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INDUSTRIAL PREPAREDNESS

Christopher S. Maggio

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by

COLONEL CHRISTOPHER S. MAGGIO, USA

(How well, from an industrial point of view, have we done in the past to insure that our country was ready for war? What are some inadequacies in our present system of industrial preparedness? What can be done to improve our condition?)

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During this century the United States has gone through four periods of industrial mobilization, each followed by war production and then demobilization. Unfortunately, we have not applied the lessons learned from these experiences. In each period of industrial mobilization we paid heavily in terms of men, money and time for our failure to provide an adequate peacetime industrial base to serve as a springboard to wartime production.

When hostilities ceased in World War I there was a rapid disintegration of our industrial capacity to support our Armed Forces. Again, after World War II, the huge industrial base, that was built at great expense to support the United States and allied forces, was quickly dismantled. After each of these major worldwide conflicts, the general trend was to get out of war production as soon as possible. We acted as though we would never again have a need for the skills, equipment and factories that make up the military industrial base of a country. Our demobilization following World War II was so rapid and complete that scarcely more than five years later, when the United States found herself involved in the Korean War, a total of over $600 million was spent to re-establish our ammunition base.[1] Also, throughout the Army, $632 million was spent from 1951 to 1958 on new metal-working machinery,[2] and most of that was used to establish production lines to supply materiel for use in Korea.

Following the truce agreements at Panmunjom, the United States again demobilized her production base. This time it was done more slowly and less completely than after the previous two wars, nevertheless there was so much divestment that when the Vietnam War buildup began, over $350 million had to be spent to activate or augment that portion of our production base needed to produce ammunition.3 In addition to the $350 million, comparable sums were spent in reassembling the production base needed to produce the new equipment and weapon systems in support of Southeast Asia (SEA).

Colonel Christopher S. Maggio, Ordnance Corps, is a graduate of the College of Engineering, Rutgers University, and holds a Masters Degree in Business Administration from Syracuse University. He has had extensive experience on the Army General Staff and Secretariat, having served in industrial procurement and production assignments in the Office of the Chief of Ordnance, the Office of the Deputy Chief of Staff for Logistics, as well as on the staff of the Comptroller of the Army. From 1964-67 he was Chief of the Programs Division in the Office of the Assistant Secretary of the Anny (Installation and Logistics).

He also has held a number of Ordnance staff and command assignments in Europe, Korea, and Vietnam. On 15 July 1971 Colonel Maggio assumed command of Watervliet Arsenal and direction of a workforce of approximately 2,450 people, where he is responsible for the research and development, procurement and production for mortars, recoilless rifles, tank and field artillery cannon subsystems.

SOME CONSIDERATIONS FOR THE FUTURE

This essay will consider four major areas relating to industrial. preparedness. Since the requirements of the three military services all have to be met by the United States Industrial

Base, the four areas will be examined in the context of total Department of Defense needs. The areas are neither new nor do they constitute complete coverage of the industrial preparedness field. They were chosen because of their importance to effective industrial preparedness and because they provide reasonably complete coverage of the subject within the limited scope of this essay. The problems associated with each area have been studied in great detail in the past. Indeed, the Department of Defense (DOD) is at this time reassessing the overall DOD industrial mobilization program.[4] It is hoped that the results of their reassessment and final recommendations will be followed by implementing directives and regulations, coupled with adequate financial support. This will help to assure an industrial preparedness posture capable of activating a future production base that can sustain us through a war or limited emergency. Against this background the following areas will be discussed in turn:

1. Uniform planning factors for all three services, to include uniform criteria to determine the military forces that would be supported in the initial phases of a mobilization.

2. Criteria for selection of appropriate items and weapon systems to assure maximum industrial preparedness planning with a judicious and economical application of resources.

3. Stimulation of greater participation in industrial preparedness by private industry through incentives provided by leasing and sales agreements and the Armed Services Procurement Regulations (ASPRs).

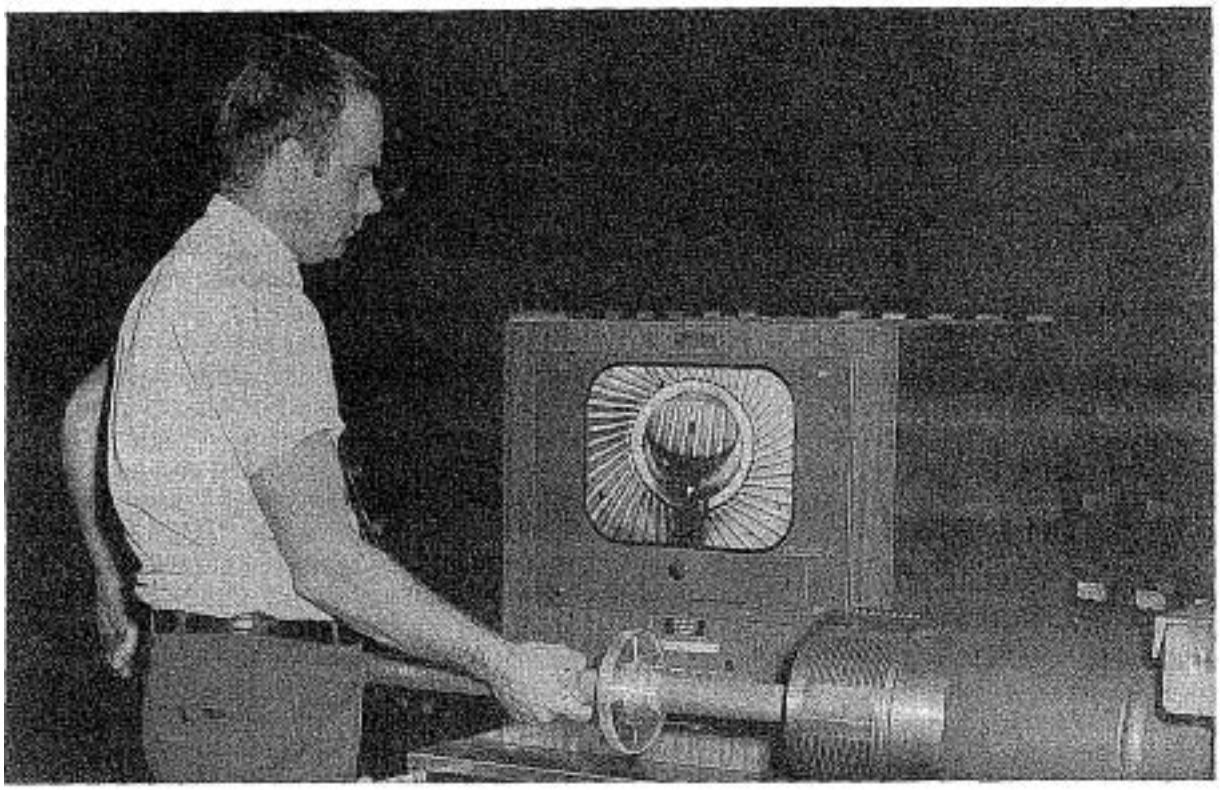
4. Modernization of the government portion of the industrial base to assure a systematic upgrading of the skills, manufacturing techniques, equipment, and plant facilities in our government-owned, government-operated (GOGO) arsenals; government-owned, contractor-operated (GOCO) plants and the layaway packages (ASODs) used to supplement both the government and privately-owned industrial base in time of war.

PLANNING FACTORS

Uniform planning factors for the three military services are essential if industrial preparedness is to be a realistic assessment of the production base and its ability to respond to military requirements. The size and composition of the military forces, otherwise termed the "force structure," constitute the chief planning factor for industrial preparedness, since the force structure forms the very basis for materiel requirements. While there exists in each of the three military services contingency plans to match various threat analyses and scenarios, the services are not uniform in their planned response. The Army has approached possible future mobilization in terms of authorized division force equivalents and approved deployment schedules as announced in planning and programing guidance to the services by the Secretary of Defense.[5] The Air Force and the Navy have viewed mobilization in terms of their contingency plans matched against a threat analysis that may or may not have been the same as the Army's, and not constrained by fiscal or logistical guidance.

In the past there has been an absence of clear and consistent policy regarding the force structure that should be used to form the basis for industrial mobilization planning. The establishment of such a force structure for all the military forces of the Department of Defense should be based on an integrated evaluation of the threat and be consistent throughout the services. The force structure in each of the services should set the framework upon which to base our industrial preparedness. Likewise, it should establish the stable mobilization production objectives necessary to support the national mission strategy for the ten-year mid-range time period (1973-1982).

The objective force levels prescribed in The Joint Strategic Objectives Plan would apply a degree of uniformity and facilitate the industrial mobilization planning of the three services.[6] The identification of production sources would then be possible, as would the probable elimination of major production



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Modern methods to inspect bore and rifling surfaces using closed circuit television.

bottlenecks. Production levels could be designed to insure that they would support the work being done by the military planner and would assure that support of the current strategy is possible. Industrial preparedness would be enhanced by:

a. Shortening the time required to obtain additional production capacity needed to support sustained combat in all theaters;

b. Providing a clear, easily identifiable force structure upon which to base mobilization planning both within the government and the private sectors;

c. Providing a defensible basis for retention of existing facilities up to the level considered necessary by military planners;

d. Providing stability in the industrial preparedness program by eliminating fluctuations in annual approved force levels that result from changes in available funds in the yearly budgets.

The foregoing are some thoughts on the subject of planning factors. They do not constitute complete coverage, but they do address the most vital aspects of this phase of preparedness. The next area to be considered is that of the selection of representative items and weapon systems for industrial preparedness planning which would provide a high assurance that the industrial base could be responsive to the total demands for military hardware in the event of an emergency.

CRITERIA FOR ITEMS SELECTION

The selection of items for which industria1 preparedness planning should be accomplished presents a difficult challenge. Under present DOD instructions considerable latitude in planning and coverage is permitted.[7] In some cases too many items are being planned for, resulting in lack of sufficient depth and a failure to go below the prime contractor structure. Likewise, the range of items being planned for does not

provide adequate coverage, and planning between the services has lacked compatibility and consistency.

The criteria for the selection of items should relate in a very direct and meaningful way to the objectives of the industrial preparedness program which are:

a. To reduce the lead time for delivery of the selected item;

b. To provide for more efficient and economical means of production;

c. To provide for increased capability to produce the selected items where production base shortages exist;

d. To assess the trade-off benefits between war reserve stock levels and cost of industrial preparedness measures that would permit retention of lower stock levels;

e. To maintain an adequate mobilization production base in peacetime.

The criteria should provide for selection of items which are essential to operational effectiveness under combat conditions (including training) or to the safety and survival of personnel. It is recognized that the number of items involved may exceed the limitations of our capabilities under peacetime funding constraints and therefore make it necessary to establish priorities for planning. Accordingly priorities are suggested as follows:

Priority 1. Applies when we just do not have the production base.

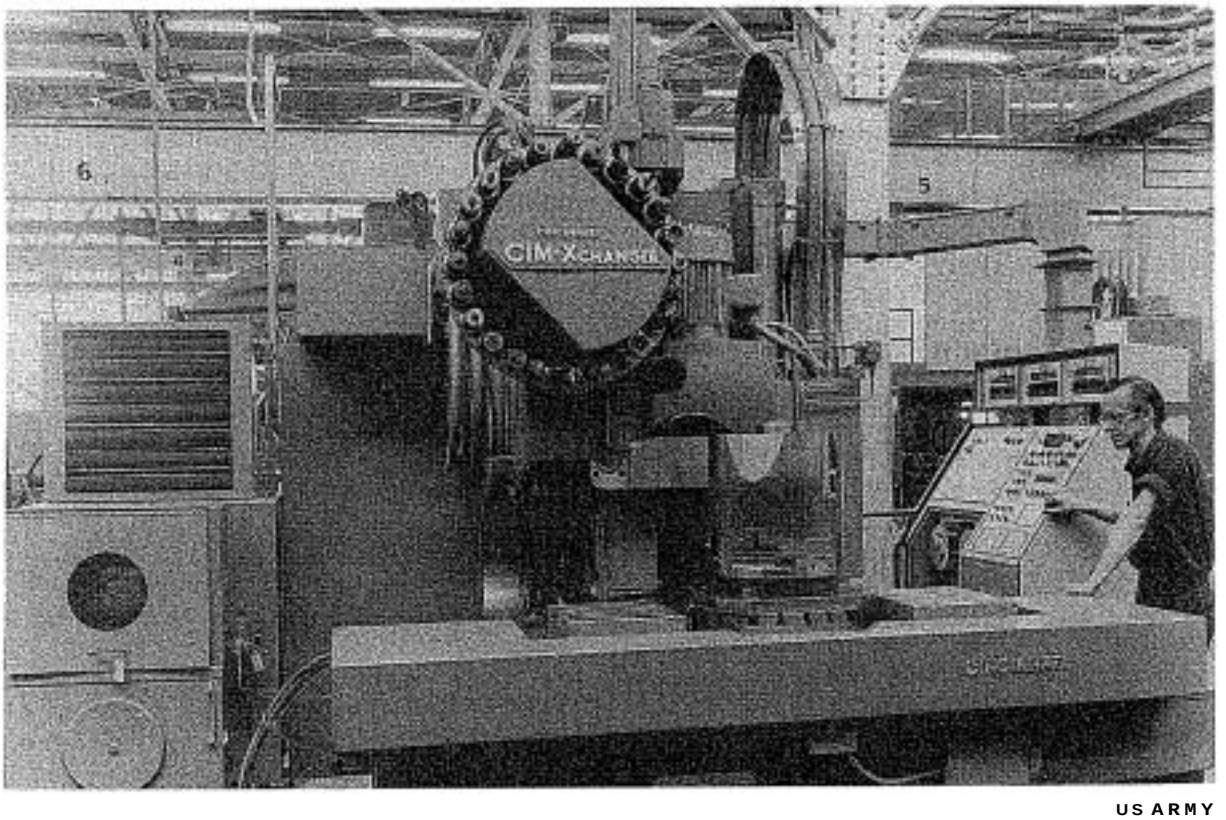
Priority 2. Applies when sufficient production capacity exists to meet monthly mobilization requirements of the peacetime operational forces but substantial savings in procurement of end item inventory could be achieved through trade-offs with:

a. Additional funds for facilities or tooling;

b. Modernization of facilities;

c. Stocking the components for assembling into the major item at time of need.

Priority 3. Applies when modification of



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One modern multiple axis tape controlled machining center with automatic 24 tool exchanger replaces many types of older vintage machines.

the existing production base is necessary to improve safety conditions, production quality, abatement of pollution, or to reduce personnel expenditure or manufacturing costs.

Utilization of the above criteria and priorities for selection of items and weapon systems will provide the means of controlling our efforts and will result in an efficient use of resources available in peacetime for industrial preparedness.

INCENTIVES FOR INDUSTRY PARTICIPATION

The present industrial mobilization policy of the Department of Defense is based on voluntary participation by industry; there is no provision in existing procurement regulations to compensate contractors for the time or money spent while participating in the program. Under present DOD regulations, contractors enter into an agreement with the government which is neither contractual nor binding on either party. These conditions tend to discourage effective mobilization planning and do not provide the high assurance we need that our industrial preparedness will be responsive in time of emergency.

An objective, then, in improving the program would be to establish incentives which will motivate the contractor to participate in the industrial preparedness program and to accomplish the planning in a meaningful and effective manner.

The incentives or advantages currently offered to those firms which participate in the DOD industrial mobilization production planning program are identified in DOD 4005.3M.[8]

These advantages can be summarized as follows:

– They afford the contractor an opportunity to compete for peacetime procurement on a "favored" basis;

– They obtain for him advance knowledge of military prime or subcontractors that can be anticipated in the event of an emergency;

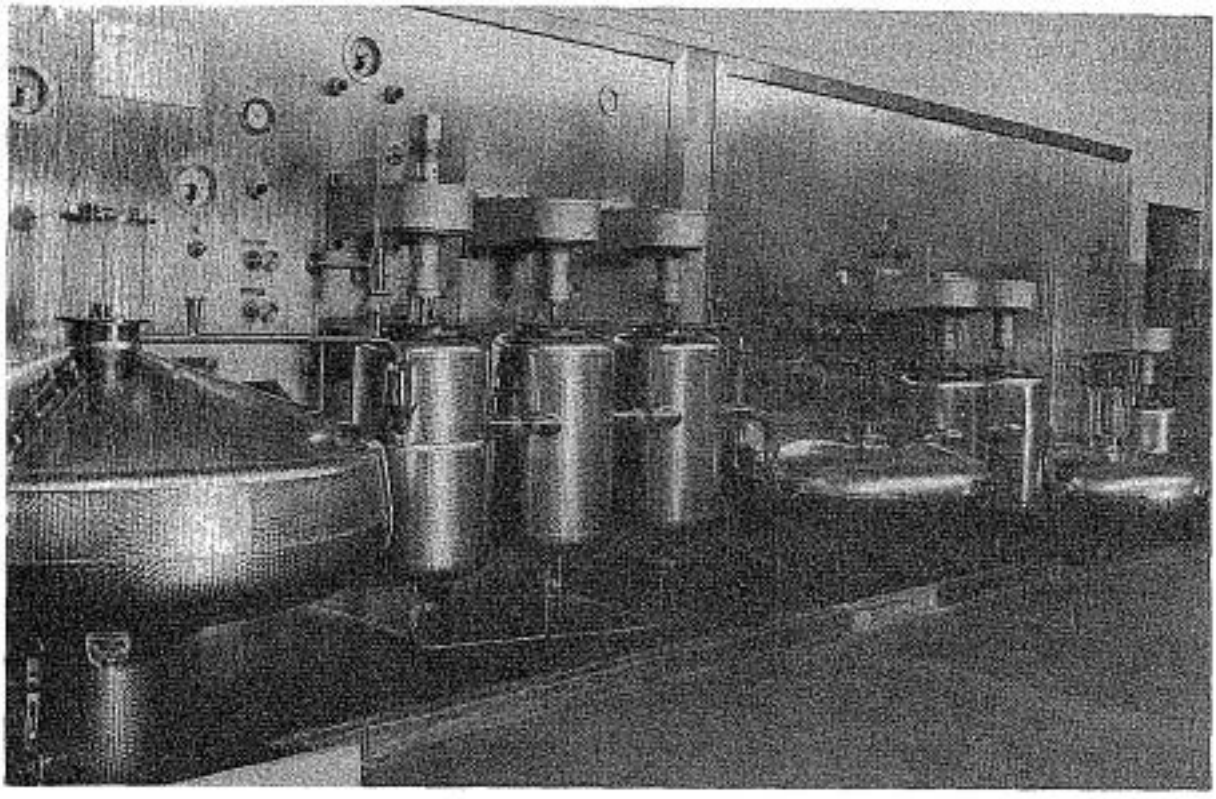
– They offer him an opportunity to have a continuing dialogue with government procurement officials.

Likewise, industry is provided timely information concerning new peacetime procurement needs; and conversion to military production can be accomplished with minimum delay in the event of an emergency due to advance knowledge of subcontractors' sources for major subassemblies and pacing components.

However, the fact of the matter is that when the buildup for Vietnam was started, the emphasis was on price competition. In other words, we looked for the lowest responsible bidder and whether or not a prospective contractor was in the mobilization base, it was not a determining factor in awarding the contract. Generally, awards were made to the lowest bidder. In some cases, delivery of the finished product took longer because the successful bidder was not in our mobilization base and therefore not familiar with the item being produced. Likewise, as already noted, planned producers under the present system are expected to volunteer the time of their personnel to the extent necessary to perform the required functions for mobilization planning. While the effort expended here is a recognized tax-deductible expense which recovers at least a share of the industry contribution, it does not offer the incentive that gets our best producers to participate in the program.

In view of this, it is felt that the following incentives for industry should be incorporated into the industrial preparedness program:

1. Procedures under which authority can be obtained for the leasing of government-owned property to planned emergency producers should be simplified.[9] The leasing concept is separate and apart from that offered by the Facilities Use Contract under ASPR 13-405 permitting incidental commercial use on a non-interference basis. The significant feature of the lease arrangement is that the lease may provide for the maintenance, protection, repair, or restoration of the property by the lessee as part or all of the consideration for the lease of such property. Thus the maintenance and availability of essential equipment under mobilization conditions could be assured. Likewise, labor skills associated with the



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Nitroglycerin, a basic ingredient in the manufacture of propellants and explosives, is now made much safer and more efficient using the modern continuous manufacturing line recently installed at the US Army Ammunition Plant located at Radford, Virginia.

operation of the facilities under lease would be retained with no cost to the government for maintaining the facilities during the time they are under lease. A natural adjunct to a procedure for leasing is a procedure for facilitating the sale of industrial property, which is the next incentive to be discussed.

2. The sale of excess industrial property to planned emergency producers should be possible under simplified procedures and regulations that would provide for authorization for sale by the Secretaries of the military departments.[10] The present regulations governing military sales of industrial property require that excess property must be sold on the open competitive market to the highest bidder.[11] A more practical arrangement from the standpoint of industrial preparedness could be realized if a planned emergency producer could buy the government's industrial property in his plant at a price negotiated between the producer and the government. The sale of the property would be subject to the National Security Clause of the National Industrial Reserve Act of 1948 which provides the legal authority for the government to recapture the use of the property or equipment for its use in the event of an emergency. Under a negotiated sale, the contractor would have the equipment he desires for his peacetime non-military production, while the government would be assured of the avaiiabilily of needed facilities and labor skills in time of emergency. It would appear that such an arrangement with its obvious advantages to both sides should be an accepted practice, but there is some Congressional opposition. Congressional objections stem primarily from the view that the government should get out of the facilities business, divest itself of holdings of industrial plant equipment, and avoid competing with machine tool builders in the sale of equipment.

3. A series of actions to improve our

interface between procurement policies and practices and the regulations governing industrial preparedness is proposed. In essence, the industrial preparedness program and the Department of Defense procurement policy must be regarded as inter-related matters, with the success of the former largely dependent on the appropriate application of the latter. While it is not within the scope of this essay to delineate specific changes to the Armed Services Procurement Regulations (ASPRs) to provide for this inter-relation, it is pointed out that changes must be made to the ASPRs if industrial preparedness is to remain viable during a period of peacetime production. Specifically:

a. Planned producers must be allowed extended commercial use of the government production equipment in their plants;

b. On a selective item basis, authorization should be given to negotiate contractual agreements with planned mobilization producers to include production planning and related data. This would compensate the contractor for his efforts, provide a legally binding instrument between the government and the contractor, and furnish the additional incentive to the contractor with the assurance that he would at least obtain initial production in the event of mobilization.

c. Multi-year contracts should be utilized selectively to maintain the mobilization base. This would provide a "warm" base during peacetime for selective items and long lead-time items, thus expediting the transition from peacetime to war production.

MODERNIZATION OF THE INDUSTRIAL BASE

The final area to be considered involves the modernization of the present industrial base. This base includes government-owned, government-operated (GOGO) arsenals; government-owned, contractor-operator (GOCO) plants; and packages of industrial plant equipment that are presently in layaway and stored in various locations throughout the country. These storage sites include those under supervision of the Department of Defense industrial plant equipment center, service storage sites, storage areas in GOGO and GOCO facilities, and also storage sites in contractor plants.

In order for us to maintain a responsive readiness posture in our industrial base we must systematically modernize our manufacturing methods and machine tools during peacetime to keep pace with the manufacturing state of the art. The Department of the Army currently has a modernization program underway which provides for replacement of obsolete and worn-out plant equipment and facilities in the ammunition production base. So far, over $500 million have been authorized for modernization of equipment and facilities to manufacture propellants, explosives, and small arms ammunition. Priorities for modernization have been determined on the basis of safety, pollution abatement, economical payback, and state of the art. This program will take care of our ammunition production base, but if we are to impart the same degree of responsiveness and modernization to the balance of the industrial base, a similar program should be undertaken to modernize the facilities for producing other items of military hardware.

Consistent with available financial resources a modernization program should be initiated to update the industrial plant equipment in our arsenals. The arsenal system provides the bridge from peacetime to wartime production and is the training ground for many segments of American industry in the early stages of a mobilization. As the gap is bridged from peacetime to wartime production, it is imperative that the US arsenals have modem facilities to manufacture peacetime requirements and lead the way in the pilot production at the outset of mobilization.

The US Army currently has six arsenals with mission responsibility for research, development, engineering, procurement and production for virtually all major items of Army hardware.[12] In addition to assuring a ready initial wartime capability, these Army arsenals provide peacetime production where American industry does not have the capability to make the items, or because the quantities are too small to make it

commercially worthwhile. To assure our industrial preparedness, a modest annual modernization program for these facilities is essential.

Finally, complementing the government portion of the industrial base is the private sector which is augmented in wartime by government-owned production equipment and facilities. The government equipment in this category, referred to as ASOD packages, should be subject to an annual review and a systematic annual program should be established to replace the oldest and most obsolete equipment. A recent review of the ASOD packages indicated that 56 percent of the active and 68 percent of the inactive equipment presently exceeds the useful service life.[13]

CONCLUSION

These, then, are the four areas associated with Industrial Preparedness that should be examined in depth. These four areas do not cover all aspects of the entire industrial mobilization base but they do constitute the most important areas which must be kept viable and receive continued Department of Defense support in the post-Vietnam War period. We should not make the same mistakes today that we made following World War I, World War II, and the Korean War.

The costs involved to accomplish the suggested actions are nominal. To plan Industrial Preparedness on a uniform basis for all three services should not require any additional funds. Moreover, an Industrial Preparedness Program based on a more realistic selection of weapon systems and items could result in actual savings through better use of our available personnel resources. Likewise, changes in the ASPRs and regulations governing lease and sale of industrial plant equipment can be made at no great cost. These changes will provide incentives to contractors to participate in Industrial Preparedness planning in a more meaningful way through valid contractual arrangements and use of otherwise idle government equipment, and may very likely prove more economical in the long run.

Finally, an adequately funded annual program for all three services is needed to keep our industrial base modern and abreast with the manufacturing state of the art. This is surely as important as replacing weapons as they become obsolete with advances in technology. Indeed, it is a small price to pay to propel us into the Number One position in Industrial Preparedness when we consider the implications of being Number Two.

NOTES

1. M. Raum, Colonel, USA, Chief, Industrial Facilities Branch. PEMA Execution Division, Deputy Chief of Staff for Logistics. Personal Interview, Wash. 8 July 1971.

2. National Production Equipment Conference, 22-24 July 1958, Rock Island Arsenal, Rock Island, III., address by W. A. Wollard, "Review and Analysis of Inventory, Distribution, Utilization, Inspection and Training.

3. *Ibid.*

4. Eli T. Reich, Vice Admiral, USN. Report by the Chairman, Subcommittee of the Industry Advisory Council to Consider the U.S. Industrial Mobilization Base, 11 June 1971.

5. U.S. Dept. of Defense, Office, Secretary of Defense, *Planning and Programming Guidance for the FY 73 and 77 Defense Program.* Melvin R. Laird, Wash., unpublished 21 April 1971.

6. Department of Defense Instruction No. 4005.2, Industrial Mobilization Production Planning Requirements. Par. IV, Pages 2-4 and Change 1 (Dtd 22 April 1968), 11 September 1967.

7. *Ibid.*

8. Department of Defense DOD 4005.3M Industrial Mobilization Production Planning Manual, Introduction, Pages IX-X. December 1968.

9. Military Lease Act of 1947 as codified in 10 USC 2667.

10. House Resolution 168, 92nd Congress, 1st Session, Amendment to Title 10. US Code written in Wash. 22 January 1971, Mr. Gubser, and Senate Bill 1469, 92nd Congress, 1st Session, Amendment to Chapter 137, Title 10, written by Proxmire, 1 April 1971.

11. Federal Property and Administrative Services Act of 1949, Title II, Section 203.

12. U.S. Army Deputy Chief of Staff for Logistics RCS-CSGLD-1959, Departmental Industrial Plant Reserve and National Industrial Plant Reserve (DIPR.NIPR), April 1971.

13. U.S. Army Production Equipment Agency, Volume II, Industrial Preparedness Program, Page 3, July 1971.