplies, and spare parts and would save 10 weeks.

The third plan assumed that, prior to M-day, the entire plant will be rehabilitated for full-scale production, that the plant will be in production on M-day at a rate of 50,000 cartridges per day and that, after M-day, production would be increased as rapidly as possible to target production quantities. It was estimated that the third plan would save about 22 weeks over the first (or no preparedness) plan. It would cost 5 million dollars initially, together with a continuing annual cost of 4 million dollars. This would involve continuous operation of the arsenal at the pilot rate of 50,000 rounds per day in each of the four manufacturing buildings.

The establishment of an Army-Navy Steel cartridge case facility is another important preparedness measure in which we are participating. This project is unique in that it is a joint effort involving the Navy Bureau of Ordnance and the Army Ordnance Department. It is a very good example of unified effort.

This project is for the purpose of equipping a government-owned facility to manufacture steel cartridge cases in sizes up to and including 120 mm. and 6 inch. No commercial counterpart exists for the manufacture of the steel cases which this facility is planned to produce. The facility chosen is the Navy Ordnance Plant located at Louisville, Kentucky.

The reason for wanting to make large-size cartridge cases out of steel instead of brass is twofold, namely: First, it is certain that cartridge case brass will be in such short supply in another emergency that fabrication from steel will be absolutely necessary; second, brass has certain strength limitations when used in larger-size cartridge cases and in application involving high pressures.

Efforts have been made for some time to find satisfactory ways and means to produce cartridge cases from steel. The steel cartridge cases manufactured in World War II were inferior, as a general rule--with the possible exception of the three-inch and 40 mm. sizes.

The technology of steel cartridge case manufacture is highly involved and difficult, compared with fabrication from brass. Under the joint Army-Navy project, the methods and processes of all manufacturers who have had experience in steel cartridge case production are being studied. It is thought that by getting all the best know-how together and incorporating it in one facility, satisfactory steel cartridge cases of even the larger sizes can be produced. Latest findings show we can make 90 mm. cases and that there would be no special problems involved in the 105 mm. cases. Studies are being continued for sizes up to 120 mm. and 6 inch.

The facility is to be equipped with tools and tooling designed for the job. The manufacture of large-sized, steel cartridge cases

requires heavy, long-stroke presses. These presses are not now available in the quantities needed in an emergency. Shortages also exist in the related hydraulic systems and attachments.

The facility, after establishment, will be placed in stand-by. It is estimated that existence of this facility on M-day will gain approximately nine months of invaluable time in the production of steel cartridge cases in an emergency.

The industry preparedness measures which I have discussed so far are those which will be performed for the most part under contract with private industry. There is another group of preparedness measures which are performed at arsenals. These are:

1. Preparation, revision and distribution of drawings and technical data.

2. Improvement of manufacturing processes.

3. Improvement of inspection methods.

4. Establishment of pilot lines for trial production of small quantities of items.

5. Design, procurement, inspection, storage, maintenance and issue of ordnance inspection gauges.

We are also maintaining in storage over 24,000 items of machine tools and production equipment--much of which was accumulated under the JANMAT program.

In conclusion, I'd like to show by means of these charts how all these activities fit into our over-all funding program and how we are spending the Ordnance planning dollar today.

Chart 4, page 19.--Our funding programs consist of four categories, namely:

1. Category I--Reserve Plants.

2. Category II--Machine Tools and Production Equipment.

3. Category III--Industry Preparedness Measures.

4. Category IV--Planning within the Department of Defense.

During the fiscal year 1950, 25 percent of our planning dollar is for Category I, namely, the maintenance of our stand-by plants and

stand-by portions of arsenals. A very small amount of this category is spent for inspection of 43 ordnance production facilities in the National Industrial Plant Reserve.

Seven percent of our planning dollar is for Category II, which includes the maintenance in storage of 24,000 reserve machine tools and for activities connected with ordnance inspection gauges.

Sixty-four percent of our planning dollar is going for Category III--Industry Preparedness Measures, including Phases I, II, and III contracts with industry, for other preparedness work at arsenals connected with drawings and specifications, improvement of manufacturing processes and inspection methods, and for establishment of pilot lines.

Four percent of our planning dollar goes for planning within the arsenals, district offices, and stand-by plants. Included in Category IV is the maintenance of shop-apprentice schools at 13 establishments.

Chart 5, page 20.--This chart will give you an idea of the trends in Ordnance industrial mobilization planning funds from fiscal year 1947 through fiscal year 1951. This chart shows funds appropriated, budget estimates now before Congress, and the funds for the tank program.

In fiscal year 1947 we spent 22.8 million dollars for activities related to mobilization planning. This is an estimated figure since the funds were actually included in a number of various accounts. In fiscal year 1948 we had our first separate and distinct funding program for industrial mobilization planning. It amounted to 15.1 million dollars. In fiscal year 1949 it increased to 23.7 million, and this year to 46.9 million dollars. Much of this increase is attributable to the tank program as shown on the chart. We have asked for 45.8 million dollars for fiscal year 1951. Only a slight increase over fiscal year 1951 in the funds required for fiscal year 1952 is expected at this time.

QUESTION: We had quite a problem during the war with our powder frequently coming in too small lots and having great variations between lots. Does our industrial mobilization planning give relief from that condition?

GENERAL FORD: Well, I have a powder expert here. Colonel Davis.

COLONEL DAVIS: I think that the whole trend of our ammunition people is to be able to make bigger and bigger lots. We have some other powder problems that are so much worse than that one right now. We have some problems of materials for the powder manufacturer that give us more concern than we have ever had before in the powder business. Do you want me to go into that?

GENERAL FORD: You might as well go into it. Do you want it off the record?

COLONEL DAVIS: It can be on the record; everybody knows about it now anyway. I think it is a good subject for this group.

We started years ago with flashless powder. We started 30 years ago in two very different ways to make powders that were flashless. One was to burn the incandescent particles up before they got outside the muzzle of the gun; the other was to keep the powder cool so that those particles never became incandescent. The first type of powder prevailed for many years and the cooled type of powder was not used much. We played with them for many years, the Navy and the Army, but flashless powder has become a very different thing today.

Flashlessness was important to us many years ago. It is less so now. So far as detection of batteries is concerned, it is of little importance to us any more. If we have a technically equipped enemy, he can pick us up by this so-called invisible light. It doesn't help not to have flash. We like to get rid of flash sometimes on Navy vessels because it blinds the fire-control people. It is important in our tanks to be able to avoid flash, but we can get the flashlessness in a much easier way than the way I am going to tell you about.

We have another need for another kind of flashless powder. Nitroguanidine is a peculiar explosive, a freak among explosives, in that it is the coolest high explosive known. Guanidine itself is a urea-like substance which so far in production has been made only from calcium cyanamide which was the original major product of the American Cyanamide Company. Today nitroguanidine is important to us in making a powder that still has the power of other powders, but it is so cool that it is not only flashless but it doesn't erode the gun, and this is the day of the automatic weapon. Our antiaircraft guns are getting more and more like machine guns.

The Navy's experience with the 3"/50 and the other 3-inch automatic guns is that with the nitroguanidine powder the gun tube lasts three times as long. We can make guns cheaper than we once did. The problem is entirely one of logistics, the supply of the guns, the time it takes to change tools, gearing up an industry with extra tools with weight they can ill afford to carry around. So we apparently must have nitroguanidine. But if we face the problem of expanding the production of calcium cyanamide, with all the horrible input of electric power that it takes, we are just sunk. We are not going to have it, that's all. So now we are in the struggle to find out how to make nitroguanidine from materials we can easily get. It is a problem that is giving both the Bureau of Ordnance and ourselves more concern now than any other connected with propellant powder; in fact, so much more that it is our big problem and it is a good industrial mobilization problem.

QUESTION: General, could you give us the latest thinking on any possible merging of the field forces with respect to the Departments of the Army, the Navy, and the Air Force? For instance, I think the Army has a total of 64 field offices or district offices, the Navy has numerous offices, and the Air Force has about seven. Is there any thinking on consolidating them, saving money on overhead, or any plans in that direction?

GENERAL FORD: I think there has been a lot of thinking on the problem, but I haven't known of anyone who came up with any outstanding advantage for consolidation. After all, we are each in a certain field of commodities for which we are responsible for their design, development, procurement, supply, and maintenance. For example, the Quartermaster is in the textile field and all the other field items which the Quartermaster supplies. So what would be gained, you might say, with the Quartermaster and Ordnance consolidated, so far as the procurement job is concerned in our particular commodity field or classification? The same is pretty generally true with the Air Force and the Bureau of Ordnance of the Navy Department.

You know there is such a thing as cross-service procurement which exists today. For instance, the Ordnance Department of the Army is responsible for the procurement of all trucks. We do the procuring and we supply to the Navy and the Marine Corps machine guns, small arms ammunition, and small arms, as well as trucks. You probably know what we provide for the Air Force--items in the form of bombs, ammunition, and aircraft armament. So with the working out of this cross-service procurement, there is not so much of an overlap of the job, as I see it, out in the field; therefore, I am not sure just what would be gained, what would be the advantage of trying to bring together a lot of organizations which are essentially operating under a rather distinct and fairly clear-cut mission.

QUESTION: In that connection, sir, probably one of the things we have been concerned with here is the scheduling of plant capacity, that sort of thing, and, of course, the ASPPO's came into existence. Would you say their creation has been successful or beneficial in coordinating the activities of these specialist procurement agencies, and do you think--it has been suggested--that they should or should not become active field representatives of the Munitions Board in the event of war?

GENERAL FORD: I am just going to give you my opinion on that and maybe Colonel Davis would care to expand on it. The organization that I mentioned, where we had the procurement headquarters and districts, functioned in World Wars I and II, and I am satisfied they did an outstanding job. I see nothing wrong with that organization. It is definitely true that men out in the field cannot do that job unless somebody gives them the means by which they can do it. In the event

of war, there are going to be some priorities--priorities of materials, of manpower, priorities on everything probably across the board. Some high-level agency will have to perform the high-level function because that is a high-level function; there is no question about it.

Now so far as the organization in the field is concerned, there has to be some scheme of things which is rational. You can't have every Tom, Dick, and Harry going into the same plant. You must have somebody who says, "This plant is particularly adapted for ordnance materiel." Therefore, the Ordnance Department should do the planning for the utilization of the capacity of that plant, and what have you, right across the board for the procuring agencies. That has to be coordinated and that is coordinated again essentially in the Munitions Board. Colonel Davis.

COLONEL DAVIS: There are two things in this scheme of using the ASPPO's and other field agencies of the procuring services for staffing Munitions Board offices early in the emergency: In the first place, they strip the services of the key, trained people just when they need them most. That is not even sensible so far as I am concerned.

There is another consideration a very broad one; that is, the Munitions Board is necessary for these broad policy determinations which General Ford has mentioned. In my opinion, the minute the Munitions Board gets out in the field offices and gets to mingling around with the working people, it begins to lose its usefulness.

Another factor which we must appreciate is that the technical services and the bureaus, the agencies of the three departments out in the field jobs, have already shown themselves in one war to be able to improvise and cooperate and to do it beautifully. I was chief of an Ordnance district in the early part of the war and, with the Air Force and Navy people in that same industrial center, when the War Production Board came out with certain dicta, we all followed them, but there were numerous things that we needed to keep out of one another's way, and we did it. That happened in so many industrial areas that I think it is the way to do the job. If we give people some initiative out in the field, they are going to get better jobs done than if everything is spelled out by a superagency that has all the wisdom. You just give the Army, the Navy, and the Air Force the procurement responsibility in the field; they will do it. So the fewer rules we have and the fewer field offices of the superagencies, the better for all of us.

QUESTION: In regard to the five self-contained tank producing areas, I should think that those primary contractors would have various preferences and practices developed relative to the suppliers of material, service parts, with whom they prefer to subcontract. Does it cause you any difficulty if that network of subcontracts and services does cross those boundaries, or are you able to keep those areas self-contained in that respect?

GENERAL FORD: Colonel Engler has worked on that type of program in some detail.

COLONEL ENGLER: These five geographical areas have been set up ideally on the basis that each area will be self-contained and within each area we will be able to get, not only the assembly of the completed vehicle, but the manufacture of all the components; in other words, we will get subcontractors and the sub-subcontractors within that area. The present planning is that the contractors themselves in these given geographical areas will look for and search for the subcontractors to manufacture the components going into the major assembly. Now they will be aided by two different agencies: first, the Detroit Arsenal which will have essential planning responsibility; second, they will be aided by the key engineering facility for that particular vehicle. In other words, the whole setup is based on having a commercial facility which is designated as a key engineering facility. That facility will have complete responsibility for all the drawings, all the release of drawings, all of the engineering. The other facilities which assemble that vehicle in the other localities will be satellites to that key facility. That will be ideal as we will be able to get the complete vehicle from the given area; we recognize that as we go along. We may find that we cannot get certain components, or certain parts, or certain materials from this area, in which case we may have to bring them in from--we hope--not farther than an adjacent area.

QUESTION: On a recent trip some of us heard a representative of industry state that during the last war practically anyone who had a shop could get a contract for producing shell cases. As a result, a large number of shells were put out that were of poor quality. He went on then to state that in the production of steel shell cases he believed the total production should be put in the hands of--I think it was--six producers. Could you give us your opinion on this idea of having just a few concerns put out one kind of equipment?

GENERAL FORD: When you say shell cases, do you mean the cartridge case or the projectile?

QUESTIONER: The cartridge case.

GENERAL FORD: Well, I am going to give you one answer, at least give you a thought; then, I will again ask Colonel Davis who has had so much experience, particularly during the war, to answer you more in detail. I think it was proved in the last war--I am sure it was proved in World War I--that we did not make full use of our industrial capacity in the great United States to produce munitions. There were areas--I don't have the facts--but I am satisfied there were areas where we did not get the production that was possible out of that particular area.

In general, this whole industrial structure of ours is a little more than a General Motors Corporation, a U. S. Steel Corporation, and a Chrysler Corporation, and so forth. That is not the industrial structure of the United States. The industrial structure of the United States is some large companies, but with thousands of supporting companies as well as thousands of companies that are producing a product of their own. So the industrial structure of the United States--as I see it, although you fellows probably know more about it than I do; you have studied it recently--is not a few or a large number of large facilities; it is little facilities all over the United States, and I say in any future war we had better be prepared to make use of the entire industrial capacity of this country. In doing that, we are going to upset the normal peacetime economy and the other part of the economy of the country that has to exist in time of war, if we can spread the load, so to speak.

Now, so far as the quality you get in the way of ordnance materiel, it depends on a lot of things. One of them is having good drawings and specifications; second, good gauges; third, some manufacturing know-how, technique, and so forth, all prepared in stand-by that can be put in the hands of a fellow and show him how it has been done and how it has been done successfully; then, having well-trained inspectors who know what they are doing--who don't throw a lot of stuff out because of some dimension that is of no importance, but who are able to pay attention to the important things and the vital things so far as the dimensions and specifications are concerned. It is a pretty tough job to get the great number of qualified ordnance inspectors you need in the event of war, but it is a job, something we have to pay some attention to, in time of peace in training these inspectors.

COLONEL DAVIS: The gentleman who asked the question about steel cartridge cases just voiced the official opinion of the Cartridge Case Committee of the American Ordnance Association. We had during World War II Army and Navy contractors for cartridge cases in the number of 98, I believe. Steel cartridge cases are going to be a very difficult item to fabricate. We can make better cartridge cases out of steel than we ever made out of brass in every caliber, but it is a difficult engineering, technical production problem. So the idea of the Cartridge Case Committee was that, instead of trying to educate 97 people, we had better cut it down to, at least, 20, or something like that, with the idea that we would take the larger stamping companies that had engineering organization, and perhaps they would be able to stand on their own feet. In other words, we were taking the cartridge cases out of the small business field. There are plenty of things that the small concerns, the small stamping facilities can produce without just getting themselves into trouble making steel cartridge cases.

CAPTAIN LOOMIS: Well, general, I see the time has run out on us. On behalf of the Commandant and the College, I thank you for a very fine lecture.

(19 July 1950--350)S

CHART NO. I

ORDNANCE MATERIEL

SMALL ARMS & AUTOMATIC WEAPONS, ARTILLERY, INCLUDING MORTARS, FIRE CONTROL EQUIPMENT, AMMUNITION & EXPLOSIVES, BOMBS & MINES TRANSPORT & COMBAT VEHICLES, ROCKETS & GUIDED MISSILES, MOBILE REPAIR SHOPS. ARMY LIGHT AIRCRAFT.

DISTRIBUTION OF PERSONNEL

WASHINGTON	1.6 %
ZI FIELD ESTAB.	98.4 %

ORDNANCE DEPARTMENT

PROVIDES AND SERVICES ORDNANCE MATERIEL REQUIRED FOR THE ARMY, AND, AS ASSIGNED FOR THE NAVY AND THE AIR FORCE.

STAFF OFFICES

- LEGAL
- INSPECTION
- COMPTROLLER

STAFF DIVISIONS

- RESEARCH & DEVELOPMENT
- INDUSTRIAL
- FIELD SERVICE
- PERSONNEL & TRAINING

FIELD INSTALLATIONS AND SERVICES

- PROVING GROUNDS
- FDAP (STANDBY PLANTS)
- ARSENALS
- DISTRICT OFFICES
- DEPOTS

CHART NO. 2

ORDNANCE DEPARTMENT
MOBILIZATION PROCUREMENT AND PRODUCTION PLANNING PROGRAM
UNDER MUNITIONS BOARD PRODUCTION ALLOCATION PROCEDURES

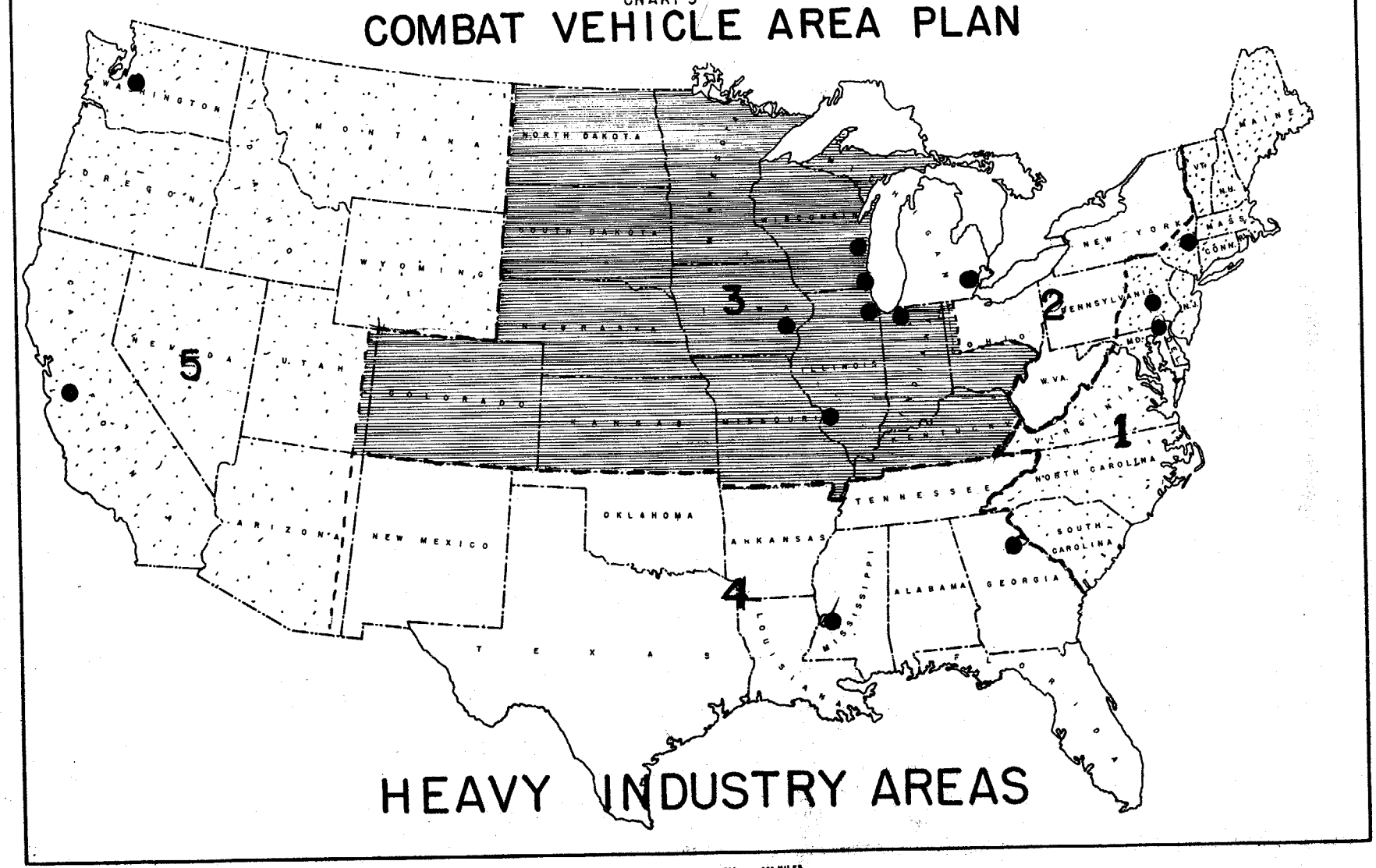
	PROC. ITEMS	PLANT	FY 1948	FY 1949	FY 1950	FY 1951	FY 1952	FY 1953	FY 1954
ITEMS OF PRIMARY IMPORTANCE(*)	700	1000							
ITEMS OF SECONDARY IMPORTANCE	350	500 (est)							
OTHER ITEMS	1000 (est.)								

CONTINUED REVISION OF FACILITY PLANS IN ACCORDANCE WITH CHANGES IN REQUIREMENTS, ITEMS AND THE OVER-ALL PLAN.

* THIS GROUP IS SUBSTANTIALLY THE EQUIVALANT OF MUNITIONS BOARD LISTS 1 AND 2 PRINCIPAL ITEMS FOR ACCELERATED PLANNING UNDER ANNEX 47

CHART 3

COMBAT VEHICLE AREA PLAN



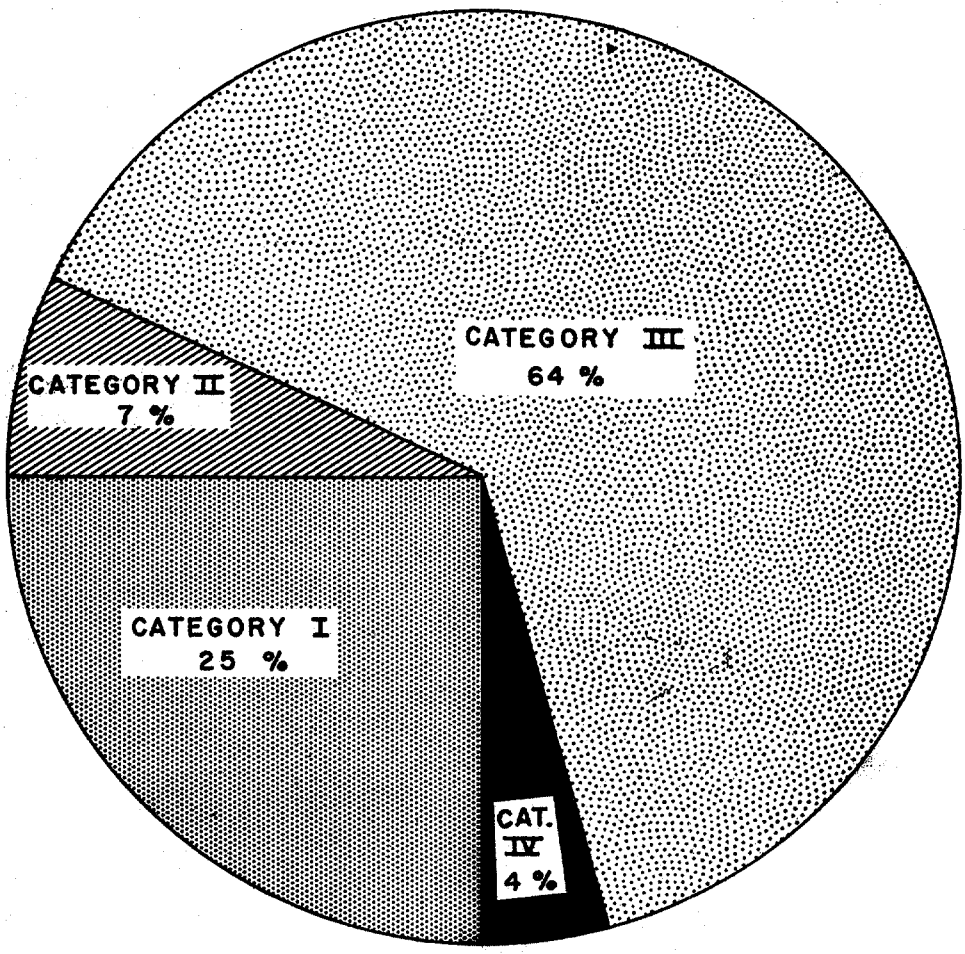
HEAVY INDUSTRY AREAS

0 100 200 300 400 MILES

22655

CHART NO. 4

FUNDING PROGRAM ORDNANCE FY 1950
(MAINTENANCE OF MOBILIZATION FACILITIES AND INDUSTRIAL MOBILIZATION PLANNING)



TOTAL PROGRAM — $ 46.9 MILLION

I – RESERVE PLANTS

II – MACHINE TOOLS & PROD. EQUIPMENT

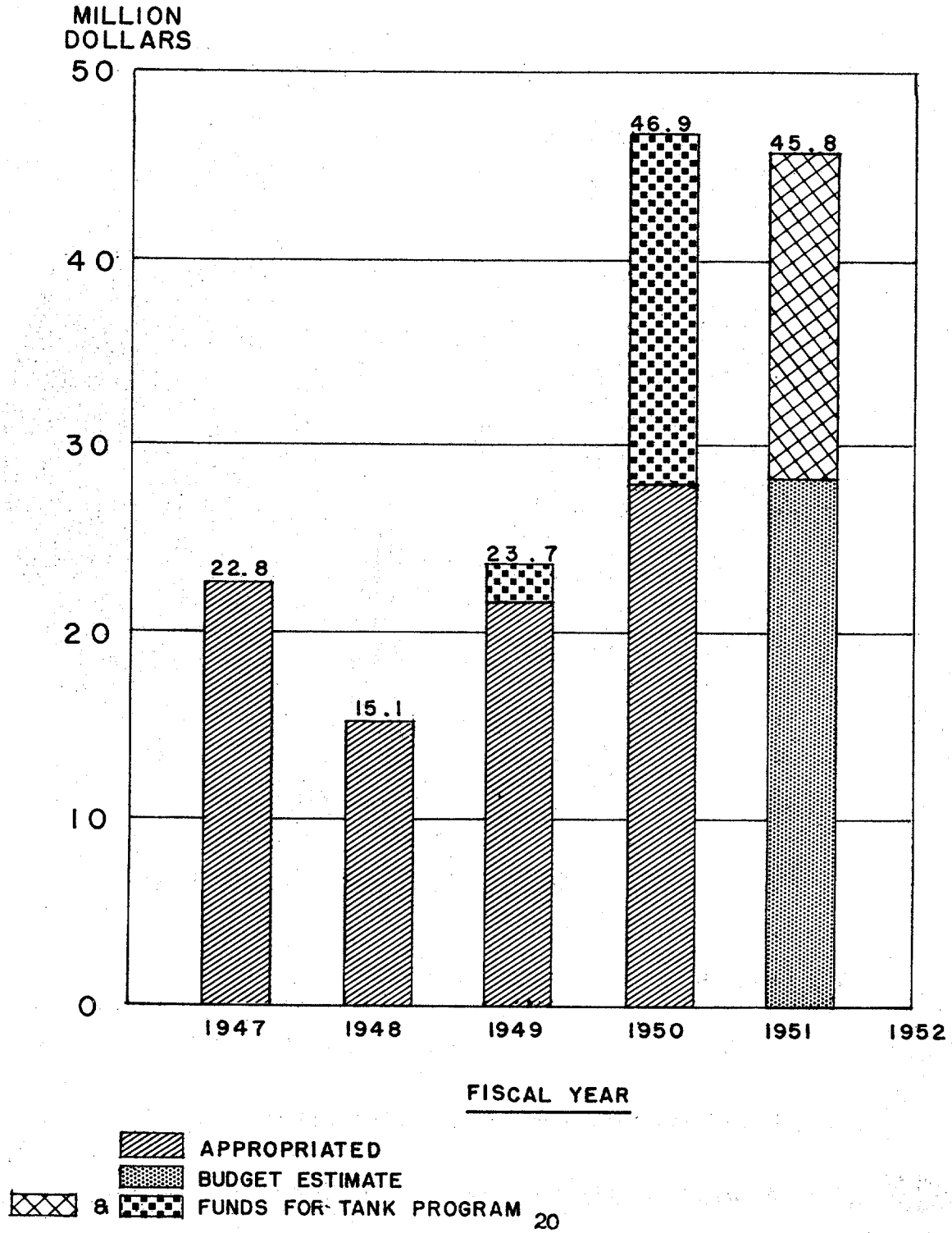
III – INDUSTRY PREPAREDNESS MEASURES

IV – PLANNING WITHIN THE DEPARTMENT OF DEFENSE

CHART NO. 5

ORDNANCE DEPARTMENT
ANNUAL FUNDING PROGRAMS

MAINTENANCE OF MOBILIZATION FACILITIES AND
INDUSTRIAL MOBILIZATION TRAINING



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