

## PREPARING U.S. INDUSTRY FOR PEACE

by Seymour Melman

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The industrial economy of the United States has not been prepared for peace. In 1969, 3.4 million Americans worked in industry on Pentagon orders, 1.1 million civilians were on the Pentagon payroll, and 3.4 million Americans served in the uniformed armed forces. Adding those whose livelihood is indirectly dependent on the 7.9 million Pentagon and military- industry employees, about 20% of the U.S. labor force of 77 million (excluding the armed forces) is economically dependent on the Department of Defense.

Until now, there has been little planning effort for converting from military to civilian work. In the military-serving factories, laboratories, and military bases, there has been no effort like the concerted 1944-45 program of conversion to civilian work.

Many thoughtful men have believed that, in a generally expanding economy, fiscal and monetary policies would suffice to facilitate a transfer of men and materiel from military to civilian tasks. In my judgement, it is unreasonable to expect that labor and other market mechanisms would facilitate a conversion process without substantial economic damage. This estimate is based upon:

the condition of concentration of military work in terms of industry,  
the institutional features that differentiate military from ordinary civilian work;  
and the consequences of long concentration of the nation's research and development capacities on military work.

In 1968, six industries had more than 25% of their labor force dependent on Pentagon orders:  
ordnance and accessories (76.8%);  
machine shop products (27.8%);

electronic components and accessories (38.6%);  
miscellaneous electrical machinery, equipment, and supplies (33.8%);  
aircraft and parts (72.4%);  
other transportation equipment (26.4%).

A few states account for more than half of military industry: Massachusetts, Connecticut, New York, New Jersey, Texas, California, and Washington. Finally, there is a concentration of certain occupations in military work. Defense workers made up 6.1% of the nation's employment in 1968, but here are the percentages of certain skilled occupations in military industry:

all engineers, 20%;  
aeronautical engineers, 59%;  
electrical engineers, 22%;  
mechanical and metallurgical engineers, 19%;  
craftsmen, 14%;  
skilled metalworkers, 10-25%,

The density of military work by industry, geography, and occupation means that localized rather than average national conditions determine capability for converting from military to civilian work.

Special features of military industry are also important. In these factories, cost-minimization is of secondary importance, and there is virtually no market test of the functional adequacy and price of key products. These conditions have produced a trained incapacity in much of military industry for serving a civilian economy. This affects general management, the design of products, production engineering, and the marketing function. Thus, designing for the Pentagon often means priority to esoteric requirements remote from civilian needs, and selling to the Pentagon has included diplomacy and negotiation that are remote from the marketing practices of civilian industry.

More than half of the nation's R & D budgets and manpower work for the military. The combined effect includes elaborate technology for military purposes and depleted technologies in many civilian industries. Polaris submarines are produced at an acceptable cost of \$12 per pound, while merchant ships must be produced

at less than \$1 per pound. Airplanes have been manufactured so that they cost more than their weight in gold, but these are inconceivable as design and manufacturing practices for commercial vehicles.

Electro-mechanical instruments about the size of an egg are constructed at \$15,000 per unit, and that is why the electronics industry of Japan, free of military priorities, designs and produces fine, low-cost electronics products for the world market. Military industry has lost the traditional American industrial capacity for offsetting high wages with high levels of productivity.

Firms that specialize in weapons work will have the greatest difficulty in attempting a conversion of facilities and organizations to civilian use. Military divisions of larger civilian firms will have the best chance for successful conversion because of the professional assistance they can get from parent enterprises.

Plans for occupational conversion are as important as the best efforts for conversion of industrial plants. While substantial "lead-time" is needed for planning enterprise conversion, individuals should be able, within one year, to train into substantially new occupations. As institutions, many of the firms and laboratories in military work are not readily convertible, but there is a fine chance for retraining individuals and regrouping them in new organizations that are civilian-oriented\* Occupational conversion requires imaginative support from the federal government in the form of a "bill of rights for military industry employees," to sustain men from military industry, laboratories, and bases for a year while they are training into new occupations. Such an investment would create important new productive assets for the whole nation.

The 600-odd major military bases within the United States and their one million employees need economic development planning, requiring, on the average, about one year of "lead-time."

The market and product potentials for the captives of military industry include the whole array of industries, services, and facilities that have been allowed to deteriorate during twenty-five years of military priority. The agenda for public and private investments ranges from city rebuilding, housing, water supplies, and medical facilities, to reconstruction of depleted industries like railroads, shipbuilding, and important parts of machinery production. If

the Indo-China war is ended, more than \$20 billion per year will be saved, and sensible recasting of U.S. military security policies — to exclude overkill buildups (ABM and MIRV) and Vietnam-type wars — can yield further annual Pentagon budget savings of as much as \$30 billion. These funds represent a vast new market potential, but will not be sufficient for an American reconstruction agenda that I judge to need not less than \$70 billion per year for at least a decade. Add to this a reasonable investment for economic development of 30 million Americans in poverty and the annual new productive outlays for the nation would exceed \$100 billion. Thus, conversion of part of military industry and manpower to use \$50 billion of potential Pentagon budget savings would start the nation on the road to civilian priority use of public-responsibility money, in a perspective that includes a shortage especially of skilled labor for the rest of the century.

In order to encourage both private and public planning for industrial and occupational conversion to civilian economy, I have edited a series of technical studies on these problems, prepared mainly by engineers at Columbia and Hofstra Universities. These volumes, now available from Frederick Praeger Publishers, include the following:

The Conversion of Military-Oriented Research and Development to Civilian Uses,  
Marvin Berkowitz?

Conversion of Nuclear Facilities from Military  
to Civilian Uses (A Case Study in Hanford, Washington),  
Aris P. Christodoulou;

The Defense Economy (Conversion of Industries and Occupations to Civilian Needs), edited  
by Seymour Melman;

The Conversion of Shipbuilding from Military to Civilian Markets, Daniel M. Mack-Forlist  
and Arthur Newman;

Potential Civilian Markets for the Military-Electronics Industry (Strategies for Conversion),  
edited By John E. Ullmann;

Local Economic Development After Military Base Closures, John E. Lynch.